Appendix 3.9

Biological Resources Assessments and Bird Safe Design

H. T. HARVEY & ASSOCIATES
Ecological Consultants
50 years of field notes, exploration, and excellence

Willow Village Master Plan
Biological Resources Report

Project #3375-17

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Section 1. Introduction

This report describes the biological resources present in and adjacent to the area of Meta Platforms, Inc.'s (Meta) proposed Willow Village Master Plan project (project), as well as the potential impacts of the proposed project and measures necessary to reduce impacts to less-than-significant levels under the California Environmental Quality Act (CEQA). This report was prepared to facilitate CEQA review of the Willow Village Master Plan by the City of Menlo Park. In addition, this report contains the information needed to satisfy Mitigation Measure BIO-1 from the ConnectMenlo General Plan Environmental Impact Report (EIR) (Placeworks 2016), which requires preparation of a biological resources assessment containing information specified in that mitigation measure.

1.1 Project Description

The proposed project entails the redevelopment of the former Menlo Science and Technology Park, as well as an adjacent area west of Willow Road, to create a contemporary mixed-use district including housing, community-serving retail, new public parks and landscaped areas, and a new campus district to provide additional workspace for Meta. The approximately 64.0-acre project site (inclusive of the "main project site" east of Willow Road and "Hamilton Avenue Parcels North and South" west of Willow Road) is located within Menlo Park's Bayfront Area and is bounded by Willow Road and commercial development to the west, the Dumbarton Rail Corridor to the north, the Hetch Hetchy right-of-way corridor and Mid-Peninsula High School to the south, and an existing life science complex to the east (Figure 1). To the west are existing commercial and multi-family uses and Menlo Park's Belle Haven neighborhood.

The main project site is currently occupied by 20 office, industrial, and warehouse buildings that compose approximately 1,000,000 square feet (ft^2) of improvements, as well as surface parking (Figure 2). The Hamilton Avenue Parcels North and South portion of the project site is occupied primarily by restaurants and a gas station. Following the approval of the 2014-2016 update of the Land Use and Circulation Elements of the City of Menlo Park General Plan, identified as ConnectMenlo (City of Menlo Park 2016), Meta undertook an extensive planning effort for the Willow Village Master Plan. The project has been carefully designed to conform to the updated zoning requirements, including the provision for "master planned projects" which allows for a single project or phased development project on sites that exceed 15 acres in size and contain different zoning designations to aggregate density and uses across the entire project site. In addition, the project would aim to comply with all other development standards in the office and residential mixed-use zoning districts, including parking, setbacks, open space, paseos, building design (including bird-friendly design), green and sustainable building, and heritage trees.

Willow Village proposes to replace more than 1,000,000 ft^2 of existing industrial, office, and warehouse space in the Menlo Science and Technology Park with a new, mixed-used village that includes up to 1,735 residential units, 200,000 ft^2 of retail uses, a hotel with up to 193 rooms and accessory uses, 1,250,000 ft^2 of office uses,

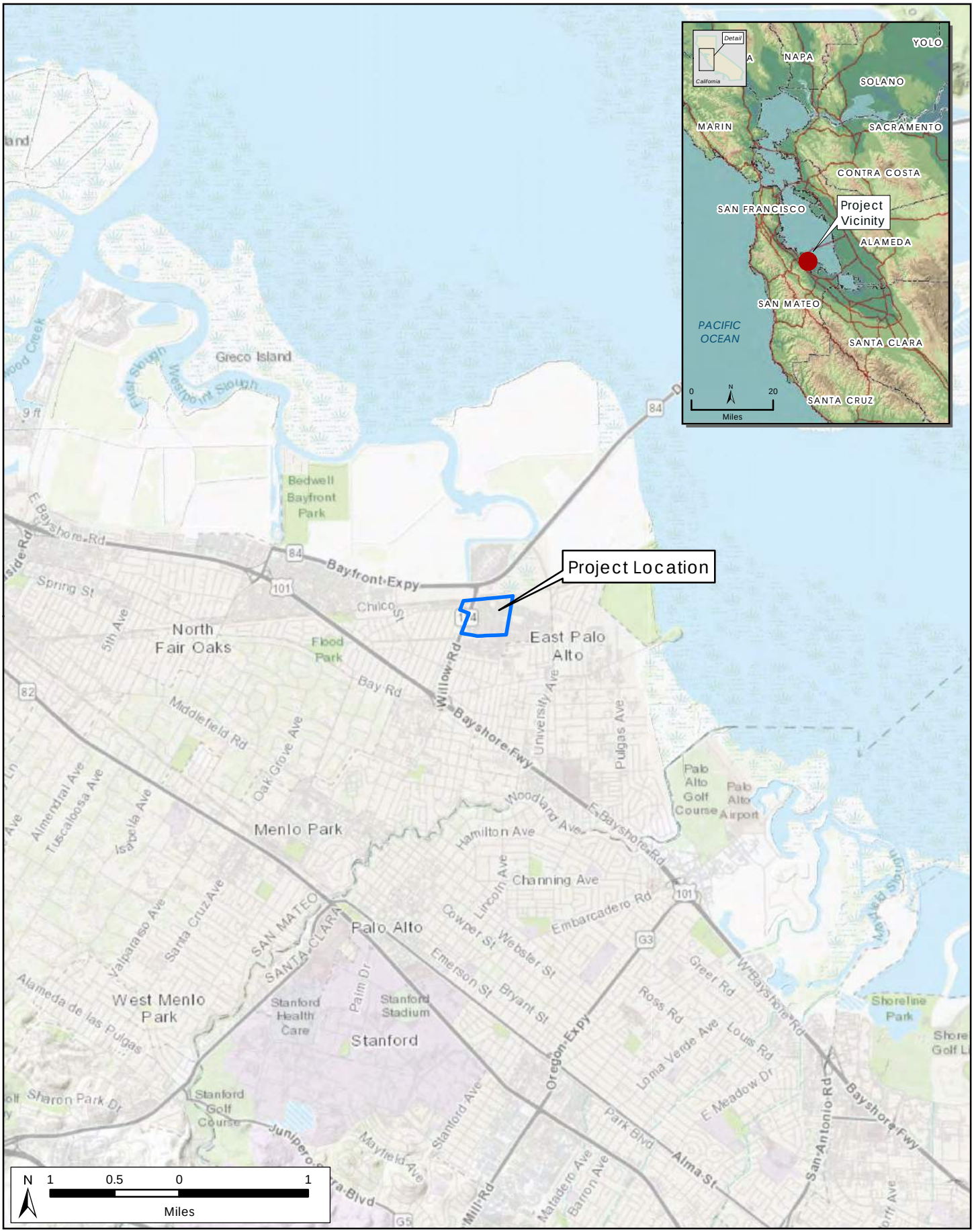

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Figure 1. Vicinity Map
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Figure 2. Study Area

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and 500,000 square feet of accessory uses. The plan will require demolition of all existing site improvements consisting of buildings, streets, and utilities. Proposed improvements include site grading to elevate the property above the FEMA base flood elevation and to create buildable pads, construction of new circulation improvements to accommodate vehicles, bicycles, and pedestrians, utilities, park and open space improvements, residential mixed-use buildings, a hotel, and an office campus. Additional improvements will be completed at key connection points at O'Brien Drive, Park Street, Adams Court, and Hamilton Avenue. Mixed-use buildings will range in height from 55–80 ft; office buildings and associated accessory buildings will have a maximum height of 110 ft and would comply with the average heights as established by *ConnectMenlo's* zoning standards.

In order to accommodate the realignment of Hamilton Avenue (to connect to New Hamilton) and to construct the western access (ramp and elevator) to an elevated park, some of the existing development on the block located at the northwest corner and a portion of the block located at the southwest corner of Willow Road and the existing Hamilton Avenue may need to be reconfigured. The block on the northwest corner is approximately 1.83 acres and currently is developed with approximately 16,000 square feet of retail buildings. The portion of the block located at the southwest corner is approximately 1.34 acres and currently is developed with a gas station with approximately 4,500 sf of retail. Both sites are zoned C-2-S Neighborhood Commercial District Special. To accommodate the Hamilton Avenue road realignment, the gas station would be relocated further north in the retail site. In addition, the existing retail may be removed and replaced with new retail buildings in a new site configuration. It is anticipated that the replacement development would be similar to the existing development in size and use potentially adding 5,000 sf in shops, which could include an additional drive through option. Any construction related activities would occur in Phase 2 of the schedule.

The site lighting for Willow Village will comply with Title 24 and Menlo Park's lighting guidelines for both the Residential Mixed-use and Office zoning districts. All fixtures will be energy-efficient, reduce glare and unnecessary light spillage, while providing safe routes of travel for vehicles and pedestrians.

It is anticipated that all trees on the project site would be removed. Heritage trees, as defined by the City of Menlo Park, would be replaced at a ratio of 2:1 (replacement trees:impacted heritage tree) in accordance with City policies for commercial applicants[1]. The conceptual landscape plan envisions a combination of native, drought-tolerant, and adapted species from around the world and calls for approximately 800 new trees to be planted. Consistent with Menlo Park municipal codes on landscape design, no invasive species or noxious weeds would be used in landscaping for the redeveloped areas.

A chain of publicly accessible open spaces will be located along Main Street, and a new 2.1-acre elevated pedestrian and bike-friendly publicly accessible park is designed to accommodate pedestrian walking trails, bicycle paths, gardens with native drought-tolerant and adapted species, lawn areas, interpretive horticultural exhibits, seating areas, children's play areas, recreation areas, shading canopies, water features, cafés, picnic areas, and public restrooms, as well as security and safety infrastructure. The elevated park would be constructed

[1] https://menlopark.org/DocumentCenter/View/833/Heritage-Tree-Replacement-Procedures

above grade, providing views south over Willow Village and Town Square, north to the Don Edwards San Francisco Bay National Wildlife Refuge, and east towards San Francisco Bay.

Offsite improvements will be made as well. Safe crossing design improvements will be incorporated in the northwest corner of the site to provide safe pedestrian, bicycle, and vehicular movements at Hamilton Avenue and between the two adjoining office campuses. Improvements along Willow Road will include widening of the right-of-way to accommodate additional left turn pockets, installation of new traffic signals, utility points of connections, sidewalk improvements, and landscape improvements. At the southeast corner of the site, in the Residential/Shopping District, a new intersection is proposed at O'Brien Drive, requiring new traffic signals and roadway layout alterations. Along the southern property line, an existing open channel located both on and off-site within the study area directs storm water flows to an existing storm drain main along the east property line. To accommodate site improvements, the drainage flows within this channel will be undergrounded and the channel filled.

It is currently anticipated that Willow Village will be constructed in two primary phases, with Phase 1 being divided into two sub-phases. Construction will commence on the southern portion of the site and move northward. Each construction phase will include the grading of that phase and construction of the circulation (including transit, auto, bicycle, and pedestrian) and utility infrastructure necessary to serve that phase. There may be some overlap in construction phases.

1.2 Bird-Safe Design

In 2014, the City of Menlo Park initiated the process of updating its General Plan Land Use and Circulation Elements as well as its zoning for the M-2 area (also known as the Bayfront Area) in the northern portion of Menlo Park. Collectively, this update to the General Plan and zoning is known as *ConnectMenlo*. On November 29, 2016, the City Council certified the *ConnectMenlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update Environmental Impact Report* (ConnectMenlo EIR) and approved the General Plan Land Use and Circulation Elements. The Willow Village project is located within the ConnectMenlo area.

Mitigation Measure BIO-1 of the ConnectMenlo EIR requires measures to ensure that the project reduces bird collisions with new buildings. Pursuant to Mitigation Measure BIO-1, the project must comply with bird-safe design requirements subsequently incorporated into Municipal Code Sections 16.43.150(6) and 16.43.130(6), which include measures to reduce bird collisions. These requirements are as follows:

A. No more than 10% of façade surface area shall have non-bird-friendly glazing.

B. Bird-friendly glazing includes, but is not limited to, opaque glass, covering the outside surface of clear glass with patterns, paned glass with fenestrations, frit or etching patterns, and external screens over nonreflective glass. Highly reflective glass is not permitted.

C. Occupancy sensors or other switch control devices with an astronomic time clock shall be installed on nonemergency lights and shall be programmed to shut off during non-work hours and between 10:00 p.m. and sunrise.

D. Placement of buildings shall avoid the potential funneling of flight paths towards a building façade.

E. Glass skyways or walkways, free-standing (see-through) glass walls and handrails, and transparent building corners shall not be allowed.

F. Transparent glass shall not be allowed at the rooflines of buildings, including in conjunction with roof decks, patios and roofs with landscape vegetation.

G. Use of rodenticides shall not be allowed.

A project may receive a waiver from requirements A through F, subject to the submittal of a site-specific evaluation from a qualified biologist and review and approval by the Planning Commission. A waiver from requirement G is not authorized.

The Willow Village Master Plan incorporates robust bird-safe design measures to minimize bird collisions with project buildings, in accordance with Mitigation Measure BIO-1. H. T. Harvey & Associates (2021a) prepared a *Willow Village Master Plan Bird-Safe Design Assessment* that assessed the potential for bird collisions with various Master Plan components based on the locations of those components and the project's conceptual Conditional Development Permit (CDP) application. For that bird-safe design assessment, H. T. Harvey worked with Meta's design team to identify features of the architecture of project buildings and lighting principles that would reduce the frequency of avian collisions; the components of the City's bird-safe design requirements (from Mitigation Measure BIO-1 of the ConnectMenlo EIR) that Master Plan components could comply with; and proposed waivers from the requirements identified in Municipal Code Sections 16.43.150(6) and 16.43.130(6) and alternative measures that the project would incorporate to meet the intent and effectiveness of any City bird-safe design requirements that the project could not comply with to the letter. In addition, H. T. Harvey also proposed mitigation measures to further minimize impacts related to bird collisions. The *Willow Village Master Plan Bird-Safe Design Assessment* documents that with implementation of these design features, lighting principles, bird-safe design requirements or alternative measures, and mitigation measures, project impacts due to bird collisions with buildings would be reduced to less-than-significant levels under CEQA.

Section 2. Methods

2.1 Background Review

Prior to conducting initial field work, H. T. Harvey & Associates ecologists reviewed the original project plans and description provided by Meta in November 2017; aerial images (Google Inc. 2021); a U.S. Geological Survey (USGS) topographic map; the California Department of Fish and Wildlife's (CDFW's) California Natural Diversity Database (CNDDB 2021); and other relevant scientific literature and technical databases. Previous reports prepared for the project and vicinity were also reviewed, including the arborist report for the main project site (SBCA Tree Consulting 2017); the Final EIRs for the nearby Menlo Park Facebook Campus (Atkins 2012) and the Facebook Campus Expansion Project (ICF International 2016); the Final EIR for the ConnectMenlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update for the City of Menlo Park (PlaceWorks 2016); and the Comprehensive Conservation Plan and Environmental Assessment for the Don Edwards San Francisco Bay National Wildlife Refuge (NWR) (USFWS 2012). In addition, for plants, we reviewed all species on current California Native Plant Society (CNPS) California Rare Plant Rank (CRPR) 1A, 1B, 2A, and 2B lists occurring in the *Palo Alto, California* USGS quadrangle and surrounding eight quadrangles (*Woodside, San Mateo, Redwood Point, Newark, Mountain View, Cupertino, Mindego Hill,* and *La Honda, California*). Quadrangle-level results are not maintained for CRPR 3 and 4 species, so we also conducted a search of the CNPS Inventory records for these species occurring in San Mateo County (CNPS 2021). In addition, we queried the CNDDB (2021) for natural communities of special concern that occur in the project region. For the purposes of this report, the "project vicinity" encompasses a 5-mile (mi) radius surrounding the project site.

After the Willow Village design and program were revised in May 2020, we reviewed the updated plans (Peninsula Innovation Partners 2020) and current CNDDB and CNPS information to ensure that our updated assessment of the project's potential impacts on biological resources was based on up-to-date information.

In addition, H. T. Harvey & Associates (2021b) performed a delineation of jurisdictional wetlands and other waters of the U.S./State within the study area in 2021. A field visit for that delineation was conducted in August 2021, and a follow-up visit to assess conditions in a drainage ditch was conducted on December 31, 2021.

2.2 Site Visits

The project site discussed in this report includes the area enclosed by the project boundary shown in Figure 2. For the purposes of ensuring evaluation of all potential direct, indirect, and cumulative effects on biological resources, the project's biological resources study area includes the project site (main site and Hamilton Avenue Parcels North and South) and areas within 100 ft beyond the project boundary (Figure 2). Reconnaissance-level field surveys of the main project site, as well as areas within the Dumbarton Rail Corridor both east and west of Willow Road, were initially conducted by H. T. Harvey & Associates senior wildlife ecologist Steve Rottenborn, Ph.D., on October 26, 2017 and by H. T. Harvey & Associates wildlife ecologist, Stephen L.

Peterson, M.S., and plant ecologist Matthew Mosher, B.S., on November 13, 2017, with an additional visit by M. Mosher on November 15, 2017. After the project was redesigned in 2019, S. Rottenborn visited the main project site again on April 22, 2019. After the project was redesigned in 2020, H. T. Harvey & Associates senior wildlife ecologist Robin Carle, M.S., visited the Hamilton Avenue Parcels North and South portion of the site on June 10, 2020 and H. T. Harvey & Associates senior plant ecologist Mark Bibbo, M.S., visited this area on June 12, 2020. The purpose of these surveys was to provide a project-specific impact assessment for the proposed project as described above. Specifically, surveys were conducted to (1) assess existing biotic habitats and general plant and wildlife communities in the study area, (2) assess the potential for the project to impact special-status species or their habitats, and (3) identify potential jurisdictional habitats, such as Waters of the U.S./State and riparian habitat.

In addition, focused surveys for Congdon's tarplant (*Centromadia parryi* var. *congdonii*) were conducted by H. T. Harvey & Associates plant ecologists on November 13, 2017 (main project site) and June 12, 2020 (Hamilton Avenue Parcels North and South). These surveys targeted areas of potential suitable habitat along the Dumbarton Rail Corridor in the northern portion of the study area.

Section 3. Regulatory Setting

Biological resources on the project site are regulated by a number of federal, state, and local laws and ordinances, as described below.

3.1 Federal

3.1.1 Clean Water Act

The Clean Water Act (CWA) functions to maintain and restore the physical, chemical, and biological integrity of Waters of the U.S., which include, but are not limited to, tributaries to traditionally navigable waters currently or historically used for interstate or foreign commerce, and adjacent wetlands. Historically, in non-tidal waters, U.S. Army Corp of Engineers (USACE) jurisdiction extends to the ordinary high water (OHW) mark, which is defined in Title 33, Code of Federal Regulations (CFR), Part 328.3. If there are wetlands adjacent to channelized features, the limits of USACE jurisdiction extend beyond the OHW mark to the outer edges of the wetlands. Wetlands that are not adjacent or tributaries to Waters of the U.S. are termed "isolated wetlands" and, depending on the circumstances, typically are not subject to USACE jurisdiction. In tidal waters, USACE jurisdiction extends to the landward extent of vegetation associated with salt or brackish water or the high tide line. The high tide line is defined in 33 CFR Part 328.3 as "the line of intersection of the land with the water's surface at the maximum height reached by a rising tide."

Construction activities within jurisdictional waters are regulated by the USACE. The placement of fill into such waters must comply with permit requirements of the USACE. No USACE permit will be effective in the absence of Section 401 Water Quality Certification. The State Water Resources Control Board (SWRCB) is the state agency (together with the Regional Water Quality Control Boards [RWQCBs] charged with implementing water quality certification in California.

Project Applicability: The project site itself does not support wetland or aquatic habitats. A small, isolated segment of forested wetland that may be claimed as Waters of the U.S. is located in a drainage ditch along the northern edge of the study area, just outside the project boundary (H. T. Harvey & Associates 2021b). Similarly, a linear area of herbaceous-dominated seasonal wetland is present in the Dumbarton Rail Corridor immediately north of the Hamilton Avenue Parcels North and South portion of the project site. Another herbaceous seasonal wetland is present just outside the northeast corner of the project boundary (H. T. Harvey & Associates 2021b). These seasonal wetlands might also be claimed as Waters of the U.S. The San Francisco office of the USACE would ultimately determine whether or not these features are subject to USACE jurisdiction under Section 404 of the CWA (under either current regulations or any amended regulations). It is our understanding that the project will avoid to the extent feasible placing fill in those features, in which case no permit from the USACE would be needed for activities associated with these features even if determined to be jurisdictional. However, if these features are determined to be jurisdictional and are impacted by project grading, a Section

404 permit from the USACE would be required., and mitigation of impacts would be required as described in Mitigation Measures BIO-11 and 12 in Section 6.2.1.

A ditch located partially on-site and partially within the Hetch Hetchy easement corridor immediately south of the main project site (and within the study area) was dominated by upland (non-wetland) vegetation during our April 2019 site visit (as well as the August 2021 site visit for the delineation of waters of the U.S./State [H. T. Harvey & Associates 2021b]), is concrete-lined in at least some locations, and is excavated in uplands to collect stormwater runoff from the surrounding development. A visit to the site on December 31, 2021, after a prolonged, heavy rain event, revealed evidence of only a very small amount of runoff that had flowed through this ditch during the storm. As such, we do not expect this feature to be claimed as Waters of the U.S. by the USACE.

Brackish marsh habitat is present outside and well to the north and northeast of the study area. We expect that this brackish marsh would be considered Waters of the U.S. under both current and proposed definitions of Waters of the U.S. because it is adjacent to tidal channels that would either be considered navigable or tributaries to navigable waters. This brackish marsh habitat is located well off-site, however, and no impacts to this marsh would result from the proposed project.

3.1.2 Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 prohibits the creation of any obstruction to the navigable capacity of Waters of the U.S., including discharge of fill and the building of any wharfs, piers, jetties, and other structures without Congressional approval or authorization by the Chief of Engineers and Secretary of the Army (33 U.S.C. 403).

Navigable Waters of the U.S., which are defined in 33 CFR, Part 329.4, include all waters subject to the ebb and flow of the tide, and those which are presently or have historically been used to transport commerce. The shoreward jurisdictional limit of tidal waters is further defined in 33 CFR, Part 329.12 as "the line on the shore reached by the plane of the mean (average) high water." It is important to understand that the USACE does not regulate wetlands under Section 10, only the aquatic or open waters component of bay habitat, and that there is overlap between Section 10 jurisdiction and Section 404 jurisdiction. According to 33 CFR, Part 329.9, a waterbody that was once navigable in its natural or improved state retains its character as "navigable in law" even though it is not presently used for commerce as a result of changed conditions or the presence of obstructions. Historical Section 10 Waters may occur behind levees in areas that are not currently exposed to tidal or muted-tidal influence, and meet the following criteria: (1) the area is presently at or below the mean high water line; (2) the area was historically at or below mean high water in its "unobstructed, natural state"; and (3) there is no evidence that the area was ever above mean high water.

As mentioned above, Section 404 of the CWA authorizes the USACE to issue permits to regulate the discharge of dredged or fill material into Waters of the U.S. If a project also proposes to discharge of dredged or fill

material or introduce of other potential obstructions in navigable Waters of the U.S., a Letter of Permission authorizing these impacts must be obtained from the USACE under Section 10 of the Rivers and Harbors Act.

Project Applicability: Based on mapping of the historical margins of San Francisco Bay marshes (Nichols and Wright 1971), which depict the margins of baylands being located well north of the project site, no current or historical Section 10 waters are present within the project boundary or elsewhere within the study area (e.g., in the wetlands immediately north and northeast of the project boundary). Therefore, no Section 10 Letter of Permission from the USACE is required for the project.

3.1.3 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects federally listed wildlife species from harm or "take", which is broadly defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct." Take can also include habitat modification or degradation that directly results in death or injury of a listed wildlife species. An activity can be defined as "take" even if it is unintentional or accidental. Generally, listed plant species are provided less protection than listed wildlife species. Listed plant species are legally protected from take under the FESA only if they occur on federal lands.

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) have jurisdiction over federally listed, threatened, and endangered species under FESA. The USFWS also maintains lists of proposed and candidate species. Species on these lists are not legally protected under FESA, but may become listed in the near future and are often included in their review of a project.

Project Applicability: No suitable habitat for any federally listed plant or animal species occurs in the study area. Thus, no federally listed species are reasonably expected to occur in the study area.

3.1.4 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act governs all fishery management activities that occur in federal waters within the United States' 200-nautical-mile limit. The Act establishes eight Regional Fishery Management Councils responsible for the preparation of fishery management plans (FMPs) to achieve the optimum yield from U.S. fisheries in their regions. These councils, with assistance from NMFS, establish Essential Fish Habitat (EFH) in FMPs for all managed species. Federal agencies that fund, permit, or implement activities that may adversely affect EFH are required to consult with NMFS regarding potential adverse effects of their actions on EFH, and respond in writing to recommendations by NMFS.

Project Applicability: No EFH is present in the study area.

3.1.5 Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA), 16 U.S.C. Section 703, prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. The MBTA

protects whole birds, parts of birds, and bird eggs and nests, and it prohibits the possession of all nests of protected bird species whether they are active or inactive. An active nest is defined as having eggs or young, as described by the USFWS in its June 14, 2018 memorandum "Destruction and Relocation of Migratory Bird Nest Contents". Nest starts (nests that are under construction and do not yet contain eggs) and inactive nests are not protected from destruction.

In its June 14, 2018 memorandum, the USFWS clarified that the destruction of an active nest "while conducting any activity where the intent of the action is not to kill migratory birds or destroy their nests or contents" is not prohibited by the MBTA. On February 3, 2020, the USFWS published a proposed rule to codify the scope of the MBTA as it applies to activities resulting in the injury or death of migratory birds (85 FR 5915-5926); the USFWS is currently considering comments on the proposed rule.

Project Applicability: All native bird species that occur in the study area are protected under the MBTA. Mitigation Measures BIO-13, 14, 15, and 16 shall be implemented to ensure that project activities comply with the MBTA as described in Section 6.4.1.

3.2 State

3.2.1 Porter-Cologne Water Quality Control Act

The SWRCB works in coordination with the nine RWQCBs to preserve, protect, enhance, and restore water quality. Each RWQCB makes decisions related to water quality for its region, and may approve, with or without conditions, or deny projects that could affect Waters of the State. Their authority comes from the CWA and the State's Porter-Cologne Water Quality Control Act (Porter-Cologne). Porter-Cologne broadly defines Waters of the State as "any surface water or groundwater, including saline waters, within the boundaries of the state." Because Porter-Cologne applies to any water, whereas the CWA applies only to certain waters, California's jurisdictional reach overlaps and may exceed the boundaries of Waters of the U.S. For example, Water Quality Order No. 2004-0004-DWQ states that "shallow" Waters of the State include headwaters, wetlands, and riparian areas. Moreover, the San Francisco Bay Region RWQCB's Assistant Executive Director has stated that, in practice, the RWQCBs may claim jurisdiction over riparian areas. Where riparian habitat is not present, such as may be the case at headwaters, jurisdiction is taken to the top of bank.

On April 2, 2019, the SWRCB adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. In these new guidelines, riparian habitats are not specifically described as Waters of the State but instead as important buffer habitats to streams that do conform to the State Wetland Definition. The Procedures describe riparian habitat buffers as important resources that may both be included in required mitigation packages for permits for impacts to Waters of the State.

Pursuant to the CWA, projects that are regulated by the USACE must also obtain a Section 401 Water Quality Certification permit from the RWQCB. This certification ensures that the proposed project will uphold state water quality standards. Because California's jurisdiction to regulate its water resources is much broader than

that of the federal government, proposed impacts on Waters of the State may require Waste Discharge Requirements even if the area occurs outside of USACE jurisdiction. Moreover, the RWQCB may impose mitigation requirements even if the USACE does not, for example for riparian habitats which are buffers to Waters of the State. Under the Porter-Cologne, the SWRCB and the nine regional boards also have the responsibility of granting CWA National Pollutant Discharge Elimination System (NPDES) permits and Waste Discharge Requirements for certain point-source and non-point discharges to waters. These regulations limit impacts on aquatic and riparian habitats from a variety of urban sources.

Project Applicability: No aquatic, wetland, or riparian habitats are present within the project boundary. However, as noted above in Section 3.1.1, a small, isolated segment of forested wetland that would likely be claimed as Waters of the State is located in a drainage ditch along the northern edge of and within the study area, just outside the project boundary (H. T. Harvey & Associates 2021b). Similarly, a linear area of herbaceous-dominated seasonal wetland is present in the Dumbarton Rail Corridor immediately north of the Hamilton Avenue Parcels North and South portion of the project site. Another herbaceous seasonal wetland is present just outside the northeast corner of the project boundary (H. T. Harvey & Associates 2021b). These seasonal wetlands might also be claimed as Waters of the State. It is our understanding that the project will avoid to the extent feasible placing fill in those wetlands, in which case no permit from the RWQCB would be needed for activities associated with wetlands even if these features are determined to be jurisdictional. However, if these features are determined to be jurisdictional and are impacted by the project, Section 401 water quality certification or Waste Discharge Requirements from the RWQCB would be required, and mitigation of impacts would be required as described in Mitigation Measures BIO-11 and 12 in Section 6.2.1. A ditch located partially on-site and partially within the Hetch Hetchy easement corridor immediately south of the main project site (but within the study area) was dominated by upland (non-wetland) vegetation during our April 2019 site visit, is concrete lined in at least some locations, and is excavated in uplands to collect stormwater runoff from the surrounding development. As such, we do not expect this feature to be claimed as Waters of the State by the RWQCB (H. T. Harvey & Associates 2021b).

Brackish marsh habitat is present well to the north and northeast of the study area. We expect that this brackish marsh would be considered Waters of the State because it is adjacent to tidal channels that would either be considered navigable or tributaries to navigable waters. This brackish marsh habitat is located well off-site, however, and no impacts to this marsh would result from the proposed project.

3.2.2 California Endangered Species Act

The California Endangered Species Act (CESA; California Fish and Game Code, Chapter 1.5, Sections 2050-2116) prohibits the take of any plant or animal listed as an endangered, threatened, or candidate species. In accordance with the CESA, the CDFW has jurisdiction over state-listed species (Fish and Game Code 2070). The CDFW regulates activities that may result in "take" of individuals (i.e., "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of "take" under the California Fish and Game Code. The CDFW, however, has

interpreted "take" to include the "killing of a member of a species which is the proximate result of habitat modification."

Project Applicability: No suitable habitat for any state listed plant or animal species occurs in the study area, and thus no state listed species are expected to occur in the study area.

3.2.3 California Environmental Quality Act

CEQA is a state law that requires state and local agencies to document and consider the environmental implications of their actions and to refrain from approving projects with significant environmental effects if there are feasible alternatives or mitigation measures that can substantially lessen or avoid those effects. CEQA requires the full disclosure of the environmental effects of agency actions, such as approval of a general plan update or the projects covered by that plan, on resources such as air quality, water quality, cultural resources, and biological resources. The State Resources Agency promulgated guidelines for implementing CEQA are known as the State CEQA Guidelines.

Section 15380(b) of the State CEQA Guidelines provides that a species not listed on the federal or state lists of protected species may be considered rare if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definitions in the FESA and the CESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. This section was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW or species that are locally or regionally rare.

The CDFW has produced three lists (amphibians and reptiles, birds, and mammals) of "species of special concern" that serve as "watch lists". Species on these lists are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Thus, their populations should be monitored. They may receive special attention during environmental review as potential rare species, but do not have specific statutory protection. All potentially rare or sensitive species, or habitats capable of supporting rare species, are considered for environmental review per the CEQA Section 15380(b).

The CNPS, a non-governmental conservation organization, has developed CRPRs for plant species of concern in California in the Inventory of Rare and Endangered Plants (CNPS 2021). The CRPRs include lichens, vascular, and non-vascular plants, and are defined as follows:

- CRPR 1A Plants considered extinct.
- CRPR 1B Plants rare, threatened, or endangered in California and elsewhere.
- CRPR 2A Plants considered extinct in California but more common elsewhere.
- CRPR 2B Plants rare, threatened, or endangered in California but more common elsewhere.
- CRPR 3 Plants about which more information is needed - review list.

- CRPR 4 Plants of limited distribution-watch list.

The CRPRs are further described by the following threat code extensions:

- .1—seriously endangered in California;
- .2—fairly endangered in California;
- .3—not very endangered in California.

Although the CNPS is not a regulatory agency and plants on these lists have no formal regulatory protection, plants appearing as CRPR 1B or 2 are, in general, considered to meet CEQA's Section 15380 criteria, and adverse effects on these species may be considered significant. Impacts on plants that are listed by the CNPS as CRPR 3 or 4 are also considered during CEQA review, although because these species are typically not as rare as those of CRPR 1B or 2, impacts on them are less frequently considered significant.

Compliance with CEQA Guidelines Section 15065(a) requires consideration of plant or animal natural communities. Vegetation types of "special concern" are tracked in Rarefind (CNDDB 2021). Further, the CDFW ranks sensitive vegetation alliances based on their global (G) and state (S) rankings analogous to those provided in the CNDDB. Global rankings (G1–G5) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas S rankings are a reflection of the condition of a habitat within California. If an alliance is marked as a G1–G3, all of the associations within it would also be of high priority. The CDFW provides the Vegetation Classification and Mapping Program's currently accepted list of vegetation alliances and associations (CDFW 2010).

Project Applicability: All potential impacts on biological resources will be considered during CEQA review of the project. This Biological Resources Report assesses these impacts to facilitate CEQA review of the project by the City of Menlo Park. Project impacts are discussed in Section 6 below.

3.2.4 California Fish and Game Code

Ephemeral and intermittent streams, rivers, creeks, dry washes, sloughs, blue line streams on USGS maps, and watercourses with subsurface flows generally fall under CDFW jurisdiction. Canals, aqueducts, irrigation ditches, and other means of water conveyance may also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. A *stream* is defined in Title 14, California Code of Regulations Section 1.72, as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish and other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." Using this definition, CDFW extends its jurisdiction to encompass riparian habitats that function as a part of a watercourse. California Fish and Game Code Section 2786 defines *riparian habitat* as "lands which contain habitat which grows close to and which depends upon soil moisture from a nearby freshwater source." The lateral extent of a stream and associated riparian habitat that would fall under the jurisdiction of CDFW can be measured in several ways, depending on the particular situation and the type of fish or wildlife at risk. At minimum, CDFW would claim jurisdiction

over a stream's bed and bank. In areas that lack a vegetated riparian corridor, CDFW jurisdiction would be the same as USACE jurisdiction. Where riparian habitat is present, the outer edge of riparian vegetation is generally used as the line of demarcation between riparian and upland habitats.

Pursuant to California Fish and Game Code Section 1603, CDFW regulates any project proposed by any person that will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds." California Fish and Game Code Section 1602 requires an entity to notify CDFW of any proposed activity that may modify a river, stream, or lake. If CDFW determines that proposed activities may substantially adversely affect fish and wildlife resources, a Lake and Streambed Alteration Agreement (LSAA) must be prepared. The LSAA sets reasonable conditions necessary to protect fish and wildlife, and must comply with CEQA. The applicant may then proceed with the activity in accordance with the final LSAA.

Certain sections of the California Fish and Game Code describe regulations pertaining to protection of certain wildlife species. For example, Code Section 2000 prohibits take of any bird, mammal, fish, reptile, or amphibian except as provided by other sections of the code.

The California Fish and Game Code Sections 3503, 3513, and 3800 (and other sections and subsections) protect native birds, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW. Raptors (i.e., eagles, hawks, and owls) and their nests are specifically protected in California under Code Section 3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

Bats and other non-game mammals are protected by California Fish and Game Code Section 4150, which states that all non-game mammals or parts thereof may not be taken or possessed except as provided otherwise in the code or in accordance with regulations adopted by the commission. Activities resulting in mortality of non-game mammals (e.g., destruction of an occupied nonbreeding bat roost, resulting in the death of bats), or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), may be considered "take" by the CDFW.

Project Applicability: The drainage ditches located along the northern and southern edges of the study area are not downstream continuations of terrestrial streams and only collect localized runoff from the surrounding development. Additionally, no flows continue downstream of these features out to the Bay or other stream or slough. As such, these features are not considered rivers or streams and are not regulated by the CDFW under California Fish and Game Code Section 1603 (H. T. Harvey & Associates 2021b).

Most native bird, mammal, and other wildlife species that occur on the project site and in the immediate vicinity are protected by the California Fish and Game Code. Mitigation Measures BIO-13, 14, 15, and 16 shall be

implemented to ensure that project activities comply with the Fish and Game Code with respect to nesting birds, as described in Section 6.4.1.

3.3 Local

3.3.1 Menlo Park Municipal Code

The City of Menlo Park Municipal Code contains all ordinances for Menlo Park. Title 16, Zoning, includes regulations relevant to biological resources on the project site as discussed below.

Bird-Friendly Design. Sections 16.43.140 (6) (with respect to the O District) and 16.45.130(6) (with respect to the RMU District) require all new construction, regardless of size, to implement the following bird-friendly design measures:

- No more than 10% of facade surface area shall have non-bird-friendly glazing.
- Bird-friendly glazing includes, but is not limited to, opaque glass, covering of clear glass surface with patterns, paned glass with fenestration patterns, and external screens over non-reflective glass.
- Placement of buildings shall avoid the potential funneling of flight paths towards a building facade.
- Glass skyways or walkways, freestanding glass walls, and transparent building corners shall not be allowed.
- Transparent glass shall not be allowed at the rooflines of buildings, including in conjunction with green roofs.
- Use of rodenticides shall not be allowed.

A project may receive a waiver from one (1) or more of the items listed in subsections (6)(A) to (F) of this section, subject to the submittal of a site-specific evaluation from a qualified biologist and review and approval by the planning commission. (Ord. 1024 § 3 (part), 2016).

Project Applicability: Bird-friendly design will be incorporated into the project design as required by the City of Menlo Park Municipal Code. The project's incorporation of bird-safe design is discussed in Sections 1.2 and 6.5.2.

Landscape Design Plan. Chapter 12.44.090(a)(1)(G) provides that the use of invasive or noxious plant species is strongly discouraged. Invasive species are defined as those plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. A noxious weed refers to any weed designated by the weed control regulations in the Weed Control Act and identified on a regional district noxious weed control list.

Project Applicability: No invasive and/or noxious plant species will be used in the project's landscape design plan.

Heritage Trees. Chapter 13.24, Heritage Trees, establishes regulations for the preservation of heritage trees, defined as:

- Trees of historical significance, special character or community benefit, specifically designated by resolution of the City Council;
- An oak tree (*Quercus* sp.), which is native to California and has a trunk with a circumference of 31.4 inches (diameter of 10 inches) or more, measured at 54 inches above natural grade; and
- All trees other than oaks, which have a trunk with a circumference of 47.1 inches (diameter of 15 inches) or more, measured 54 inches above natural grade, with the exception of trees that are less than 12 ft in height, which will be exempt from this section.

To protect heritage trees, Section 13.24.025 requires that a tree protection plan prepared by a certified arborist be submitted for any work performed within a tree protection zone, which is an area ten times the diameter of the tree. Furthermore, all tree protection plans should be reviewed and approved by the Public Works Director or his or her designee prior to issuance of any permit for grading or construction.

The removal of heritage trees or pruning of more than one-fourth of the branches or roots within a 12-month period requires a permit from the City's Director of Public Works or his or her designee and payment of a fee. The Director of Public Works may issue a permit when the removal or major pruning of a heritage tree is reasonable based on a number of criteria, including condition of the tree, need for removal to accommodate proposed improvements, the ecological and long-term value of the tree, and feasible alternatives that would allow for tree preservation.

Project Applicability: The project site includes 274 trees that qualify as heritage trees under the City ordinance (SBCA Tree Consulting 2017, Peninsula Innovation Partners 2020). It is anticipated that 269 heritage trees would be removed as part of the proposed project. Therefore, a permit from the City would be required.

3.3.2 Menlo Park General Plan

The City of Menlo Park General Plan includes goals, policies, and programs relevant to the environmental factors potentially affected by the proposed project, including the following:

- *Goal LU-4:* Promote the development and retention of business uses that provide goods or services needed by the community that generate benefits to the City, and avoid or minimize potential environmental and traffic impacts.
    - *Policy LU-4.5: Business Uses and Environmental Impacts.* Allow modifications to business operations and structures that promote revenue-generating uses for which potential environmental impacts can be mitigated.
- *Goal LU-6:* Preserve open-space lands for recreation; protect natural resources and air and water quality; and protect and enhance scenic qualities.

- *Policy LU-6.5: Open Space Retention*. Maximize the retention of open space on larger tracts (e.g., portions of the St. Patrick's Seminary site) through means such as rezoning consistent with existing uses, clustered development, acquisition of a permanent open space easement, and/or transfer of development rights.
- *Policy LU 6.6: Public Bay Access*. Protect and support public access to the Bay for the scenic enjoyment of open water, sloughs, and marshes, including restoration efforts, and completion of the Bay Trail.
- *Policy LU-6.7: Habitat Preservation*. Collaborate with neighboring jurisdictions to preserve and enhance the Bay, shoreline, San Francisquito Creek, and other wildlife habitat and ecologically fragile areas to the maximum extent possible.
- *Policy LU-6.8: Landscaping in Development*. Encourage extensive and appropriate landscaping in public and private development to maintain the City's tree canopy and to promote sustainability and healthy living, particularly through increased trees and water-efficient landscaping in large parking areas and in the public right-of-way.
- *Policy LU-6.11. Baylands Preservation.* Allow development near the Bay only in already developed areas.
    - *Program LU-6.D: Design for Birds*. Require new buildings to employ façade, window, and lighting design features that make them visible to birds as physical barriers and eliminate conditions that create confusing reflections to birds.

- Goal OSC1: Maintain, Protect, and Enhance Open Space and Natural Resources.
    - *Policy OSC1.1: Natural Resources Integration with Other Uses*. Protect Menlo Park's natural environment and integrate creeks, utility corridors, and other significant natural and scenic features into development plans.
    - *Policy OSC1.2: Habitat for Open Space and Conservation Purposes*. Preserve, protect, maintain, and enhance water, water-related areas, plant and wildlife habitat for open space and conservation purposes.
    - *Policy OSC1.3: Sensitive Habitats*. Require new development on or near sensitive habitats to provide baseline assessments prepared by qualified biologists, and specify requirements relative to the baseline assessments.
    - *Policy OSC1.4: Habitat Enhancement*. Require new development to minimize the disturbance of natural habitats and vegetation, and require revegetation of disturbed natural habitat areas with native or non-invasive naturalized species.
    - *Policy OSC1.5: Invasive, Non-Native Plant Species*. Avoid the use of invasive, non-native species, as identified on the lists of invasive plants maintained at the California Invasive Plant Inventory and United States Department of Agriculture invasive and noxious weeds database, or other authoritative sources, in landscaping on public property.

- *Policy OSC1.15: Heritage Trees*. Protect Heritage Trees, including during construction activities through enforcement of the Heritage Tree Ordinance (Chapter 13.24of the Municipal Code).

Project Applicability: The project is located within the Menlo Park General Plan area and would conform to all applicable requirements.

Section 4. Environmental Setting

4.1 General Project Area Description

The 81.1-acre study area (including the approximately 64-acre project site) is located in the *Palo Alto*, *California* 7.5-minute USGS quadrangle. The approximately 64-acre project site (inclusive of the "main project site" east of Willow Road and "Hamilton Avenue Parcels North and South" west of Willow Road) is bounded by Willow Road to the west, the Hetch Hetchy easement corridor to the south, an existing life science complex to the east, and a drainage ditch, rail line, and Extra Space Storage self-storage units to the north. A review of historical aerial photographs indicates that the study area was largely agriculture in 1943. By 1991, the project site was developed with numerous buildings and parking lots known as the Menlo Science and Technology Park. Currently, the site is occupied by 21 office, industrial, and warehouse buildings (Figure 2).

The site is generally level, with elevations ranging from approximately 6 to 13 ft (North American Vertical Datum of 1988) above sea level. The site is underlain by one soil type, Urban land-Orthents, reclaimed complex, 0 to 2 percent slopes (NRCS 2021). This soil type has a variable profile to a depth of approximately 40 inches, with silty clay generally occurring from 40 to 60 inches, and is considered a well-drained soil.

4.2 Biotic Habitats

Reconnaissance-level surveys identified four habitat types/land uses in the study area: developed/landscaped (77.16 acres), California annual grassland (3.66 acres), forested wetland (0.07 acre[2]), and herbaceous seasonal wetlands (0.07 acre) (Figure 3). These habitats are described in detail below. Plant species observed during the reconnaissance survey are listed in Appendix A.

4.2.1 Developed/Landscaped

Vegetation. The entire project site, and the vast majority of the study area, are occupied by developed/landscaped land uses (Photo 1) that include office buildings, restaurants, a gas station, parking lots, walking paths, mulched and irrigated areas, and extensive plantings

Photo 1. Developed/Landscaped habitat.

[2] The depression comprising the footprint of the forested wetland is 0.07 acre in size; the canopy of the willows rooted within that wetland comprise an additional 0.13 acre.

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Figure 3. Habitats Map
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of ornamental trees and other landscaping species. Species characteristic of this area include Canary Island pine (*Pinus canariensis*), Chinese pistache (*Pistacia chinensis*), London plane (*Platanus* x*hispanica*), eucalyptus (*Eucalyptus* sp.), and crepe myrtle (*Lagerstroemia* sp.). Common understory plants include buckbrush (*Ceanothus* sp.) and rosemary (*Rosmarinus officinalis*). Immediately outside the southern edge of the project boundary (but within an area where off-site improvements will be made), a ditch is located partially on-site and partially within the Hetch Hetchy easement area (Photo 2). This ditch was dominated by upland (non-wetland) vegetation during our April 2019 site visit, as well as during the August 2021 site visit conducted for the delineation of waters of the U.S./State, and is concrete lined in at least some locations (H. T. Harvey & Associates 2021b). The ditch collects some water from the surrounding uplands and flows into a stormdrain. However, a visit to the site on December 31, 2021, after a prolonged, heavy rain event, revealed evidence of only a very small amount of runoff in this ditch during the storm. It is evident that this ditch receives little runoff from surrounding areas.

Photo 2. A drainage ditch in the southeastern part of the site.

Wildlife. The wildlife most often associated with developed/landscaped areas are those that are tolerant of periodic human disturbances, including introduced species such as the European starling (*Sturnus vulgaris*), rock pigeon (*Columba livia*), house mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), and black rat (*Rattus rattus*). Numerous common, native species are also able to utilize these habitats, especially the landscaped areas, including the western fence lizard (*Sceloporus occidentalis*), striped skunk (*Mephitis mephitis*), and a variety of birds, such as the American crow (*Corvus brachyrhynchos*), Anna's hummingbird (*Calypte anna*), California towhee (*Melozone crissalis*), bushtit (*Psaltriparus minimus*), chestnut-backed chickadee (*Poecile rufescens*), and California scrub-jay (*Aphelocoma californica*), all of which were observed on the project site during the reconnaissance survey. In addition, the eaves of the buildings on the project site may be attractive to other nesting and/or roosting bird species in the area, such as the black phoebe (*Sayornis nigricans*). Further, a number of large eucalyptus trees found in the northern portion of the project site may provide suitable nesting habitat for a pair of raptors, such as the red-tailed hawk (*Buteo jamaicensis*), which was observed in the study area during the reconnaissance survey. However, a focused survey of the study area detected no evidence (i.e., old nests) of raptors having previously nested on the site. Similarly, an examination of trees and structures on the site failed to find any large cavities that might provide suitable bat roosting habitat. Therefore, large roosting or maternity colonies of bats are not expected to occur in the study area. The ditch immediately south of the project boundary provides no aquatic habitat, and therefore no aquatic or wetland-associated wildlife species are associated with this feature.

4.2.2 California Annual Grassland

Photo 3. California annual grassland habitat in the northeast corner of the study area.

Vegetation. California annual grassland habitat occurs in the northern portion of the study area along the Dumbarton Rail Corridor, primarily outside of the project boundary, but with a very small area encroaching into the project boundary in the northeast corner of the main project site (Photo 3). At the time of the reconnaissance survey, this habitat was dominated by non-native grasses and forbs such as wild oat (*Avena* sp.), fennel (*Foeniculum vulgare*), bull mallow (*Malva nicaeensis*), black mustard (*Brassica nigra*), and bristly ox-tongue (*Helminthotheca echioides*). Many of these non-native plant species are ranked as moderately or highly invasive by the California Invasive Plant Council (Cal-IPC 2021). For example, fennel is highly invasive and has severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Moderately invasive species, such as wild oats and black mustard, have substantial and apparent ecological impacts (Cal IPC 2021).

Wildlife. Wildlife use of California annual grasslands in the study area is limited by frequent human disturbance, the abundance of non-native and invasive species, and isolation of the grassland habitat remnants from more xtensive grasslands. As a result, wildlife species associated with more extensive grasslands, such as the grasshopper sparrow (*Ammodramus savannarum*) and western meadowlark (*Sturnella neglecta*), are absent from the small patches of grassland in the study area. Most of the bird species using this habitat during the breeding season nest in nearby landscaped habitats, using the California annual grassland only for foraging. Such species include the mourning dove (*Zenaida macroura*), lesser goldfinch (*Spinus psaltria*), dark-eyed junco (*Junco hyemalis*), American crow, and Brewer's blackbird (*Euphagus cyanocephalus*). Similarly, a few species nesting on nearby buildings, such as the cliff swallow (*Petrochelidon pyrrhonota*), barn swallow (*Hirundo rustica*), rock pigeon (*Columba livia*), black phoebe, and European starling, also forage on or over the California annual grassland habitat. Several other species of birds use the California annual grassland habitat during the nonbreeding season. These species, which include the golden-crowned sparrow (*Zonotrichia atricapilla*), savannah sparrow (*Passerculus sandwichensis*), and white-crowned sparrow (*Zonotrichia leucophrys*), forage on the ground or in herbaceous vegetation, primarily for seeds.

Few species of reptiles and amphibians occur in the California annual grassland in the study area due to its disturbed nature and low habitat heterogeneity. Nevertheless, reptiles such as the western fence lizard and

gopher snake (*Pituophis melanoleucus*) occur in this type of habitat, and amphibians such as the Sierran chorus frog (*Pseudacris sierra*) and western toad (*Anaxyrus boreas*), which breed in freshwater marshes in the area, forage in this habitat. Small mammals expected to be present include the native western harvest mouse (*Reithrodontomys megalotis*) and nonnative house mouse, Norway rat, and black rat. Small burrowing mammals, such as the Botta's pocket gopher (*Thomomys bottae*) and California ground squirrel (*Spermophilus beecheyi*), are also present. Larger mammals, such as the striped skunk, Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), and black-tailed jackrabbit (*Lepus californicus*) are also likely to occur here.

4.2.3 Forested Wetland

Vegetation. A small, isolated segment of forested wetland occurs in a drainage ditch along the northern edge of the study area, just outside of the project boundary (Photo 4). This segment of the ditch is characterized by a dense overstory of willow (*Salix* sp.), with minimal groundcover predominantly consisting of tall flatsedge (*Cyperus eragrostis*) and poison oak (*Toxicodendron diversilobum*). The wetland hydrology here is supported by localized freshwater runoff from the surrounding area, which pools in or saturates the soils in the lowest portion of the drainage ditch during the wet season. No standing water was observed during the November 2017 site visit, but shallow water was pooled here during the April 2019 visit.

Photo 4. Willow dominated isolated forested wetland located in the northern potions of the study area.

Wildlife. Due to its small size, isolation, and lack of pooled water, wildlife diversity in the isolated forested wetland is fairly low. However, the dense foliage provided by this willow stand is likely to support several species of nesting birds and provide cover and foraging habitat for others. Bird species that may forage in this habitat include many of the same species as described in the habitats above, as well as species such as the Bewick's wren (*Thryomanes bewickii*), northern mockingbird (*Mimus polyglottos*), and the yellow-rumped warbler (*Setophaga coronata*). Amphibians such as the Sierran chorus frog and western toad may also be present in this habitat, and if water ponds long enough in this ditch, these species could potentially breed there.

4.2.4 Herbaceous Seasonal Wetlands

Vegetation. An herbaceous seasonal wetland is located off-site within the Dumbarton Rail Corridor between Willow Street and Chilco Street in the extreme northwest part of the study area, entirely outside the project boundary. Another herbaceous seasonal wetland is located just outside of the northeast corner of the project

boundary. These wetlands are characterized by slight depressions. The northwestern herbaceous seasonal wetland is dominated by Italian rye grass (*Festuca perenne*), Bermuda grass (*Cynodon dactylon*) and bird's foot trefoil (*Lotus corniculatus*), with obligate species such as narrow-leaved cattail (*Typha angustifolia*) and chairmaker's bulrush (*Schoenoplectus americanus*) scattered throughout the feature (Photo 5). The northeastern herbaceous seasonal wetland is dominated by narrow-leaved cattail, with saltmarsh baccharis (*Baccharis glutinosa*) and dallis grass (*Paspalum dilatatum*) also present. Freshwater hydrology in these areas is likely a result of localized runoff and possibly groundwater upwelling that reaches the rooting zone but does not typically cause inundation. At the time of the wetland delineation survey, there was no ponding water observed, but soils were saturated approximately 6 inches below the ground's surface.

Photo 5. Seasonal freshwater wetland located north of the railway between Willow Street and Chilco Street.

Wildlife. The herbaceous seasonal wetlands in the study area provide only marginal habitat for most wildlife species due to their limited extent and limited depth and duration of ponding, if these wetlands even support ponding at all, and wildlife diversity is expected to be low. However, many of the same bird species described in the developed/landscaped and California annual grassland habitats above may forage in the herbaceous seasonal wetlands, such as the dark-eyed junco, white-crowned sparrow, and California towhee, all of which were observed during the reconnaissance survey. Amphibians such as the native Sierran chorus frog and western toad may also be present in this habitat during wet times of the year but are not expected to breed due to the limited depth and duration of ponding.

4.2.5 Nearby Land Uses and Biotic Habitats outside the Study Area

Outside the study area, developed/landscaped land uses dominate surrounding areas to the west and south for miles in each direction. East of the study area, developed lands associated with existing commercial land uses are present, and north of the study area, beyond the inactive Dumbarton Rail Corridor, a storage facility is present. A large brackish marsh is present north of the storage area and on both the north and south sides of the old rail line farther north and northeast. This brackish marsh, which extends north to State Route 84 and east to University Avenue, is dominated by salt marsh and brackish marsh plants and contains several channels. As a result, marsh-associated wildlife species such as the San Francisco common yellowthroat (*Geothlypis trichas sinuosa*), Alameda song sparrow (*Melospiza melodia pusillula*), northern harrier (*Circus hudsonius*), and possibly the

salt marsh harvest mouse (*Reithrodontomys raviventris*) may occur in that brackish marsh. Farther to the north and northeast are former salt ponds, now managed as waterbird habitat, and the waters and marshes of San Francisco Bay.

Section 5. Special-Status Species and Sensitive Habitats

CEQA requires assessment of the effects of a project on species that are protected as "threatened, rare, or endangered"; such species are typically described as "special-status species". For the purpose of the environmental review of the project, special-status species have been defined as described below. Impacts on these species are regulated by some of the federal, state, and local laws and ordinances described in Section 3.0 above.

For purposes of this analysis, "special-status" plants are considered plant species that are:

- Listed under FESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under CESA as threatened, endangered, rare, or a candidate species.
- Listed by the CNPS as CRPR 1A, 1B, 2, 3, or 4.

For purposes of this analysis, "special-status" animals are considered animal species that are:

- Listed under FESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under CESA as threatened, endangered, or a candidate threatened or endangered species.
- Designated by the CDFW as a California species of special concern.
- Listed in the California Fish and Game Code as fully protected species (fully protected birds are provided in Section 3511, mammals in Section 4700, reptiles and amphibians in Section 5050, and fish in Section 5515).

Information concerning threatened, endangered, and other special-status species that potentially occur in the study area was collected from several sources and reviewed by H. T. Harvey & Associates biologists as described in Section 2.1 above. Figure 4 depicts CNDDB records of special-status plant species in the general vicinity of the project site and Figure 5 depicts CNDDB records of special-status animal species. These generalized maps show areas where special-status species are known to occur or have occurred historically.

5.1 Special-Status Plant Species

The CNPS (2021) and CNDDB (2021) identify 89 special-status plant species as potentially occurring in at least one of the nine USGS quadrangles containing or surrounding the study area for CRPR 1 or 2 species, or in San Mateo County for CRPR 3 and 4 species. Eighty-eight of those potentially occurring special-status plant species were determined to be absent from the study area for at least one of the following reasons: (1) lack of suitable habitat types; (2) absence of specific microhabitat or edaphic requirements, such as serpentine soils; (3) the elevation range of the species is outside of the range on the study area; or (4) the species is considered extirpated

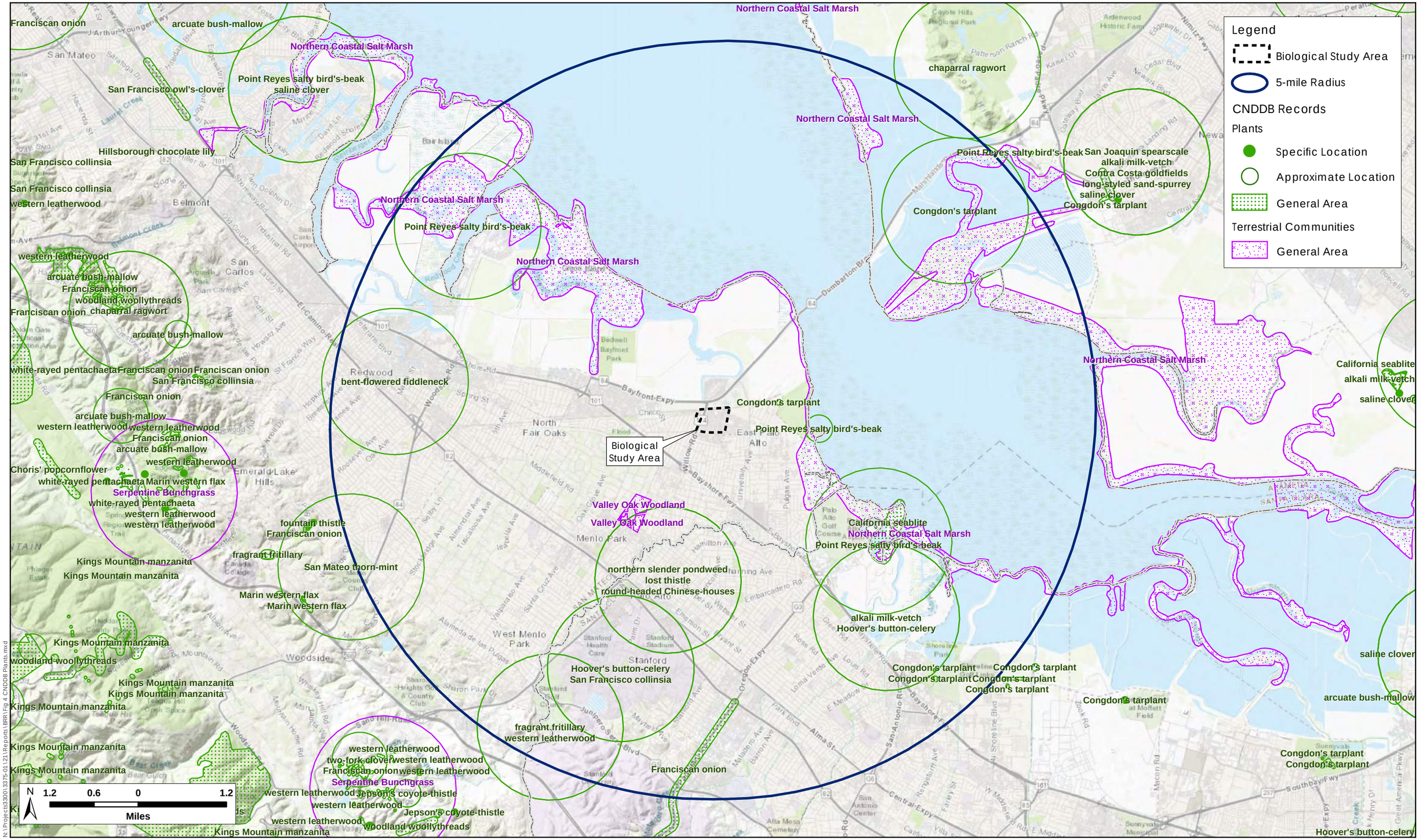

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Figure 4. CNDDB-Mapped Records of Special-Status Plant Species
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Figure 5. CNDDB-Mapped Records of Special-Status Animal Species
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from the project vicinity. Appendix B lists these plants along with the basis for the determination of absence. Suitable habitat, edaphic requirements, and elevation range were determined to be present in the study area for one plant species, Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), which can persist in disturbed grasslands and has been documented by the CNDDB in the project vicinity (Figure 4). While no suitable habitat occurs on the project site itself, there is suitable habitat for Congdon's tarplant within the study area, in the California annual grassland along the old rail line immediately north of the project boundary. However, this species should still have been flowering and detectable during our November 2017 reconnaissance survey, and a focused survey for the species was conducted in the Dumbarton Rail Corridor on June 12[3], yet no individuals of this species were observed. Therefore, this species is determined to be absent from the study area.

5.2 Special-Status Animal Species

The protected classifications and likelihood of occurrence in the study area of special-status animal species known to occur, or potentially occurring, in the pregion are presented in Table 1. Most of the special-status species listed in Table 1 are not expected to occur in the study area because it lacks suitable habitat, is outside the known range of the species, or is isolated from the nearest known extant populations by development or otherwise unsuitable habitat. Special-status animal species not expected to occur on the project site for these reasons include the Crotch bumble bee (*Bombus crotchii*), western bumble bee (*Bombus occidentalis*), green sturgeon (*Acipenser medirostris*), Central California coast steelhead (*Oncorhynchus mykiss*), California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), western pond turtle (*Actinemys marmorata*), San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), California Ridgway's rail (*Rallus obsoletus obsoletus*), California black rail (*Laterallus jamaicensis coturniculus*), western snowy plover (*Charadrius alexandrinus nivosus*), California least tern (*Sterna antillarum browni*), black skimmer (*Rynchops niger*), burrowing owl (*Athene cunicularia*), northern harrier, loggerhead shrike (*Lanius ludovicianus*), salt marsh harvest mouse, salt marsh wandering shrew (*Sorex vagrans halicoetes*) and American badger (*Taxidea taxus*). Although some of these species, such as the northern harrier, loggerhead shrike, white-tailed kite (*Elanus leucurus*), salt marsh harvest mouse, and salt marsh wandering shrew, may occur in wetland habitats not far outside the study area to the north and northeast, they are absent from the study area itself (including areas of proposed off-site improvements), and the proposed development footprint is well removed from suitable habitat for these species. Several other special-status species have some potential to occur in the study area only as visitors, migrants, or transients, but are not expected to reside or breed on the project site, to occur in large numbers, or otherwise to make substantial use of the project site. These include the San Francisco common yellowthroat, Alameda song sparrow, and pallid bat (*Antrozous pallidus*).

[3] Congdon's tarplant was documented flowering at the Sunnyvale Baylands Park, which is 9.4 miles southeast of the study area, on June 10, 2020. Therefore, given that this species was documented as flowering at a site that is relatively near the study area (but not located on the project site) on June 10, 2020, this species would have been detectable at the time of the June 12, 2020 site visit.

Table 1. Special-Status Animal Species, Their Status, and Potential Occurrence in the Study Area

Name	*Status	Habitat	Potential for Occurrence in the Study Area
Federal or State Endangered, Rare, or Threatened Species			
Crotch bumble bee (*Bombus crotchii*)	SC	Occurs in open grassland and scrub habitats. Like most other species of bumble bees, nests primarily underground (Williams et al. 2014). Generalist foragers that visit a variety of floral resources.	**Absent.** There is one historical record of the species approximately 4 miles southwest of the project site (CNDDB 2021), but there are no recent records in the vicinity. Although the species was historically found throughout the southern two-thirds of California, it now appears to be absent from most of its former range (Xerces Society 2018). It is not recently or currently known from the project area and is not expected to occur currently due to these recent range contractions.
Western bumble bee (*Bombus occidentalis occidentalis*)	SC	Occurs in meadows and grasslands with abundant floral resources. Nests are primarily underground.	**Absent.** There are several records of this species from the project vicinity, but all records are historical (CNDDB 2021). Although this species was historically found throughout much of central and northern California, it is now confined to high elevation sites and a small number of records on the northern California coast (Xerces Society 2018). It is not expected to occur in the project area due to these recent range contractions.
Green sturgeon (*Acipenser medirostris*)	FT, CSSC	Spawns in large river systems such as the Sacramento River; forages in nearshore oceanic waters, bays, and estuaries.	**Absent.** No suitable aquatic habitat is present in the study area. Green sturgeon may forage infrequently, and in low numbers in the open Bay, which is 1.5 mi north and east of the project site; however, there is no aquatic connection between the Bay and the project site. Determined to be absent.
Central California Coast steelhead (*Oncorhynchus mykiss*)	FT	Cool streams with suitable spawning habitat and conditions allowing migration between spawning and marine habitats.	**Absent.** No suitable aquatic habitat is present in the study area. Steelhead may forage in the open Bay, which is 1.5 mi north and east of the project site; however, there is no aquatic connection between the Bay and the project site. Determined to be absent.
California tiger salamander (*Ambystoma californiense*)	FT, ST	Vernal or temporary pools in annual grasslands or open woodlands.	**Absent.** No suitable habitat is present in the surrounding study area. Further, populations have largely been extirpated from San Mateo County due to habitat loss, and the species is now considered absent from the majority of the project vicinity, including the study area. The closest occurrence in the project vicinity is at Lake Lagunita on the Stanford campus, which is 4 mi south of the study area (CNDDB 2021). Determined to be absent.

Name	*Status	Habitat	Potential for Occurrence in the Study Area
San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)	FE, SE	Prefer densely vegetated freshwater habitats. May use upland burrows for aestivation.	**Absent.** No suitable habitat is present in the study area. Furthermore, the project vicinity is outside of the known range of the species. Determined to be absent.
California red-legged frog (*Rana draytonii*)	FT, CSSC	Streams, freshwater pools, and ponds with emergent or overhanging vegetation.	**Absent.** No suitable habitat is present in the study area. Further, this species has been extirpated from the majority of the project vicinity, due to development, the alteration of hydrology of its aquatic habitats, and the introduction of non-native predators such as non-native fishes and bullfrogs (*Lithobates catesbeianus*). The most recent record of the species in the project vicinity is from 2016 near Bear Gulch reservoir, over 4.8 mi to the southwest of the study area (CNDDB 2021). Determined to be absent.
California Ridgway's rail (*Rallus obsoletus obsoletus*)	FE, SE, SP	Salt marshes characterized by large expanses of saltmarsh cordgrass (*Spartina* spp.) or pickleweed (*Salicornia* spp.), with well-developed tidal channels.	**Absent.** Although the species is known to occur in the Palo Alto Baylands and the Ravenswood Open Space Preserve located 1 mi east of the study area, as well as on Greco Island 1 mi northwest of the study area, no salt marsh habitat is present in the study area. Further, the only marsh habitat located within 700 ft of the project site (which is equivalent to the size of the non-disturbance buffer typically required around active nests by the USFWS and CDFW) is a mosaic of both fresh water and salt marsh habitats located north of the study area. This marsh habitat lacks extensive patches of cordgrass or pickleweed and tidally influenced, braided channels, and therefore is not considered suitable habitat for the California Ridgway's rail. Determined to be absent.
California black rail (*Laterallus jamaicensis coturniculus*)	ST, SP	Breeds in fresh, brackish, and tidal salt marsh.	**Absent.** This species occurs in the project region primarily as a scarce winter visitor, with individuals recently recorded as close as a slough 0.5 mi north of the study area (CNDDB 2021). However, no suitable nesting or foraging habitat for the California black rail is present in the study area. Determined to be absent.
Western snowy plover (*Charadrius nivosus nivosus*)	FT, CSSC	Sandy beaches on marine and estuarine shores and salt pans in Bay saline managed ponds.	**Absent.** Although western snowy plovers are known to nest in salt panne habitat within 0.5 mi to the northwest, north, and east of the study area in the NWR's Ravenswood complex (CNDDB 2021), no suitable nesting or foraging habitat is present in the study area. Determined to be absent.

Name	*Status	Habitat	Potential for Occurrence in the Study Area
California least tern (*Sternula antillarum browni*)	FE, SE, SP	Nests along the coast on bare or sparsely vegetated, flat substrates. In the South Bay, nests in salt pannes and on an old airport runway. Forages for fish in open waters.	**Absent**. Suitable nesting habitat for the California least tern is not present in the study area. Least terns have been recorded in the project vicinity during the post-breeding season, and have been known to forage in the Redwood City salt ponds, 2.5 mi west of the study area (CNDDB 2021). Least terns have also been known to forage infrequently along the shores of the Palo Alto Baylands Preserve, located 3 mi southeast of the study area. However, least terns are not expected to forage in the study area due to the lack of any open water habitats supporting fish. Determined to be absent.
Salt marsh harvest mouse (*Reithrodontomys raviventris*)	FE, SE, SP	Salt marsh habitat dominated by common pickleweed or alkali bulrush.	**Absent.** The species has been recorded in salt marsh habitat in the project vicinity, including on the NWR to the north and east of the site (CNDDB 2021), and suitable pickleweed/alkali bulrush-dominated salt marsh habitat is present within several hundred feet northeast of the study area. However, no suitable habitat is present in the study area itself. Determined to be absent.
California Species of Special Concern			
Western pond turtle (*Actinemys marmorata*)	CSSC	Permanent or nearly permanent water in a variety of habitats.	**Absent.** No suitable aquatic habitat is present in the study area. Determined to be absent.
Northern harrier (*Circus cyaneus*)	CSSC (nesting)	Nests in marshes and moist fields, forages over open areas.	**Absent.** Northern harriers nest and forage in the wetlands immediately north and northeast of the study area, but they are not expected to nest or forage in the study area due to a lack of suitable habitat.
Black skimmer (*Rynchops niger*)	CSSC (nesting)	Nests on sparsely vegetated beaches, isolated islands, and levees.	**Absent.** No suitable nesting or foraging habitat is present in or near the study area. Determined to be absent.
Burrowing owl (*Athene cunicularia*)	CSSC	Nests and roosts in open grasslands and ruderal habitats with suitable burrows, usually those made by California ground squirrels (*Spermophilus beecheyi*).	**Absent.** No nesting burrowing owls are known to occur in the surrounding project vicinity (CNDDB 2021), and no suitable burrowing owl roosting or nesting habitat (i.e., open grasslands with ground squirrel burrows) is present in the study area. The narrow strip of California annual grassland at the northern edge of the study area is too limited and too hemmed in by trees and development to provide good burrowing owl habitat. Thus, the species is not expected to occur in the study area.

Name	*Status	Habitat	Potential for Occurrence in the Study Area
Loggerhead shrike (*Lanius ludovicianus*)	CSSC (nesting)	Nests in tall shrubs and dense trees; forages in grasslands, marshes, and ruderal habitats.	**Absent.** No suitable breeding habitat is present in the study area, and the California annual grasslands in the study area are not sufficiently extensive to provide suitable foraging habitat. Determined to be absent.
San Francisco common yellowthroat (*Geothlypis trichas sinuosa*)	CSSC	Nests in herbaceous vegetation, usually in wetlands or moist floodplains.	**Absent as Breeder.** The San Francisco common yellowthroat breeds commonly in wetlands immediately north and northeast of the study area, but no suitable breeding habitat is present in the study area itself. Small numbers may occasionally forage along the northern edge of the study area.
Alameda song sparrow (*Melospiza melodia pusillula*)	CSSC	Nests in salt marsh, primarily in marsh gumplant and cordgrass along channels.	**Absent as Breeder.** Song sparrows breed commonly in wetlands immediately north and northeast of the study area, but no suitable breeding habitat is present in the study area itself. Small numbers may occasionally forage along the northern edge of the study area.
Salt marsh wandering shrew (*Sorex vagrans halicoetes*)	CSSC	Medium to high marsh 6 to 8 ft above sea level with abundant driftwood and common pickleweed.	**Absent.** Suitable pickleweed-dominated salt marsh habitat is present within several hundred feet northeast of the study area. However, no suitable habitat is present in the study area itself. Determined to be absent.
Pallid bat (*Antrozous pallidus*)	CSSC	Forages over many habitats; roosts in caves, rock outcrops, buildings, and hollow trees.	**Absent as Breeder.** Historically, pallid bats were likely present in a number of locations throughout the project region, but their populations have declined in recent decades. This species has been extirpated as a breeder from urban areas close to the Bay, as is the case in the study area. No suitable roosting habitat is present on the project site or in the study area and no known maternity colonies are present on or adjacent to the study area. There is a low probability that the species occurs in the project vicinity at all due to urbanization; however, individuals from more remote colonies could potentially forage over the study area on rare occasions.
American badger (*Taxidea taxus*)	CSSC	Burrows in grasslands and occasionally in infrequently disked agricultural areas.	**Absent.** Badgers are not known to occur in the project region due to the lack of extensive grasslands and agricultural areas with friable soils, needed for digging burrows. No suitable habitat is present on the project site or in the study area. Determined to be absent.

California Fully Protected Species			
White-tailed kite (*Elanus leucurus*)	SP	Nests in trees and forages in extensive grasslands or marshes.	**Absent.** No suitable breeding habitat is present in the study area, and the California annual grasslands in the study area are not sufficiently extensive to provide suitable foraging habitat. May nest north and northeast of the study area, but determined to be absent from the study area itself.

SPECIAL-STATUS SPECIES CODE DESIGNATIONS

FE = Federally Listed Endangered
FT = Federally Listed Threatened
SE = State Listed Endangered
ST = State Listed Threatened
SC = Candidate for State Listing
CSSC = California Species of Special Concern
SP = State Fully Protected Species

5.3 Sensitive Natural Communities, Habitats, and Vegetation Alliances

Natural communities have been considered part of the Natural Heritage Conservation triad, along with plants and animals of conservation significance, since the state inception of the Natural Heritage Program in 1979. The CDFW determines the level of rarity and imperilment of vegetation types, and tracks sensitive communities in its Rarefind database (CNDDB 2021). Global rankings (G) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas state (S) rankings are a reflection of the condition of a habitat within California. Natural communities are defined using NatureServe's standard heritage program methodology as follows (Faber-Langendoen et al. 2012):

G1/S1: Critically imperiled

G2/S2: Imperiled

G3/S3: Vulnerable.

G4/S4: Apparently secure

G5/S4: Secure

In addition to tracking sensitive natural communities, the CDFW also ranks vegetation alliances, defined by repeating patterns of plants across a landscape that reflect climate, soil, water, disturbance, and other environmental factors (Sawyer et al. 2009). If an alliance is marked G1-G3, all of the vegetation associations within it will also be of high priority (CDFW 2021). The CDFW provides the Vegetation Classification and Mapping Program's (VegCAMP) currently accepted list of vegetation alliances and associations (CDFW 2021).

Impacts on CDFW sensitive natural communities, vegetation alliances/associations, or any such community identified in local or regional plans, policies, and regulations, must be considered and evaluated under CEQA (Title 14, Division 6, Chapter 3, Appendix G of the California Code of Regulations). Furthermore, aquatic, wetland and riparian habitats are also protected under applicable federal, state, or local regulations, and are generally subject to regulation, protection, or consideration by the USACE, RWQCB, CDFW, and/or the USFWS.

5.3.1 CDFW Sensitive Habitats

A query of sensitive habitats in Rarefind (CNDDB 2021) identified three sensitive habitats as occurring within the nine USGS quadrangles containing or surrounding the study area: serpentine bunchgrass grassland (Rank G2/S2.2), valley oak woodland (G3/S2.1), and northern coastal salt marsh (Rank G3/S3.2). Serpentine bunchgrass occurs only on serpentine soils, which do not occur in the study area. Valley oak woodland is characterized by valley oak (*Quercus lobata*) as the dominant or co-dominant species in the tree canopy. While some valley oak individuals do occur in the study area, they are ornamental plantings along buildings and roadways, and thus do not constitute this sensitive habitat type. The last sensitive habitat type, northern coastal

salt marsh, is described by Holland (1986) as occurring along sheltered inland margins of bays, often co-dominated by pickleweed (*Salicornia* spp.), cordgrass (*Spartina* spp.), and sometimes saltgrass (*Distichlis spicata*). None of these species was noted in the study area, thus this habitat type is also absent.

5.3.2 CDFW Sensitive Vegetation Alliances

CDFW Sensitive alliances are not present on the project site (CDFW 2021).

5.3.3 Sensitive Habitats (Waters of the U.S./State)

As described above our surveys did not identify any wetlands or other waters that would fall under the jurisdiction of the USACE (Waters of the U.S.), or under the jurisdiction of the RWQCB or CDFW (Waters of the State), on the project site itself. Outside the project boundary, but within the study area, an isolated forested wetland depression is located immediately north of the main project site. One linear area of herbaceous seasonal wetland is located immediately north of the Hamilton Avenue Parcels North and South. Another herbaceous seasonal wetland is located just outside the northeast corner of the project boundary. As discussed in Section 3.1.1 above, the USACE may claim these features as jurisdictional Waters of the U.S., and the RWQCB could consider these wetlands (and possibly an additional 0.13-acre area where the canopy of willows extends outside the 0.07-acre forested wetland footprint within which the willows are rooted) to be Waters of the State. It is our understanding that the project will avoid to the extent feasible placing fill in those wetlands, in which case no permits from the USACE or RWQCB would be needed for activities associated with wetlands even if these features are determined to be jurisdictional. However, if these features are determined to be jurisdictional and are impacted by the project, permits from the USACE and RWQCB would be required, and mitigation of impacts would be required as described in Mitigation Measures BIO-11 and 12 in Section 6.2.1.

These wetlands would be considered sensitive habitats for CEQA assessment purposes. These wetlands are not associated with a stream and would therefore not constitute sensitive riparian habitat claimed by CDFW.

A ditch located partially on-site and partially in the Hetch Hetchy easement area immediately south of the main project site, but within the study area, is dominated by upland (non-wetland) vegetation, receives relatively little runoff from surrounding areas, and drains to the City stormwater system, and is therefore not considered sensitive or expected to be jurisdictional (H. T. Harvey & Associates 2021b). Brackish marsh habitat well north and northeast of the site provides higher-quality habitat than any wetland or aquatic features within the study area, but it is located well outside of the study area.

5.4 Non-Native and Invasive Species

Several non-native, invasive plant species occur in the study area in the California annual grassland habitat. Of these, fennel has the potential to cause the more severe ecological impacts. In addition, black mustard and wild oats were observed in the study area and can have substantial and apparent ecological impacts if they spread into native, sensitive habitats (Cal-IPC 2021). However, all of these species are also present in abundance in

and around the wetland/grassland habitats to the north and northeast of the study area. The remainder of the project vicinity is developed/landscaped, and invasive species would not result in adverse effects on developed and landscaped areas.

Section 6. Impacts and Mitigation Measures

The State CEQA Guidelines provide direction for evaluating the impacts of projects on biological resources and determining which impacts will be significant. CEQA defines a "significant effect on the environment" as "a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." Under State CEQA Guidelines Section 15065, a project's impacts on biological resources are deemed significant if the project would:

A. "substantially reduce the habitat of a fish or wildlife species"
B. "cause a fish or wildlife population to drop below self-sustaining levels"
C. "threaten to eliminate a plant or animal community"
D. "reduce the number or restrict the range of a rare or endangered plant or animal"

In addition to the Section 15065 criteria that trigger mandatory findings of significance, Appendix G of State CEQA Guidelines provides a checklist of other potential impacts to consider when analyzing the significance of project effects. The impacts listed in Appendix G may or may not be significant, depending on the level of the impact. For biological resources, these impacts include whether the project would:

A. "have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service"

B. "have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service"

C. "have a substantial adverse effect on state or federally protected wetlands" (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling hydrological interruption, or other means)

D. "interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites"

E. "conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance"

F. "conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan"

The impact assessment below is structured based on the six significance criteria (A-F) listed above.

6.1 Impacts on Special-Status Species: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS (Less than Significant with Mitigation)

6.1.1 Impacts on Special-Status Species during Demolition and Construction (Less than Significant)

No special-status plants are present within the study area, and therefore, none will be impacted by demolition of existing structures, construction of the project, or any other project components. No special-status animals are expected to breed in the study area. However, as noted in Table 1, nonbreeding individuals of the San Francisco common yellowthroat, Alameda song sparrow, and pallid bat could possibly forage on the site on occasion. San Francisco common yellowthroats and Alameda song sparrows breeding in the off-site brackish marsh to the north and northeast of the site may disperse (particularly during the nonbreeding season) along the Dumbarton Rail Corridor to the dense vegetation along the northern edge of the site, where they may forage. Pallid bats are expected to occur on or near the site rarely, if at all, but dispersing individuals could occasionally forage on the site. Due to the absence of high-quality roosting sites for pallid bats, this species is not expected to roost on the project site.

During demolition and construction, the removal of vegetation, as well as noise and operation of heavy equipment, could disturb foraging yellowthroats and song sparrows, and disturbance of existing vegetation could result in loss or degradation of foraging habitat and declines in food resources for these bird species as well as the pallid bat. However, the project site does not provide high-quality habitat for any of these species, in its current state. These species would not be likely to occur on the site, or close enough to the project site to be disturbed by demolition or construction activities. Given the project site's relatively urban characteristics, the amount of habitat that may be degraded and the number of individuals of these species that would be disturbed by project activities are minimal.

Construction on offsite areas could include the placement of utilities lines under existing rights-of-way, construction of roundabout, and improvements to a Pacific Gas and Electric Company substation. All of these areas are developed and have no natural features that provide habitat for special-status species. Construction of offsite project components will not result in impacts to special-status species or other sensitive biological resources.

Therefore, project activities would not result in substantial impacts to these species' population and habitat, and such impacts would be less than significant.

6.1.2 Impacts on Wildlife from Artificial Lighting (Less than Significant with Mitigation)

The installation of lighting on buildings and around roads, paths, and parking lots may result in potential impacts on animal species. Many animals, both special-status and common species, are sensitive to light cues,

which influence their physiology and shape their behaviors, particularly during the breeding season (Ringer 1972, de Molenaar et al. 2006). Artificial light has been used as a means of manipulating breeding behavior and productivity in captive birds for decades (de Molenaar et al. 2006), and has been shown to influence the territorial singing behavior of wild birds (Longcore and Rich 2004, Miller 2006, de Molenaar et al. 2006). While it is difficult to extrapolate results of experiments on captive birds to wild populations, it is known that photoperiod (the relative amount of light and dark in a 24-hour period) is an essential cue triggering physiological processes as diverse as growth, metabolism, development, breeding behavior, and molting (de Molenaar et al. 2006). This holds true for mammals and other taxa as well (Beier 2006), suggesting that increases in ambient light may interfere with these processes across a wide range of species, resulting in impacts on wildlife populations.

Artificial lighting may also indirectly affect animals by increasing the nocturnal activity of predators such as owls, hawks, and mammalian predators (Negro et al 2000, Longcore and Rich 2004, DeCandido and Allen 2006, Beier 2006). The presence of artificial light may influence habitat use by rodents (Beier 2006) and breeding birds (Rogers et al. 2006, de Molenaar et al. 2006) by causing avoidance of well-lit areas, resulting in a net loss of habitat availability and quality.

The *Willow Village Master Plan Bird-Safe Design Assessment*, provides a comprehensive analysis of lighting impacts for the Willow Village Master Plan based on the project's conceptual Conditional Development Permit (CDP) application. The report provides documentation of the lighting measures that will be incorporated into the project to ensure that (1) project impacts due to lighting are reduced to less-than-significant levels under CEQA, and (2) the project complies with City of Menlo Park lighting requirements. CEQA mitigation measures related to minimizing lighting impacts are identified below.

For all exterior lighting in the northern portion of the main project site (i.e., areas north of Main Street and Office Buildings 03 and 05 surrounding the hotel, Town Square retail pavilion, Office Building 04, event building, and North Garage):

- **Mitigation Measure BIO-1.** To the maximum extent feasible, up-lighting (i.e., lighting that projects upward above the fixture) shall be avoided in the project design. All lighting shall be fully shielded to block illumination from shining upward above the fixture.

  If up-lighting cannot be avoided in the project design, up-lights shall be shielded and/or directed such that no luminance projects above/beyond objects at which they are directed (e.g., trees and buildings) and such that the light would not shine directly into the eyes of a bird flying above the object. If the objects themselves can be used to shield the lights from the sky beyond, no substantial adverse effects on migrating birds are anticipated.

- **Mitigation Measure BIO-2.** All lighting shall be fully shielded to block illumination from shining outward towards San Francisco Bay habitats to the north. No light trespass shall be permitted more than 80 feet beyond the site's northern property line (i.e., beyond the JPB rail corridor).

- **Mitigation Measure BIO-3.** Exterior lighting shall be minimized (i.e., total outdoor lighting lumens shall be reduced by at least 30% or extinguished, consistent with recommendations from the International Dark-Sky Association [2011]) from 10:00 p.m. until sunrise, except as needed for safety and City code compliance.

- **Mitigation Measure BIO-4.** Temporary lighting that exceeds minimal site lighting requirements may be used for nighttime social events. This lighting shall be switched off no later than midnight. No exterior up-lighting (i.e., lighting that projects upward above the fixture, including spotlights) shall be used during events.

Due to the potential for lighting within the stair/elevator towers to result in bird collisions, the project will implement the following measure:

- **Mitigation Measure BIO-5.** Lights shall be shielded and directed so that lighting does not spill outwards from the elevator/stair towers into adjacent areas.

Due to the potential for interior lighting within the buildings within the atrium to spill outwards to the north and affect birds, the project shall implement the following mitigation measure for interior lights within the buildings within the atrium to minimize impacts due to lighting:

- **Mitigation Measure BIO-6.** Interior or exterior blinds shall be programmed to close on north-facing windows of interior buildings within the atrium from 10:00 p.m. to sunrise in order to block lighting from spilling outward from these windows.

If birds are able to distinguish illuminated interior vegetation, trees, and structures within the atrium at night, collisions with the building are expected to be appreciably higher as birds attempt to fly through glazing to reach these features (e.g., during descent from migration at dawn). The project shall implement Mitigation Measures BIO-1 and BIO-3 above as well as Mitigation Measure BIO-7 below to ensure that structures, trees, and vegetation in the atrium are not illuminated by up-lighting or accent lighting such that they are more conspicuous to birds from outside compared to ambient conditions (i.e., lighting levels from fixtures within the atrium that do not specifically illuminate these features). Structures, trees, and vegetation are considered 'more conspicuous' to birds when they would be more conspicuous when viewed by the human eye from outside the atrium at any elevation.

- **Mitigation Measure BIO-7.** Accent lighting within the atrium shall not be used to illuminate trees or vegetation. OR

  The applicant shall provide documentation to the satisfaction of a qualified biologist that the illumination of vegetation and/or structures within the atrium by accent lighting and/or up-lighting will not make these features more conspicuous to the human eye from any elevation outside the atrium compared to ambient conditions within the atrium. The biologist shall submit a report to the City following the completion of the lighting design documenting compliance with this requirement.

For Office Buildings 01, 02, 03, 05, and 06 and the residential/mixed-use buildings, the project shall implement Mitigation Measure BIO-1 above as well as the following mitigation measure to minimize impacts due to increased lighting:

- **Mitigation Measure BIO-8.** Exterior lighting shall be minimized (i.e., total outdoor lighting lumens shall be reduced by at least 30% or extinguished, consistent with recommendations from the International Dark-Sky Association [2011]) from midnight until sunrise, except as needed for safety and City code compliance.

6.1.3 Impacts on Wildlife from Feral Cat Predation (Less than Significant with Mitigation)

Mammalian predation of birds and small mammals is a natural process. However, when natural levels of predation are increased due to the presence of non-native species, the health of local animal populations, including populations of special-status species, can be adversely affected. Feral cats (*Felis catus*) have been implicated as a major predator on many native wildlife species, including birds and small mammals such as the salt marsh harvest mouse, which is known to occur in wetlands north and northeast of the study area (CNDDB 2021). Not only does predation by feral cats have a potential impact on animal populations, but feral cat feeding stations also attract other predators such as raccoons and skunks, increasing predation pressure on native species in these locations.

During the reconnaissance survey on November 13, 2017, multiple feral cats were observed on the main project site and in the surrounding study area. Implementation of the proposed project has the potential to result in an increase in the feral cat population, for example as a result of an influx of renters and their pets or the establishment of feral cat feeding stations by residents or workers. This impact would be potentially significant under CEQA due to the impact on native wildlife species (Criterion A). Implementation of Mitigation Measure BIO-9 will reduce potential impacts due to feral cats to a less-than-significant level.

Mitigation Measure BIO-9. Feral Cat Management Program. The developer shall implement a Feral Cat Management Program similar to the program developed in conjunction with the Peninsula Humane Society and the Society for the Prevention of Cruelty to Animals for Meta's East Campus in 2013. For one week, every three months (i.e., each quarter), three live trap cages designed to trap cats shall be placed around the perimeter of the main Project Site in locations where feral cats are likely to prey upon native wildlife species. Each trap cage shall be monitored and maintained on a daily basis during the week the traps have been set to determine whether a feral cat has been caught and whether the trap has inadvertently captured a non-target species. If a feral cat is caught, a representative from a pest control operator (or a similar service organization/company) shall be contacted and dispatched to transport the trapped cat to either the Humane Society of San Mateo County, a local cat shelter, a local cat rescue facility, or other local facility that accepts feral cats. If an animal other than a feral cat is caught in one of the traps, it shall be released immediately at the trap location.

6.2 Impacts on Sensitive Communities: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service

6.2.1 Impacts on Riparian Habitat or Other Sensitive Natural Communities (Less than Significant with Mitigation)

No riparian habitats or other sensitive natural communities are present on the project site itself. A small, isolated segment of forested wetland is located in a drainage ditch along the northern edge of the study area, just outside the project boundary. A linear area of herbaceous seasonal wetland is present immediately north of the Hamilton Avenue Parcels North and South portion of the project site. Another herbaceous seasonal wetland is present just outside the northeast corner of the project boundary. These wetlands are small and isolated, being in depressional areas, rather than having a surface connection to more extensive wetlands. Due to their small, isolated nature and lack of high-quality habitat for wildlife, these are not high-quality habitat features. Nevertheless, forested wetlands are relatively scarce along the edge of the bay, and seasonal wetlands along the edge of the bay have declined due to development and fill. Therefore, we consider these wetlands to be sensitive habitat areas.

Although these wetlands are outside of the project's property boundary, it is possible that these features may be impacted, either temporarily or permanently, during project grading. Elevation of the site and construction of a bicycle/pedestrian path along the northern edge of the main project site will require import of fill into that area, and although a retaining wall may be constructed to support the trail, some clearing of vegetation within, and fill of, these wetlands (or portions of these wetlands) may occur. As a result, it is possible that up to the entire 0.07-acre isolated forested wetland (as well as an additional 0.13-acre area where the canopy of willows extends outside the 0.07-acre forested wetland footprint within which the willows are rooted) and 0.07-acre herbaceous seasonal wetlands may be lost due to fill. Even if these wetlands are not permanently impacted, temporary impacts to wetlands may occur due to construction access, potentially resulting in degradation of wetland vegetation or hydrology. Owing to the scarcity of forested wetlands along the edge of the bay and the decline in seasonal wetlands in the region, this impact would be significant (Criterion B). Implementation of Mitigation Measures BIO-10, 11, and 12 will reduce this impact to a less-than-significant level. Indirect impacts on these wetlands will be avoided and minimized as described under *Impacts on Wetlands and Water Quality* below.

Mitigation Measure BIO-10. Avoidance and Minimization. To the extent feasible, construction activities should avoid or minimize the removal of wetland vegetation or the placement of fill in the wetlands immediately north and northeast of the project site. If all direct impacts to wetlands (i.e., vegetation removal and fill) are avoided, Mitigation Measures BIO-11 and BIO-12 do not need to be implemented, but if any wetland vegetation needs to be removed from the wetlands, or any fill needs to be placed in the wetlands, Measure BIO-11 (and Measure BIO-12, if permanent impacts will occur) will be implemented.

Mitigation Measure BIO-11. In-Situ Restoration of Temporary Impacts. If impacts to the wetlands immediately north and northeast of the project site are temporary, resulting in vegetation removal or temporary fill, but no permanent fill of the wetland is necessary, then the wetland area will be restored by the Project Sponsor following construction. The herbaceous seasonal wetlands are likely to become recolonized easily without the need for seeding and planting, as long as their existing hydrology and topography are restored following temporary impacts. Depending on the level of impact, there is potential for the arroyo willow clumps in the isolated forested wetland to regrow from cut stumps. In such a case, the in-situ restoration would involve simply protecting the area with exclusion fencing following construction to allow for re-growth of vegetation. For temporary impacts that may have removed willow root masses, but where in-situ restoration is still an option, a more detailed restoration plan will need to be developed. The mitigation should, at a minimum, achieve no net loss of wetland acreage (i.e., jurisdictional wetlands lost to fill will be replaced by creation or restoration of wetland habitat, of the same type that was impacted [either forested or herbaceous seasonal] at a minimum 1:1 ratio, on an acreage basis, or as otherwise required by any state or federal permitting agencies) or ecological functions and values through the restoration and enhancement of the impacted wetland that are equal to or greater than the baseline conditions for the existing wetlands. An in-situ restoration approach could involve salvage of wetland plant material prior to construction (e.g., willow cuttings or salvage of willow clumps, in the case of the isolated forested wetland) and then replanting those clumps if the seasonal timing of the construction were appropriate. USACE and/or RWQCB approvals may be required to authorize temporary impacts to these features.

Mitigation Measure BIO-12. Compensatory Mitigation. If any permanent fill of the isolated forested wetland or the herbaceous seasonal wetlands will occur, the project proponent will provide new wetland habitat of the same type that was impacted (either forested or herbaceous seasonal) to offset this impact, either through the creation enhancement, or restoration of wetlands in an appropriate location or via the purchase of mitigation credits in a USACE or RWQCB-approved wetland mitigation bank. The purchase of such credits shall serve as full mitigation for impacts to these wetland features. If project-specific creation, enhancement, or restoration of wetland habitat is implemented, habitat will be restored or created at a minimum ratio of 2:1 (compensation : impact) on an acreage basis, or as otherwise required by any state of federal permitting agencies. This ratio is not higher due to the relatively low quality of the wetlands in the study area relative to more extensive, less fragmented wetlands elsewhere in the region, but it is not lower due to the temporal loss of wetland functions and values that would result from the lag between impacts to the wetlands and maturation of the mitigation habitat. USACE and/or RWQCB approvals may be required to authorize permanent impacts to this feature.

To the extent compensatory mitigation is not provided by purchasing mitigation credits from a USACE- or RWQCB-approved wetland mitigation back, then, if feasible, compensation will be provided by creating, enhancing, or restoring wetland habitat so as to achieve the 2:1 ratio somewhere in San Mateo County, or as otherwise required by any state or federal permitting agencies. A qualified biologist shall develop a "Wetland Mitigation and Monitoring Plan" describing the mitigation, which will contain the following components (or as otherwise modified by regulatory agency permitting conditions):

- Summary of habitat impacts and proposed mitigation ratios
- Goal of the restoration to achieve no net loss of habitat functions and values
- Location of mitigation site(s) and description of existing site conditions
- Mitigation design:
    - Existing and proposed site hydrology
    - Grading plan if appropriate, including bank stabilization or other site stabilization features
    - Soil amendments and other site preparation elements as appropriate
    - Planting plan
    - Irrigation and maintenance plan
    - Remedial measures and adaptive management
- Monitoring plan (including final and performance criteria, monitoring methods, data analysis, reporting requirements, and monitoring schedule). Success criteria will include quantifiable measurements of wetland vegetation type (e.g., dominance by natives) and extent appropriate for the restoration location, and provision of ecological functions and values equal to or exceeding those in the wetland habitat affected. At a minimum, success criteria will include following:
    - At Year 5 post-mitigation, at least 75 percent of the mitigation site will be dominated by native hydrophytic vegetation.

The Wetland Mitigation and Monitoring Plan must be approved by the City of Menlo Park prior to the wetland impacts, and implementation of the Plan must begin within one year after the discharge of fill into these wetland features.

Alternately, off-site mitigation could be provided via the purchase of mitigation credits at an agency-approved mitigation bank, as noted above.

6.2.2 Impacts Caused by Non-Native and Invasive Species (Less than Significant)

Several non-native, invasive plant species occur in the California annual grassland habitat located along the northern edge of the study area. Invasive species can spread quickly and can be difficult to eradicate. Many non-native, invasive plant species produce seeds that germinate readily following disturbance. Further, disturbed areas are highly susceptible to colonization by non-native, invasive species that occur locally, or whose propagules are transported by personnel, vehicles, and other equipment.

Development undertaken because of the proposed project would result in a large portion of the site being subject to soil disturbance due to replacement of the existing outdated industrial complex with a new, mixed-used campus. Activities such as trampling, equipment staging, and vegetation removal are all factors that would also contribute to disturbance. Areas of disturbance could serve as the source for promoting the spread of non-

native species, which could degrade the ecological values of wetlands that occur immediately adjacent to the project site, and adversely affect native plants and wildlife that occur there. Local propagule sources of one highly invasive weed, fennel, and other moderately invasive weeds such as wild oats and black mustard were observed on and surrounding the northern portion of the study area during the November 2017 and April 2019 surveys. Although no invasive weeds were observed on the project site itself, it is possible that some off-site grading in areas along the northern edge of the site will be necessary. Such grading may mobilize weeds within the immediate vicinity of the grading. However, given the minimal amount of disturbance in this off-site area, and the fact that surrounding areas are already developed, we do not expect this disturbance to result in an increased source population for the spread of non-native, invasive species into sensitive habitat areas.

Further, the project would comply with the City of Menlo Park Municipal Code, Chapter 12.44.090(a)(1)(G), which discourages the use of invasive or noxious plant species for landscaping. Thus, project activities would not result in the introduction of invasive species onto the project site or facilitate the spread of invasive plants into sensitive habitats (e.g., wetlands) surrounding the project site. In addition, the invasive species observed in the study area are already present in or around wetland habitats to the north and northeast, and the remainder of the surrounding area is developed/landscaped and thus not susceptible to habitat degradation by the spread of invasive plants. Therefore, the project would result in no impact due to the spread of non-native, invasive species.

6.3 Impacts on Wetlands: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling hydrological interruption, or other means.

6.3.1 Impacts on Wetlands and Water Quality (Less than Significant with Mitigation)

No wetlands occur on the project site, but an isolated forested wetland and herbaceous seasonal wetlands are located to the north of the project site and to the northeast of the project site within the study area , and further, brackish wetlands occur to the north and northeast of the study area boundary. The isolated forested wetland, herbaceous seasonal wetlands, and brackish marsh may be subject to the regulatory jurisdiction of the USACE and RWQCB. Wetlands serve a variety of important functions, such as sediment stabilization, sediment/toxicant retention, nutrient removal/transformation, and terrestrial wildlife species habitat. Even though the acreage of these wetlands in the study area is small, wetlands are relatively scarce regionally, and even small wetland areas have disproportionate contributions to water quality, groundwater recharge, watershed function, and wildlife habitat in the region. In particular, forested wetlands are scarce along the edges of San Francisco Bay.

As discussed under *Impacts on Riparian Habitat or Other Sensitive Natural Communities* above, while the project proposes to avoid these features to the extent feasible, it is possible that the 0.07-acre isolated forested wetland (as well as an additional 0.13-acre area where the canopy of willows extends outside the 0.07-acre forested wetland footprint within which the willows are rooted) and 0.07-acre seasonal wetlands along the northern edge

of the site may be impacted, either temporarily or permanently, during project grading. Owing to the scarcity of wetlands along the edge of the bay, this direct impact would be significant (Criterion C). Implementation of Mitigation Measures BIO-10, 11, and 12 will reduce impacts from the direct loss or modification of wetlands to a less-than-significant level. The brackish wetlands are located approximately 220 ft from the nearest proposed building and are separated from the main project site by an approximately 25 – 40 ft tall self-storage business. The project would not cause any direct impacts on these brackish wetlands.

Redevelopment has the potential to cause indirect impacts on nearby wetlands or water quality within those wetlands based on site runoff patterns. Currently during the 100-year storm, approximately 16% of the main project site's runoff flows overland to the brackish wetlands located northeast of the study area, with the rest flowing west to the Willow Road storm drain (Sherwood Design Engineers 2017). The project is expected to increase the area of overland flow that drains to the northeast corner of the main project site during the 100-year storm event somewhat, but would detain water on-site to not exceed existing peak flow rates. Such infrequent storm events are not expected to shape the species composition or habitat quality of wetlands to the north and northeast, as those habitats are governed by much more regular/frequent physical and ecological processes. As a result, an increase in runoff from the main project site during 100-year storm events would not have substantial impacts on wetlands to the north and northeast of the study area. The proposed project's storm drainage system would be designed to convey the 10-year storm event and lesser events from the entire main project site to the existing Willow Road storm drain main. During such 10-year and lesser events, no runoff would flow overland to the brackish wetlands located north and northeast of the study area. Therefore, due to the infrequency with which overland flows would enter off-site wetlands, the potential impact on wetland community composition or quality due to an influx of freshwater during large storm events is considered less than significant. Additionally, because the peak flow rate will not be increased to the marsh in large storm events over the existing condition, no significant erosion or sedimentation impacts would occur to the brackish marsh during site discharges to the area in large storm events.

In addition, the project would install stormwater infrastructure to collect site run-off and direct it into the City's storm drain system, rather than into the isolated forested wetland or herbaceous seasonal wetlands adjacent to the project boundary. This would prevent post-construction changes in run-off, including run-off carrying sediment or oil and grease, that could degrade water quality from entering the feature. Construction projects in California causing land disturbances that are equal to 1 acre or greater must comply with State requirements to control the discharge of stormwater pollutants under the NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; Water Board Order No. 2009-0009-DWQ). Prior to the start of construction/demolition, a Notice of Intent must be filed with the State Water Board describing the project. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and maintained during the project and it must include the use of Best Management Practices (BMPs) to protect water quality until the site is stabilized. Standard permit conditions under the Construction General Permit require that the applicant utilize various measures including: on-site sediment control best management practices, damp street sweeping, temporary cover of disturbed land surfaces to control erosion during construction, and utilization of stabilized construction entrances or wash racks, among other elements.

Finally, in many Bay Area counties, including San Mateo County, projects must also comply with the *California Regional Water Quality Control Board, San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit* (MRP) (Water Board Order No. R2-2015-0049). This MRP requires that all projects implement BMPs and incorporate Low Impact Development practices into the design to prevent stormwater runoff pollution, promote infiltration, and hold/slow down the volume of water coming from a site after construction has been completed. In order to meet these permit and policy requirements, projects must incorporate the use of green roofs, impervious surfaces, tree planters, grassy swales, bioretention and/or detention basins, among other factors. These same features will be used to treat any stormwater that flows to the off-site brackish marsh during large storm events.

Reductions in ambient light levels in wetland habitat can lead to a decrease in the amount of aquatic vegetation present, which results in a reduction in primary production, as well as the amount of cover and herbaceous food available in the wetland habitat. The proposed project would result in an increase in the maximum height of buildings on the project site from approximately 34 ft currently to 110 ft. Thus, the project has the potential to affect vegetation near taller buildings due to changes in ambient lighting (i.e., shading). However, the increased height of the proposed buildings is not expected to result in a substantial change in the ambient light reaching nearby wetlands. The isolated forested wetlands immediately north of the project boundary are currently bordered to the south by an area of tall trees that already provide some shade, and under the proposed project, regardless of the height of buildings that are constructed nearby, these wetlands would still have exposure to the eastern sky, unimpeded by new buildings. Thus, shading of this wetland under the proposed project is not expected to increase substantially over current levels.

The herbaceous seasonal wetland immediately outside the northeast corner of the project site is in an open area, with no substantive shading from trees or buildings. The herbaceous seasonal wetland immediately north of the Hamilton Avenue Parcels North and South portion of the project site is currently bordered to the south by shrubs and small trees that provide minimal shade, as well as two approximately 20-foot tall buildings located approximately 15–25 feet from the wetland that also shade portions of the wetlands. Shading of both herbaceous seasonal wetlands by new buildings would reduce the amount of light received by wetland plants, potentially affecting the health and growth of these plants, and we would expect some degradation of the wetland habitat over time as a result. However, these wetlands would still have exposure to the eastern sky, unimpeded by new buildings, so they would not be completely shaded. Because these herbaceous seasonal wetlands in the study area would continue to receive adequate lighting, impacts to their functions and values would not rise to a level of significance under CEQA.

The brackish marsh to the north of the study area is located approximately 220 ft from the nearest proposed building and is separated from the main project site by an approximately 25 – 40 ft tall self-storage business. Thus, shading of the marsh by the existing storage units currently have an effect on aquatic vegetation, and the net increase in shading from the proposed project would be insignificant given the project site's distance from the marsh. Shade from the proposed buildings would only reach the marsh for short periods of the day when the sun is low in the sky and ambient light is dimmer and providing less photosynthetic input. Further, because

of the open nature of the proposed development, with extensive open space, the project would not result in one large, continuous shadow but would allow light to penetrate through the campus. Therefore, shading impacts on wetlands from the proposed buildings would be less than significant.

Compliance with state requirements to control the discharge of stormwater pollutants during construction under the NPDES Construction General Permit and the RWQCB required SWPPP, and post-construction measures and design features required by the MRP would reduce the project's potential impact on water quality to a less-than-significant level.

6.4 Impacts on Wildlife Movement: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites (Less than Significant)

6.4.1 Impacts on Wildlife Movement and Native Wildlife Nursery Sites (Less than Significant)

For many species, a typical urban landscape is a mosaic of suitable and unsuitable habitat types. Environmental corridors are segments of land that provide a link between these different habitats while also providing cover. Development that fragments natural habitats (i.e., breaks them into smaller, disjunct pieces) can have a twofold impact on wildlife: first, as habitat patches become smaller they are unable to support as many individuals (patch size), and second, the area between habitat patches may be unsuitable for wildlife species to traverse (connectivity).

All proposed project activities are located within an already developed footprint that is surrounded by existing development. Therefore, the project would not result in fragmentation of natural habitats. Further, the proposed project includes extensive open space. Thus, any common, urban adapted species that currently move through the project site would continue to be able to do so following project construction, and the project would not interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors.

Construction disturbance during the avian breeding season (February 1 through August 31, for most species) could result in the incidental loss of eggs or nestlings, either directly through the destruction or disturbance of active nests or indirectly by causing the abandonment of nests. Due to the absence of sensitive habitats from the project site, the habitats on the project site support only regionally common, urban-adapted breeding birds and support only a very small proportion of these species' regional populations. In addition, many birds are expected to continue to nest and forage on the project site after project construction is completed. These birds are habituated to disturbance related to the existing technology park, and the project incorporates trees, shrubs, and forbs into the landscape design, which will provide some food and structural resources for the common, urban-adapted birds of the area, as well as for migrants that may use the area during spring and fall migration. Therefore, project impacts on nesting and foraging birds that use the site, due to habitat impacts or disturbance

of nesting birds, would not rise to the CEQA standard of having a substantial adverse effect, and these impacts would not constitute a significant impact on these species or their habitats under CEQA. However, all native bird species are protected from direct take by federal and state statutes (see Sections 3.1.5 and 3.2.4). Therefore, Mitigation Measures BIO-13, 14, 15, and 16 shall be implemented to ensure that project activities comply with the MBTA and California Fish and Game Code:

Mitigation Measure BIO-13. Avoidance. To the extent feasible, construction activities should be scheduled to avoid the nesting season. If construction activities are scheduled to take place outside the nesting season, all impacts on nesting birds protected under the MBTA and California Fish and Game Code will be avoided. The nesting season for most birds in San Mateo County extends from February 1 through August 31.

Mitigation Measure BIO-14. Preconstruction/Pre-disturbance Surveys. If it is not possible to schedule construction activities between September 1 and January 31 then preconstruction surveys for nesting birds should be conducted by a qualified ornithologist to ensure that no nests of migratory birds will be disturbed during project implementation. We recommend that these surveys be conducted no more than seven days prior to the initiation of construction activities for each construction phase. During this survey, the ornithologist will inspect all trees and other potential nesting habitats (e.g., trees, shrubs, California annual grasslands, buildings) in and immediately adjacent to the impact areas for migratory bird nests.

Mitigation Measure BIO-15. Buffers. If an active nest is found within trees or other potential nesting habitats that would be disturbed by these activities, the ornithologist will determine the extent of a construction-free buffer zone to be established around the nest (typically 300 ft for raptors and 100 ft for other species), to ensure that no nests of species protected by the MBTA and California Fish and Game Code will be disturbed during Project implementation.

Mitigation Measure BIO-16. Inhibition of Nesting. If construction activities will not be initiated until after the start of the nesting season, all potential nesting substrates (e.g., bushes, trees, grasses, and other vegetation) that are scheduled to be removed by the project may be removed prior to the start of the nesting season (e.g., prior to February 1). This will preclude the initiation of nests in this vegetation, and prevent the potential delay of the project due to the presence of active nests in these substrates.

6.5 Impacts due to Conflicts with Local Policies: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Less than Significant)

6.5.1 Impacts Related to Compliance with Municipal Code Chapter 13.24, Heritage Trees (Less than Significant)

Per City of Menlo Park Municipal Code Chapter 13.24, Heritage Trees, permits from the City's Director of Public Works or his or her designee and payment of a fee are required for the removal of any trees which meets the definition of heritage tree, as defined in Section 3.3.1 above. Of the 925 trees currently present on the

project site, including 292 that qualify as heritage trees, 821 (including 269 heritage trees) are expected to be removed during project construction activities (SBCA Tree Consulting 2017, Peninsula Innovation Partners 2020). The removal or pruning of trees protected by the City of Menlo Park municipal code is considered potentially significant under CEQA (Criterion I). However, the project would comply with the City's heritage tree ordinance Sections 16.43.140(6) (with respect to the O District) and 16.45.130(6) (with respect to the RMU District), including obtaining a permit from the City to remove protected trees and paying any applicable fee. The project proposes to provide replacement trees for all heritage trees removed by the project, so that a greater number of trees will be planted than removed. Therefore, impacts related to conflict with local policies or ordinances protecting heritage trees would be less than significant.

6.5.2 Impacts Related to Compliance with Municipal Code Chapters 16.43.140(6) and 16.45.130(6), Bird Safe Design (Less than Significant with Mitigation)

Development of the proposed project would result in the replacement of existing multi-story buildings with new multi-story buildings on the main project site, and the new buildings will incorporate glazing into their facades. Glass windows and building facades can result in injury or mortality of birds due to collisions with these surfaces. Because birds do not perceive glass as an obstruction the way humans do, they may collide with glass when the sky or vegetation is reflected in glass (e.g., they see the glass as sky or vegetated areas); when transparent windows allow birds to perceive an unobstructed flight route through the glass (such as at corners); and when the combination of transparent glass and interior vegetation (such as in planted atria) results in attempts by birds to fly through glass to reach that vegetation.

The majority of avian collisions with buildings occur within the first 60 ft of the ground (City of San Francisco 2011), where birds spend the majority of their time engaged in foraging, territorial defense, nesting, and roosting activities, and where vegetation is most likely to be reflected in glazed surfaces. However, very tall buildings (e.g., buildings 500 ft or more high) may pose a threat to birds that are migrating through the area, particularly to nocturnal migrants that may not see the buildings or that may be attracted to lights on the buildings.

Currently, terrestrial land uses and habitat conditions in and adjacent to the project site consist primarily of developed and landscaped uses such as buildings, parking lots, and roads. Vegetation in these areas is limited in extent, and consists primarily of non-native landscaped trees and shrubs. Although a number of bird species will use such vegetation, they typically do so in low numbers. Non-native vegetation supports fewer of the resources required by native birds than native vegetation, and the structural simplicity of the vegetation (without well-developed ground cover, understory, and canopy layers) further limits resources available to birds. In addition, although numerous waterbirds are known to congregate at the Don Edwards San Francisco Bay NWR to the north and east of the project site, because the area surrounding the project site to the west and south is heavily urbanized and contains no habitats of high value to estuarine birds using the NWR, we do not expect large numbers of waterbirds to be flying over the project site at altitudes low enough for bird-strike mortality to occur. The bird species with the greatest potential to collide with any buildings would consist primarily of the common, urban-adapted passerine species that currently use the project site, as these are the species that would spend the most time in the vicinity of the new buildings.

Zoning regulations set forth in Municipal Code Chapter 16.43.140 (6) require projects such as the Willow Village project to implement the following bird-safe design measures to reduce collision risk:

- No more than 10% of facade surface area shall have non-bird-friendly glazing.
- Bird-friendly glazing includes, but is not limited to opaque glass, covering of clear glass surface with patterns, paned glass with fenestration patterns, and external screens over non-reflective glass.
- Placement of buildings shall avoid the potential funneling of flight paths towards a building facade.
- Glass skyways or walkways, freestanding glass walls, and transparent building corners shall not be allowed.
- Transparent glass shall not be allowed at the rooflines of buildings, including in conjunction with green roofs.
- Use of rodenticides shall not be allowed.

However, these regulations allow that a project may receive a waiver from one or more of the items listed above, excluding the prohibition on use of rodenticides, subject to the submittal of a project-specific evaluation from a qualified biologist and review and approval by the planning commission (Ord. 1024 § 3 (part), 2016). To provide such a project-specific evaluation for the Willow Village project, H. T. Harvey & Associates (2021a) prepared the *Willow Village Master Plan Bird-Safe Design Assessment*, which comprehensively analyzes bird collision risk for the Willow Village Master Plan based on the project's conceptual Conditional Development Permit (CDP) application. The report provides documentation of the bird-safe design measures and mitigation measures that will be incorporated into the project to ensure that project impacts due to bird collisions with buildings are reduced to less-than-significant levels under CEQA.

Based on the *Willow Village Master Plan Bird-Safe Design Assessment*, the project shall comply with the following for purposes of addressing the potential for avian collision risk associated with the project:

1. The "beneficial project features" identified in Appendix A of the *Willow Village Master Plan Bird-Safe Design Assessment* (H. T. Harvey & Associates 2021a). These are features of the proposed buildings' architecture that would reduce the frequency of avian collisions by making the buildings' facades appear conspicuous to birds.
2. City Bird-Safe Design Requirements
    a. The City Bird-Safe Design Requirements identified in Mitigation Measure BIO-1 of the *ConnectMenlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update Environmental Impact Report* (ConnectMenlo EIR), certified by the City of Menlo Park in 2016 and codified in Sections 16.43.140(6) and 16.45.130(6) of the City's Municipal Code (collectively referred to as the "City Bird-Safe Design Requirements"), as described in Sections 5.2.2.1, 5.3.2.1, 5.4.2.1, 5.5.2.1, and 6.2.2 of the Bird-Safe Design Assessment.
    b. Subject to City approval of waivers to certain City Bird-Safe Design Requirements, the Alternative Measures Proposed, as described in Sections 5.2.2.2, 5.3.2.2, 5.4.2.2, 5.5.2.2, and 6.2.2 of the Bird-Safe Design Assessment. These Alternative Measures are derived from the

City of Menlo Park's requirements but are tailored specifically to the Willow Village Master Plan to achieve a reduction in collision risk commensurate with the City Bird-Safe Design Requirements.

3. The "lighting design principles," as described in Section 6.2.1 of the Bird-Safe Design Assessment.
4. Additional mitigation measures, including BIO-1 through BIO-8 described above for impacts on wildlife from artificial lighting, and BIO-17 through BIO-21 described below for the atrium.

As described in the *Willow Village Master Plan Bird-Safe Design Assessment*, an assessment of the conceptual design of most of the proposed structures in the Master Plan area (i.e., the hotel, residential/mixed-use buildings, office campus buildings, and event building and nearby buildings) determined that impacts from bird collisions with these buildings would be less than significant under CEQA with incorporation of beneficial project features, compliance with City Bird-Safe Design Requirements, implementation of Alternative Measures as described above, and implementation of Mitigation Measures BIO-1 through BIO-8 described above for impacts on wildlife from artificial lighting. As such, no additional mitigation measures (i.e., related to the buildings' facades) for impacts related to avian collisions are proposed for those buildings.

However, due to the unique design of the atrium, incorporation of beneficial project features, compliance with City Bird-Safe Design Requirements, and implementation of Alternative Measures may not reduce collision impacts with this structure sufficiently to avoid a significant impact under CEQA. Therefore, additional CEQA mitigation measures are necessary to reduce impacts. With the implementation of the following mitigation measures, which go above and beyond the City's bird-safe design requirements, impacts due to bird collisions with the atrium will be reduced to less-than-significant levels under CEQA, in our professional opinion.

- **Mitigation Measure BIO-17.** The project shall treat 100% of glazing on the 'dome-shaped' portions of the atrium's façades (i.e., all areas of the north façade, and all areas of the south façade above the elevated park) with a bird-safe glazing treatment to reduce the frequency of collisions. This glazing shall have a Threat Factor[4] of 15 or lower.

  Because a Threat Factor is a nonlinear index, its value is not equivalent to the percent reduction in collisions that a glazing product provides. However, products with lower threat factors result in fewer bird collisions. Because the City's bird-safe design requirements (and requirements of other municipalities in the Bay Area) do not specify the effectiveness of required bird-safe glazing, Mitigation Measure BIO-17 goes above and beyond what would ordinarily be acceptable to the City, as well as what is considered the industry standard for the Bay Area.

[4] A material's Threat Factor is assigned by the American Bird Conservancy, and refers to the level of danger posed to birds based on birds' ability to perceive the material as an obstruction, as tested using a "tunnel" protocol (a standardized test that uses wild birds to determine the relative effectiveness of various products at deterring bird collisions). The higher the Threat Factor, the greater the risk that collisions will occur. An opaque material will have a Threat Factor of 0, and a completely transparent material will have a Threat Factor of 100. Threat Factors for many commercially available façade materials can be found at https://abcbirds.org/wp-content/uploads/2021/01/Master-spreadsheet-1-25-2021.xlsx.

- **Mitigation Measure BIO-18.** The project shall treat 100% of glazing on the atrium's east and west facades with a bird-safe glazing treatment to reduce the frequency of collisions. This glazing shall have a Threat Factor of 15 or lower.

- **Mitigation Measure BIO-19.** Interior trees and woody shrubs will be set back from the atrium's east, west, and non-sloped (i.e., vertical/perpendicular to the ground) portions of the south facades by at least 50 feet to reduce the potential for collisions with these facades due to the visibility of interior trees. This 50-foot distance is greater than the distance used in the project design for the north and sloped portions of the south facades (e.g., 20-25 feet for the north façade) due to the vertical nature of the east, west, and non-sloped portions of the south facades, as opposed to the articulated nature of the north and sloped portions of the south facades (which is expected to reduce the visibility of internal vegetation to some extent), as well as the direct line-of-sight views between interior and exterior vegetation through the east, west, and non-sloped portions of the south facades compared to the north façade (where internal vegetation is elevated above exterior vegetation). Interior trees and shrubs that are not visible through the east, west, and south facades may be planted closer than 50 feet to glass facades.

- **Mitigation Measure BIO-20.** Because the glass production process can result in substantial variations in the effectiveness of bird-safe glazing, a qualified biologist will review physical samples of all glazing to be used on the atrium to confirm that the bird-safe frit will be visible to birds in various lighting conditions, and is expected to be effective.

- **Mitigation Measure BIO-21.** The project shall monitor bird collisions around the atrium for a minimum of two years following completion of construction of the atrium to identify if there are any collision "hotspots" (i.e., areas where collisions occur repeatedly).

  A monitoring plan for the atrium shall be developed by a qualified biologist that includes focused surveys for bird collisions in late April–May (spring migration), September–October (fall migration), and mid-November–mid-January (winter) to maximize the possibility that the surveys will detect any bird collisions that might occur. Surveys of the atrium will be conducted daily for three weeks during each of these periods (i.e., 21 consecutive days during each season, for a total of 63 surveys per year). In addition, for the two-year monitoring period, surveys of the atrium will be conducted the day following all nighttime events held in the atrium during which temporary lighting exceeds typical levels (i.e., levels specified in the International Dark-Sky Association's defined lighting zone LZ-2 from dusk until 10:00 p.m., or 30% below these levels from 10:00 p.m. to midnight, as described in Section 6.5 below). The applicant can assign responsibility for tracking events and notifying the biologist when a survey is needed to a designated individual who is involved in the planning and scheduling of atrium events. The timing of the 63 seasonal surveys (e.g., morning or afternoon) will vary on different days to the extent feasible; surveys conducted specifically to follow nighttime events will be conducted in the early morning.

  At a frequency of no less than every six months, a qualified biologist will review the bird collision data for the atrium in consultation with the City to determine whether any potential hotspots are present (i.e., if collisions have occurred repeatedly in the same locations). A "potential hotspot" is defined as a cluster of three or more collisions that occur within one of the three-week monitoring periods described above at a

given "location" on the atrium. The "location" shall be identified by the qualified biologist as makes sense for the observed collision pattern and may consist of a single pane of glass, an area of glass adjacent to a landscape tree or light fixture, the 8,990 square-foot vertical façade beneath the elevated park, the façade adjacent to vegetation on the elevated park, the atrium's east façade, the atrium's west façade, or another defined area where the collision pattern is observed. "Location" shall be defined based on observations of (1) collision patterns and (2) architectural, lighting, and/or landscape features contributing to the collisions, and not arbitrarily (e.g., by assigning random grids).

If any potential hotspots are found, the qualified biologist will provide an opinion regarding whether the potential hotspot will impact bird populations over the long-term to the point that additional measures (e.g., adjustments to lighting or the placement of vegetation) are needed to reduce the frequency of bird strikes at the hotspot location in order to reduce impacts to a less-than-significant level under CEQA (i.e., whether it constitutes an actual "hotspot"). This will be determined based on the number and species of birds that collide with the atrium over the monitoring period. In addition, a "hotspot" is automatically defined if a cluster of five or more collisions are identified at a given "location" on the atrium within one of the three-week monitoring periods described above. If a hotpot is identified, additional measures will be implemented at the potential hotspot location at the atrium; these may include one or more of the following options in the area of the hotspot depending on the cause of the collisions:

- The addition of a visible bird-safe frit pattern, netting, exterior screens, art, printed sheets, interior shades, grilles, shutters, exterior shades, or other features to untreated glazing (i.e., on the façade below the elevated park) to help birds recognize the façade as a solid structure.
- Installing interior or exterior blinds in the buildings within the atrium to prevent light from spilling outward though glazed facades at night.
- Reducing lighting by dimming fixtures, redirecting fixtures, turning lights off, and/or adjusting programmed timing of dimming/shutoff.
- Replacing certain light fixtures with new fixtures to provide increased shielding or redirect lighting.
- Adjusting or reducing lighting during events.
- Adjusting the timing of events to reduce the frequency of events during certain times of year (e.g., spring and/or fall migration) when relatively high numbers of collisions occur.
- Adjusting landscape vegetation by removing, trimming, or relocating trees or other plants (e.g., moving them farther from glass), or blocking birds' views of vegetation through glazing (e.g., using a screen or other opaque feature).

If modifications to the atrium are implemented to reduce collisions at a hotspot, one year of subsequent focused monitoring of the hotspot location will be performed to confirm that the modifications effectively reduce bird collisions to a less-than-significant level under CEQA. This monitoring may or may not extend beyond the two-year monitoring period described above, depending on the timing of the hotspot detection.

It is our understanding that the project proposes to use a frit consisting of ¼-inch white dots spaced in a 2x2-inch grid (i.e., similar in specifications to the Solyx SX-BSFD Frost Dot Bird Safety Film product rated with a Threat Factor of 15 by the American Bird Conservancy) for all treated façade areas on the atrium. We further understand that the atrium's glazing will have a dark gray thermal frit treatment (e.g., dark dots incorporated into the glass) in addition to the lighter-toned frit pattern that composes the bird-safe treatment. The extent of thermal frit will vary from the lower portions of the atrium to the upper portions of the atrium, with the upper portions incorporating more extensive (i.e., greater percent cover) thermal frit. Based on our review of preliminary physical glass samples supporting potential combinations of thermal frit and bird-safe frit, provided by the project team, it is our opinion that the combination of the bird-safe frit treatment with the thermal frit would produce very low Threat Factors. We are unaware of any glazing products that incorporate thermal frit patterns and have been assigned a Threat Factor by the American Bird Conservancy; however, the U.S. Green Building Council allows Threat Factors to be determined via any of the following options: (1) using a glass product that has been tested and rated by the American Bird Conservancy; (2) using a glass product with the same characteristics as a product that has been tested and rated by the American Bird Conservancy; or (3) using a glass product that has not been tested and rated, and asking the American Bird Conservancy to provide their opinion regarding an appropriate Threat Factor. We reached out to Dr. Christine Sheppard at the American Bird Conservancy to request her concurrence that the presence of the solar frit would not reduce the effectiveness of the bird-safe frit (and may even increase the effectiveness of the bird-safe frit). Dr. Sheppard responded in an email dated April 9, 2021 agreeing that the solar frit should make the lighter bird-safe frit dots more visible, and the proposed bird-safe treatment would have a Threat Factor of 15 as long as the bird-safe frit dots are ¼-inch in diameter (Sheppard 2021). Thus, the proposed bird-safe glazing treatment is appropriate for the atrium facades and goes above and beyond the City's minimum requirements, as well as the local standard for the San Francisco Bay Area.

The project will also implement Mitigation Measures BIO-1 through BIO-8 to minimize the contribution of project lighting on bird collision risk.

Prior to City approval of each Architectural Control Plan ("ACP") for the project, a qualified biologist shall review the final ACP to confirm that the above features, requirements, alternative measures, and mitigation measures, or other alternative features, requirements, alternative measures, and mitigation measures proposed by the applicant and reasonably acceptable to the qualified biologist, are incorporated into the final design, such that project impacts due to bird collisions would be less than significant under CEQA as indicated in the Bird-Safe Design Assessment.

6.5.3 Impacts Related to Compliance with General Plan Policy OSC1.3, Sensitive Habitats (Less than Significant with Mitigation)

General Plan Policy OSC1.3, Sensitive Habitats, requires new development on or near sensitive habitats to (1) provide a baseline assessment prepared by qualified biologists and specify requirements relative to the baseline assessments, (2) consult with appropriate regulatory and resource agencies, (3) incorporate appropriate avoidance and minimization measures, and (4) obtain necessary permits/authorizations. Further, Mitigation

Measure BIO-1 of the ConnectMenlo EIR (PlaceWorks 2016) specifies that the required biological resources assessment must address a number of specific requirements. The following summarizes the project's compliance with the requirements of General Plan Policy OSC1.3 and ConnectMenlo Mitigation Measure BIO-1.

- The baseline biological resources report is required to provide a determination on whether any sensitive biological resources, including jurisdictional wetlands and waters, essential habitat for special-status species, and sensitive natural communities, are present on the site or on any adjacent undeveloped lands that could be affected by the project and lands of the NWR. In compliance with this requirement, Section 4.2 of this report describes the biotic habitat types present in the study area. Sections 5.1 and 5.2 discuss the potential for these habitats to support special-status plants and animals and analyze the potential for special-status species to occur on the study area or close enough to be impacted by proposed project activities; Section 6.1 analyzes potential impacts to special-status species. No plant or animal species listed as threatened or endangered by the USFWS or CDFW are expected to occur within the study area. Further, no species designated as a species of special concern is expected to breed in the study area.

  Section 5.3 addresses the presence of sensitive habitats in the project vicinity, and Sections 6.2 and 6.3 analyze the potential for the project to result in impacts on such habitats. No habitats under the jurisdiction of the USFWS, CDFW, USACE, or RWQCB were determined to be present on the project site, but 0.07 acre of isolated forested wetland (and an additional 0.13-acre area where the canopy of willows extends outside the 0.07-acre forested wetland footprint within which the willows are rooted) and 0.07 acre of herbaceous seasonal wetlands are present immediately north and northeast of the site, and could potentially be impacted by construction. Implementation of Mitigation Measures BIO-10, 11, and 12 as described in Section 6.2.1 would reduce impacts on sensitive/jurisdictional habitats to less-than-significant levels.

- The baseline biological resources report is required to incorporate guidance from relevant regional conservation plans related to determining the potential presence or absence of sensitive biological resources. As described above, Sections 5.1 and 5.2 analyze the potential for special-status plant or animal species to occur on the project site. This analysis incorporates information from the NWR Comprehensive Conservation Plan and Environmental Assessment (U.S. Fish and Wildlife Service 2012), which includes a discussion of all the special-status species potentially occurring on the NWR.

- The baseline biological resources report is required to include an evaluation of the potential effects of the project on sensitive biological resources. The potential for the proposed project to result in significant impacts on sensitive biological resources is analyzed in Section 6 of this report. This analysis takes into consideration the habitat types present in the study area (Section 4.2), the potential for special-status species to be present in the study area (Sections 5.1 and 5.2), and the proximity of the project site to sensitive habitats (Section 5.3). Based on the analysis, it is determined that the project

would not result in significant impacts on special-status plant or animal species. The project could potentially result in impacts on sensitive habitats under the jurisdiction of the USACE and RWQCB, in the form of the small areas of isolated forested wetland (0.07 acre plus an additional 0.13-acre area where the canopy of willows extends outside the 0.07-acre forested wetland footprint within which the willows are rooted) and herbaceous seasonal wetlands (0.07 acre) present immediately north and northeast of the site. Implementation of Mitigation Measures BIO-10, 11, and 12 as described in Section 6.2.1 would reduce impacts on sensitive/jurisdictional habitats to less-than-significant levels.

- The baseline biological resources report is required to include avoidance, minimization, and mitigation measures for adverse impacts. Based on the *Willow Village Master Plan Bird-Safe Design Assessment*, Mitigation Measures BIO-1 through BIO-8, described in Section 6.1.2, were identified to reduce impacts of project lighting on wildlife and help to mitigate bird collision risk with project buildings, and Mitigation Measures BIO-17 through BIO-21, described in Section 6.5.2, will reduce impacts from bird collisions with the proposed atrium. Mitigation Measure BIO-9, described in Section 6.1.3, will reduce potential impacts of feral cats on native animals. Mitigation Measures BIO-10, 11, and 12, as described in Section 6.2.1, will reduce impacts on sensitive/jurisdictional habitats. Mitigation Measures BIO-13, 14, 15, and 16, described in Section 6.4.1, will avoid project conflicts with the MBTA and California Fish and Game Code related to nesting birds. Collectively all these mitigation measures will reduce Master Plan impacts on biological resources to less-than-significant levels.
- Per Mitigation Measure BIO-1 of the ConnectMenlo EIR, if sensitive biological resources are determined to be present on the project site or may be present on any adjacent parcel containing natural habitat, coordination with the appropriate regulatory and resource agencies must occur. The project could potentially result in impacts on sensitive habitats under the jurisdiction of the USACE and RWQCB, if these habitats are jurisdictional, in the form of the small areas of isolated forested wetland (0.07 acre plus an additional 0.13-acre area where the canopy of willows extends outside the 0.07-acre forested wetland footprint within which the willows are rooted) and herbaceous seasonal wetlands (0.07 acre) present immediately north and northeast of the site. As discussed in Mitigation Measure 2 of this biological resources report, the project will avoid and minimize impacts to these features to the extent feasible. If all direct impacts can be avoided, so that no clearing of wetland vegetation or fill of these wetlands will occur, no regulatory permitting related to these features would be necessary even if these habitats are jurisdictional. However, if these habitats are jurisdictional and will be impacted by vegetation clearing or fill, the applicant will obtain the necessary 404/401 permits from the USACE and RWQCB.

  The project would not result in impacts on plant or animal species listed as threatened or endangered by the USFWS or CDFW, and therefore, no coordination with regulatory agencies regarding impacts on special-status species is warranted. Resource agencies would be provided the opportunity to comment on the proposed project as part of the CEQA process for the project.

- Per Mitigation Measure BIO-1, where jurisdictional waters or federally or State listed special-status species would be affected by the project, appropriate authorizations shall be obtained by the project applicant. As described above, the applicant will obtain any necessary 404/401 permits from the USACE and RWQCB if the off-site isolated forested wetland and/or herbaceous seasonal wetlands are determined to be jurisdictional and will be impacted by vegetation clearing or fill. The project would not result in impacts on plant or animal species listed as threatened or endangered by the USFWS or CDFW. The project would comply with the City's heritage tree ordinance, including obtaining a permit from the City to remove protected trees and paying any applicable fee, as described in Section 6.5.1.

Thus, provided that this project incorporates the mitigation measures described in this biological resources report, the project will not conflict with General Plan Policy OSC1.3. This biological resources report represents compliance with ConnectMenlo EIR Mitigation Measure BIO-1 by providing all the information required by that mitigation measure for a biological resources assessment.

6.6 Impact due to Conflicts with an Adopted Habitat Conservation Plan: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan (No Impact)

6.6.1 Impacts due to Conflicts with an Adopted Habitat Conservation Plan (No Impact)

The project site is not located within an area covered by an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, the project would not conflict with any such documents.

6.7 Cumulative Impacts

Cumulative impacts arise due to the linking of impacts from past, current, and reasonably foreseeable future projects in the region. Future development activities in the City of Menlo Park will result in impacts on the same habitat types and species that will be affected by the proposed project. The proposed project, in combination with other projects in the area and other activities that impact the species that are affected by this project, could contribute to cumulative effects on special-status species. Other projects in the area include office/retail/commercial development, mixed use, and residential projects that could adversely affect these species, as well as restoration projects (e.g., the South Bay Salt Pond Restoration Project Phase 2, SAFER Bay Project) that will benefit these species. The South Bay Salt Pond Restoration Project has active restoration sites approximately 750 feet north of the Hamilton Avenue Parcel North component of the project.

The cumulative impact on biological resources resulting from the project in combination with other projects in the project area and larger region would be dependent on the relative magnitude of adverse effects of these projects on biological resources compared to the relative benefit of impact avoidance and minimization efforts prescribed by planning documents, CEQA mitigation measures, and permit requirements for each project;

compensatory mitigation and proactive conservation measures associated with each project. In the absence of such avoidance, minimization, compensatory mitigation, and conservation measures, cumulatively significant impacts on biological resources would occur.

However, the project would comply with applicable law regarding protection of biological resources, including among others federal and state law related to jurisdictional waters, federal and state law related to migratory birds, and local regulations regarding bird safety. In addition, the Menlo Park General Plan contains conservation measures that would benefit biological resources, as well as measures to avoid, minimize, and mitigate impacts on these resources. Further, the project would implement mitigation measures (Measures BIO-1-21) to mitigate impacts on sensitive and regulated habitats, and to minimize impacts on nesting and migratory birds, as described above. Thus, the project will make a less than cumulatively considerable contribution to cumulative impacts on biological resources.

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Appendix A. Plants Observed

Family	Scientific Name	Common Name
Aceraceae	*Acer palmatum*	Japanese maple
Aceraceae	*Acer rubrum*	red maple
Anacardiaceae	*Pistacia chinensis*	Chinese pistache
Anacardiaceae	*Schinus molle*	Peruvian pepper
Anacardiaceae	*Toxicodendron diversilobum*	poison oak
Apiaceae	*Foeniculum vulgare*	fennel
Araliaceae	*Hedera helix*	English ivy
Arecaceae	*Pheonix canariensis*	Canary Island palm
Asteraceae	*Baccharis pilularis*	coyote brush
Asteraceae	*Helminthotheca echioides*	bristly ox-tongue
Betulaceae	*Alnus cordata*	Italian alder
Bignoniaceae	*Jacaranda mimosifolia*	jacaranda
Brassicaeae	*Brassica nigra*	black mustard
Brassicaeae	*Raphanus sativus*	cultivated radish
Casuarinaceae	*Casuarina cunninghamiana*	casuarina
Cupresaceae	*Sequoia sempervirens*	coast redwood
Cupressaceae	*Cupressus sempervirens*	Italian cypress
Cyperaceae	*Cyperus eragrostis*	tall flatsedge
Fabaceae	*Acacia melanoxylon*	blackwood acacia
Fagaceae	*Quercus agrifolia*	coast live oak
Fagaceae	*Quercus lobata*	valley oak
Fagaceae	*Quercus rubra*	red oak
Ginkgoaceae	*Ginkgo biloba*	maidenhair
Lamiaceae	*Rosmarinus officinalis*	rosemary
Lythraceae	*Lagerstroemia spp.*	crepe myrtle
Magnoliaceae	*Magnolia soulangeana*	saucer magnolia
Malvaceae	*Malva nicaeensis*	bull mallow
Moraceae	*Ficus carica*	fig
Myrtaceae	*Eucalyptus camaldulensis*	red river gum
Myrtaceae	*Eucalyptus globulus*	Tasmanian blue gum
Myrtaceae	*Eucalyptus polyanthemos*	silver dollar gum
Myrtaceae	*Lophostemon confertus*	Brisbane box
Oleaceae	*Fraxinus oxycarpa 'Raywood'*	raywood ash
Oleaceae	*Fraxinus pennslyvanica*	Pennsylvania ash
Oleaceae	*Fraxinus uhdie*	shamel ash
Oleaceae	*Olea europaea*	olive
Papaveraceae	*Eschscholzia californica*	California poppy
Pinaceae	*Cedrus atlantica*	atlas cedar
Pinaceae	*Cedrus deodara*	deodar cedar
Pinaceae	*Pinus canariensis*	Canary Island pine

Pinaceae	*Pinus halepensis*	aleppo pine
Pinaceae	*Pinus pinea*	Italian stone pine
Pinaceae	*Pinus radiata*	Monterey pine
Platanaceae	*Planatus xhispanica*	London plane
Poaceae	*Avena* sp.	Wild oats
Poaceae	*Bromus diandrus*	ripgut brome
Poaceae	*Phragmites australis*	common reed
Poaceae	*Stipa miliaceae* var. *miliacea*	smilo grass
Podocarpaceae	*Afrocarpus gracilior*	African fern pine
Polygonaceae	*Rumex crispus*	curly dock
Rhamnaceae	*Rhamnus alaternus*	Italian buckthorn
Rosaceae	*Prunus cerasifera 'Krauter Vesuvis'*	purple leaf plum
Rosaceae	*Prunus serrulata*	cherry
Rosaceae	*Pyrus calleryana*	flowering pear
Rosaceae	*Pyrus kawakamii*	evergreen pear
Salicaceae	*Salix babylonica*	weeping willow
Salicaceae	*Salix* sp.	willow

Appendix B. Special-Status Plants Considered for Potential Occurrence

Common Name	Scientific Name	Suitable Habitat Absent	Edaphic Conditions Absent	Outside Elevation Range	Extirpated from Project Vicinity
alkali milk-vetch	Astragalus tener var. tener	x	x		
Anderson's manzanita	Arctostaphylos andersonii	x		x	
arcuate bush-mallow	Malacothamnus arcuatus	x		x	
bay buckwheat	Eriogonum umbellatum var. bahiiforme	x	x	x	
Ben Lomond buckwheat	Eriogonum nudum var. decurrens	x		x	
bent-flowered fiddleneck	Amsinckia lunaris	x			
Brewer's calandrinia	Calandrinia breweri	x		x	
Brewer's clarkia	Clarkia breweri	x	x	x	
bristly leptosiphon	Leptosiphon acicularis	x		x	
California androsace	Androsace elongata ssp. acuta	x		x	
California seablite	Suaeda californica	x			
caper-fruited tropidocarpum	Tropidocarpum capparideum	x	x		
chaparral ragwort	Senecio aphanactis	x		x	
Choris' popcornflower	Plagiobothrys chorisianus var. chorisianus	x			
clay buckwheat	Eriogonum argillosum	x	x	x	
clustered lady's-slipper	Cypripedium fasciculatum	x	x	x	
coast iris	Iris longipetala	x			
coast lily	Lilium maritimum	x			
coastal marsh milk-vetch	Astragalus pycnostachyus var. pycnostachyus	x			
Congdon's tarplant	Centromadia parryi ssp. congdonii				
Contra Costa goldfields	Lasthenia conjugens	x	x		
cotula navarretia	Navarretia cotulifolia	x	x		
Crystal Springs fountain thistle	Cirsium fontinale var. fontinale	x	x	x	
Crystal Springs lessingia	Lessingia arachnoidea	x	x	x	
Davidson's bush-mallow	Malacothamnus davidsonii	x		x	
Delta woolly-marbles	Psilocarphus brevissimus var. multiflorus	x		x	
Dudley's lousewort	Pedicularis dudleyi	x		x	
dusky-fruited malacothrix	Malacothrix phaeocarpa	x		x	
elongate copper moss	Mielichhoferia elongata	x	x		
fragrant fritillary	Fritillaria liliacea	x	X		
Franciscan onion	Allium peninsulare var. franciscanum	x		x	
Gairdner's yampah	Perideridia gairdneri ssp. gairdneri	x			
hairless popcornflower	Plagiobothrys glaber			x	x

Common Name	Scientific Name	Suitable Habitat Absent	Edaphic Conditions Absent	Outside Elevation Range	Extirpated from Project Vicinity
Hickman's popcornflower	Plagiobothrys chorisianus var. hickmanii	x		x	
Hillsborough chocolate lily	Fritillaria biflora var. ineziana	x	x	x	
Hoover's button-celery	Eryngium aristulatum var. hooveri	x			
Howell's onion	Allium howellii var. howellii	x		x	
Jepson's coyote-thistle	Eryngium jepsonii	x			
Jepson's woolly sunflower	Eriophyllum jepsonii	x		x	
Kings Mountain manzanita	Arctostaphylos regismontana	x	x	x	
large-flowered leptosiphon	Leptosiphon grandiflorus	x			
legenere	Legenere limosa	x			
Loma Prieta hoita	Hoita strobilina	x	x	x	
long-styled sand-spurrey	Spergularia macrotheca var. longistyla	x			
lost thistle	Cirsium praeteriens				x
maple-leaved checkerbloom	Sidalcea malachroides	x			
Marin western flax	Hesperolinon congestum	x	x		
Methuselah's beard lichen	Usnea longissima	x		x	
Mexican mosquito fern	Azolla microphylla	x		x	
Michael's rein orchid	Piperia michaelii	x			
minute pocket moss	Fissidens pauperculus	x		x	
Montara manzanita	Arctostaphylos montaraensis	x		x	
Mt. Diablo cottonweed	Micropus amphibolus	x		x	
narrow-petaled rein orchid	Piperia leptopetala	x		x	
Oakland star-tulip	Calochortus umbellatus	x	x	x	
Oregon polemonium	Polemonium carneum	x			
Patterson's navarretia	Navarretia paradoxiclara	x	x	x	
phlox-leaf serpentine bedstraw	Galium andrewsii ssp. gatense	x	x	x	
pincushion navarretia	Navarretia myersii ssp. myersii	x		x	
Point Reyes salty bird's-beak	Chloropyron maritimum ssp. palustre	x			
round-headed Chinese-houses	Collinsia corymbosa	x			
round-leaved filaree	California macrophylla	x		x	
saline clover	Trifolium hydrophilum	x			
San Antonio Hills monardella	Monardella antonina ssp. antonina	x		x	
San Francisco Bay spineflower	Chorizanthe cuspidata var. cuspidata	x			
San Francisco campion	Silene verecunda ssp. verecunda	x		x	
San Francisco collinsia	Collinsia multicolor	x		x	
San Francisco owl's-clover	Triphysaria floribunda	x		x	
San Francisco wallflower	Erysimum franciscanum	x			
San Joaquin spearscale	Extriplex joaquinana	x			
San Mateo thorn-mint	Acanthomintha duttonii	x	x	x	

Common Name	Scientific Name	Suitable Habitat Absent	Edaphic Conditions Absent	Outside Elevation Range	Extirpated from Project Vicinity
San Mateo woolly sunflower	Eriophyllum latilobum	x		x	
Santa Clara red ribbons	Clarkia concinna ssp. automixa	x		x	
Santa Clara thorn-mint	Acanthomintha lanceolata	x		x	
Satan's goldenbush	Isocoma menziesii var. diabolica	x		x	
serpentine leptosiphon	Leptosiphon ambiguus	x		x	
short-leaved evax	Hesperevax sparsiflora var. brevifolia	x			
slender-leaved pondweed	Stuckenia filiformis ssp. alpina	x		x	
South Coast Range morning-glory	Calystegia collina ssp. venusta	x	x	x	
spring lessingia	Lessingia tenuis	x		x	
stinkbells	Fritillaria agrestis	x		x	
sylvan microseris	Microseris sylvatica	x	x	x	
Tracy's eriastrum	Eriastrum tracyi	x		x	
two-fork clover	Trifolium amoenum	x			
western leatherwood	Dirca occidentalis	x		x	
white-flowered rein orchid	Piperia candida	x		x	
white-rayed pentachaeta	Pentachaeta bellidiflora	x	x	x	
woodland woollythreads	Monolopia gracilens	x	x		
woolly-headed lessingia	Lessingia hololeuca	x		x	

H. T. HARVEY & ASSOCIATES
Ecological Consultants
50 years of field notes, exploration, and excellence

Willow Village Tunnel and North Ramp Biological Resources Assessment

Project #10704

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July 2, 2021

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Section 1. Introduction

H. T. Harvey & Associates has conducted a background review and field survey to assess the potential for sensitive biological resources identified in the *ConnectMenlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update Environmental Impact Report* (ConnectMenlo EIR) to occur on the Willow Village Tunnel and North Ramp project site, or close enough to the site to be affected by project activities. It is our understanding that the proposed project entails the construction of a tunnel beneath Willow Road to connect Facebook's Willow Village Campus with its Bayfront Expansion Campus. The project site is currently occupied by a commercial office building, associated landscape vegetation, existing roadways, and a small portion of the Dumbarton Rail Corridor. This report provides our assessment of biological resources on the project site, and identifies appropriate avoidance and minimization measures to comply with Mitigation Measure BIO-1 of the ConnectMenlo EIR.

1.1 Background

In 2014, the City of Menlo Park initiated the process of updating its General Plan Land Use and Circulation Elements as well as its zoning for the M-2 area (also known as the Bayfront Area), which is located the northern portion of Menlo Park. Collectively, this update to the General Plan and zoning is known as *ConnectMenlo*. On November 29, 2016, the City Council certified the ConnectMenlo EIR and approved the General Plan Land Use and Circulation Elements. The Willow Village Tunnel and North Ramp project is located within the ConnectMenlo area, and subject to the requirements of the ConnectMenlo EIR.

Mitigation Measure BIO-1 of the ConnectMenlo EIR requires all new construction and building addition projects, regardless of size, to have a qualified biologist prepare a project-specific baseline biological resources assessment if the project would occur on or adjacent to a parcel containing natural habitat with features such as mature and native trees, unused structures that could support special-status species, other sensitive biological resources, and/or active nests of common birds protected under the Migratory Bird Treaty Act (MBTA). The Willow Village Tunnel and North Ramp project site supports suitable habitat that may contain active nests of common birds protected under the MBTA; hence, a baseline biological resources assessment is required for the project.

1.2 Project Description

The project site is located at the intersection of Willow Road and the Dumbarton Rail Corridor in Menlo Park, just south of State Route 84 (Figure 1). The project proposes to construct a tunnel beneath Willow Road to connect the future Willow Village Campus with Facebook's existing Bayfront Expansion Campus. The provision of a new, direct diagonal crossing below Willow Village would significantly reduce the crossing signal usage by pedestrians and bicyclists, which impedes the flow of vehicular traffic on Willow Road. A 200-foot-long ramp will be constructed east of Facebook Building MPK20 west of Willow Road, and a 230-foot-long

ramp will be constructed east of Willow Road at the Willow Village Campus. These ramps would lead tram, bicycle and pedestrian traffic under Willow Road and then back up to the surface. Existing pedestrian and bicycle pathways and vehicle roadways located east of Building MPK20 will also be realigned and modified to accommodate the new connection.

The project is envisioned to be constructed using cut-and-cover methods. Construction would be conducted in two phases to allow traffic on Willow Road to flow on detours achieved by locally widening the roadway. The first phase would involve removing a section of Willow Road pavement as well as the railroad tracks within the Willow Road right-of-way. The railroad tracks would be stored and subsequently reinstalled at their original location following conclusion of tunnel construction. The second phase of the tunnel construction would require temporary relocation of Facebook Way and its intersection with Willow Road to the north to allow completion of the cut-and-cover tunnel and north portal under Facebook Way.

Section 2. Methods

2.1 Background Review

Prior to conducting field work, H. T. Harvey & Associates ecologists reviewed the project plans and description provided by Signature Development Group in June 2021; aerial photos (Google Inc. 2021) and topographic maps; the *Don Edwards San Francisco Bay National Wildlife Refuge Comprehensive Conservation Plan* (U.S. Fish and Wildlife Service [USFWS] 2012); the *South Bay Salt Pond Restoration Project Final Environmental Impact Statement/Report* (EDAW et al. 2007); the *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (USFWS 2013); the *Recovery Plan for the Pacific Coast Population of the Western Snowy Plover* (USFWS 2007); USFWS species accounts, listing notices, and critical habitat notices; the California Department of Fish and Wildlife's (CDFW's) California Natural Diversity Database (CNDDB) (2021); the Calflora database on special-status plant occurrences (2021); the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2021); bird records from the project vicinity reported to the eBird database (Cornell Lab of Ornithology 2021), which has been established by the Cornell University Laboratory of Ornithology to archive records of birds seen worldwide; and other relevant scientific literature and technical databases in order to assess the current distribution of special-status plants and animals in the site vicinity. In addition, for plants, we reviewed all species currently ranked by the CNPS as California Rare Plant Rank (CRPR) 1A, 1B, 2, or 3 occurring in the *Palo Alto, California* 7.5-minute U.S. Geological Survey 7.5-minute quadrangle and eight surrounding quadrangles (*Woodside, San Mateo, Redwood Point, Newark, Mountain View, Cupertino,* and, *Mindego Hill*). We also considered the CNPS plant list for San Mateo County, as the CNPS does not maintain quadrangle-level records for CRPR 4 species. In addition, we reviewed the *Willow Village Master Plan Biological Resources Report* (H. T. Harvey & Associates 2020), because the proposed project overlaps a portion of the Master Plan area east of Willow Road.

2.2 Site Visit

Following our background review, H. T. Harvey & Associates senior wildlife ecologist Robin Carle, M.S., conducted a reconnaissance-level survey of the project site on June 9, 2021. The purpose of this survey was to identify existing biological conditions and the site's potential to support special-status species of plants and animals; other legally protected animals, such as migratory birds; and sensitive/regulated habitats such as jurisdictional wetlands and other waters of the U.S. regulated under Section 404 of the Clean Water Act, potential waters of the state regulated under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, and riparian habitats regulated under Section 1602 of the California Fish and Game Code. The survey included an assessment of habitats for special-status species and other protected animals both on the site and in adjacent areas (e.g., in developed and landscaped areas on adjacent properties) that could be impacted either directly or indirectly by proposed activities, as well as an assessment of adjacent habitats that could potentially support source populations of sensitive species that could then disperse onto the project site.

A focused survey for Congdon's tarplant (*Centromadia parryi* var. *congdonii*) was conducted on the project site by H. T. Harvey & Associates plant ecologist Mark Bibbo, M.S., on June 12, 2020 in support of the Willow Village Master Plan Biological Resources Report (H. T. Harvey & Associates 2020). That survey targeted all areas of suitable habitat along the Dumbarton Rail Corridor within the boundaries of the Willow Village Tunnel and North Ramp project. Because the remaining portions of the project site are completely occupied by developed land uses, no additional suitable habitat for special-status plants is present on the site. As a result, additional focused botanical surveys to support this assessment were not warranted.

Section 3. Environmental Setting

3.1 General Project Area Description

The project site is surrounded by dense commercial and residential development in Menlo Park. The site is generally bordered by California State Route 84 to the north, commercial development and a large brackish marsh to the east, and commercial development to the west and south (Figure 2). The site is bisected by Willow Road, which is oriented north to south, and the Dumbarton Rail Corridor, which is oriented east to west.

Elevations on the project site range from approximately 6.1 to 12.9 feet above sea level (North American Vertical Datum of 1988). The Natural Resources Conservation Service has mapped two soil units on the project site: urban land-orthents reclaimed complex, 0–2% slopes; and Novato clay, 0–1% slopes (Natural Resources Conservation Service 2021). In soil taxonomy, orthents are defined as young soils that lack horizon development due to either steep slopes or parent materials that lack weatherable minerals. Typically, these are very shallow soils. Novato clay soils are deep, poorly drained soils that form in alluvium deposits along bay margins (Natural Resources Conservation Service 2021).

3.2 Biotic Habitats

The project site and surrounding areas have been heavily modified by anthropogenic activities as a result of urbanization and the development of commercial buildings and roadways. The reconnaissance-level survey identified two habitat/land use types on the project site: developed/landscaped and ruderal grassland (Figure 3). These habitat/land use types are described in detail below.

3.2.1 Developed/Landscaped

Vegetation. West of Willow Road, developed portions of the project site consist of paved pedestrian pathways and vehicle roadways with surrounding areas of landscape vegetation (Photo 1). Landscape trees within these areas include native coast live oak (*Quercus agrifolia*) and nonnative Monterey cypress (*Hesperocyparis macrocarpa*), ginkgo (*Ginkgo biloba*), and desert willow (*Chilopsis linearis*). Landscape plants within these areas include native California fuchsia (*Epilobium canum*) and nonnative trumpet vine (*Vampsis radicans*), ceanothus (*Ceanothus* sp.), and deer grass (*Muhlenbergia rigens*). East of Willow Road, developed portions of the project site are located entirely within a paved parking area (Photo 2).

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Figure 1. Vicinity Map

Willow Village Tunnel and North Ramp Biological Resources Assessment (10704)
July 2021

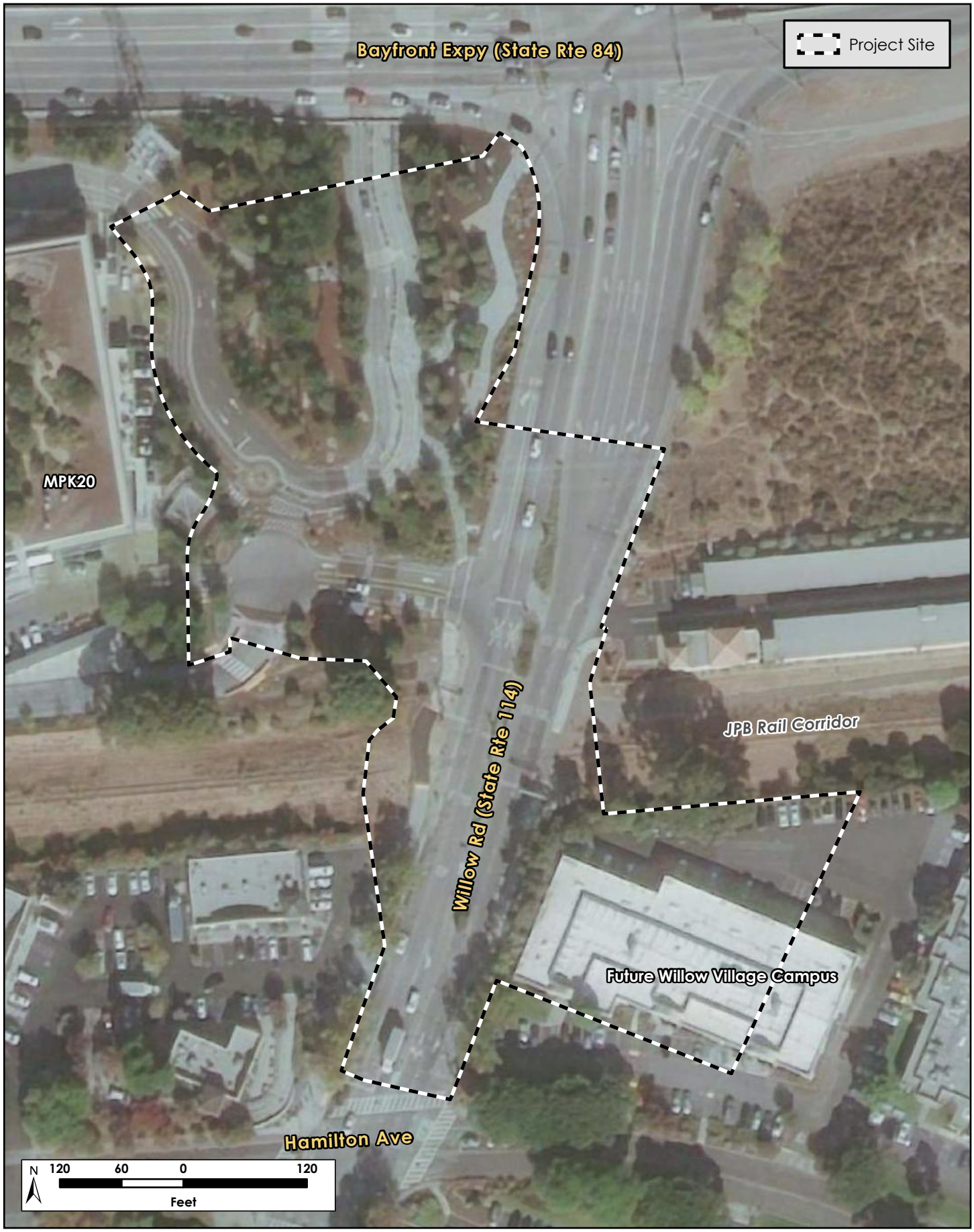

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Figure 2. Project Site

Willow Village Tunnel and North Ramp Biological Resources Assessment (10704)
July 2021

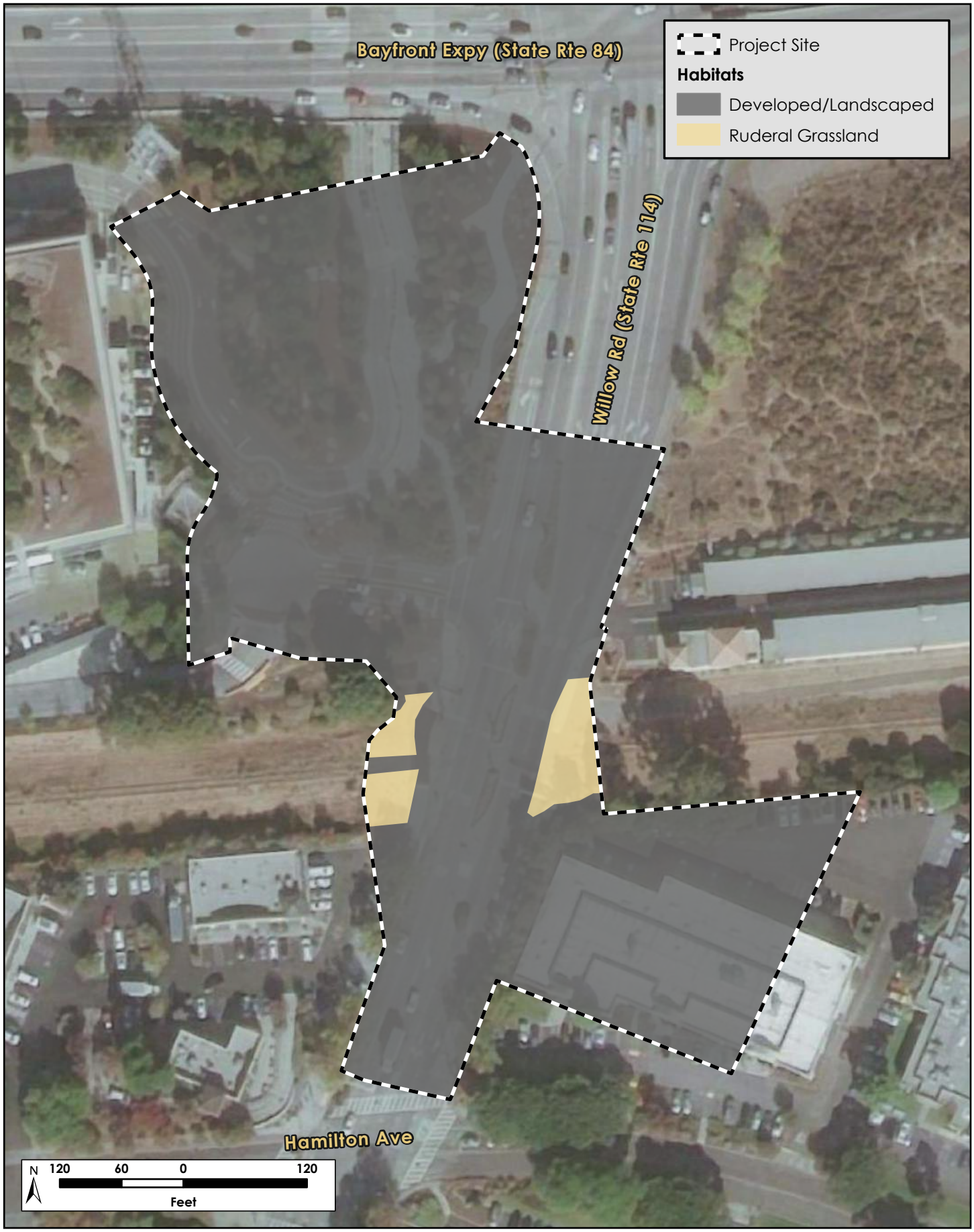

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Figure 3. Habitats Map
Willow Village Tunnel and North Ramp Biological Resources Assessment (10704)
July 2021

Photo 1. Developed/landscaped habitat on the project site west of Willow Road.

Photo 2. Developed/landscaped habitat on the project site east of Willow Road.

Wildlife. The developed/landscaped habitat on the project site provides nesting and foraging opportunities for some urban-adapted species of birds. Bird species that occur in these areas include the native Anna's hummingbird (*Calypte anna*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), dark-eyed junco (*Junco hyemalis*), and American crow (*Corvus brachyrhynchos*). These species may use the trees or ground vegetation on the site for nesting. No nests of raptors (e.g., hawks, owls, and falcons) were observed on the project site or in immediately adjacent areas during the reconnaissance-level survey, although larger trees on the site provide suitable nesting habitat for raptors such as the Cooper's hawk (*Accipiter cooperii*).

No signs of the presence of roosting bats (e.g., guano, urine staining, or visual or auditory detections of bats) were observed during the June 2021 survey, and no suitable roosting habitat for bats (e.g., cavities, crevices or exfoliating bark) was observed in the trees on the site.

Common urban-adapted mammal species that may occur in developed areas of the project site include the native raccoon (*Procyon lotor*) and nonnative house mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), black rat (*Rattus rattus*), and eastern gray squirrel (*Sciurus carolinensis*). In addition, small numbers of burrows of California ground squirrels (*Otospermophilus beecheyi*) and Botta's pocket gophers (*Thomomys bottae*) were observed within landscaped areas west of Willow Road.

3.2.2 Ruderal Grassland

Vegetation. Ruderal grassland habitat occurs within the portion of the project site that falls along the Dumbarton Rail Corridor (Photo 3). At the time of the June 2021 survey, this habitat had been recently mown. This habitat is dominated by non-native grasses and forbs such as wild oat (*Avena* sp.), fennel (*Foeniculum vulgare*), bull mallow (*Malva nicaeensis*), black mustard (*Brassica nigra*), and bristly ox-tongue (*Helminthotheca echioides*). Many of these plant species are ranked as moderately or highly invasive by the California Invasive Plant Council (2021).

Wildlife. Wildlife use of ruderal grassland habitat on the project site is limited by frequent human disturbance, the abundance of nonnative and invasive species, and isolation of this habitat from more extensive grasslands in the region. As a result, wildlife species associated with more extensive grasslands, such as the grasshopper sparrow (*Ammodramus savannarum*) and western meadowlark (*Sturnella neglecta*), are absent from the small area of grasslands on the project site.

Photo 3. Ruderal grassland habitat on the project site.

The majority of bird species that use grasslands on the project site inhabit nearby developed/landscaped areas and use grasslands primarily for foraging. Such species include the mourning dove (*Zenaida macroura*), lesser goldfinch, dark-eyed junco, American crow, and Brewer's blackbird (*Euphagus cyanocephalus*). Several other species of birds use the ruderal grassland habitat during the nonbreeding season. These include the golden-crowned sparrow (*Zonotrichia atricapilla*), savannah sparrow (*Passerculus sandwichensis*), and white-crowned sparrow (*Zonotrichia leucophrys*), all of which forage on the ground or in herbaceous vegetation, primarily for seeds.

Few species of reptiles and amphibians occur in the ruderal grassland habitat on the site due to its disturbed nature and low habitat heterogeneity. Nevertheless, reptiles such as the western fence lizard (*Sceloporus occidentalis*) and gopher snake (*Pituophis melanoleucus*) occur in this type of habitat. No burrows of small fossorial mammals, such as the California ground squirrel and Botta's pocket gopher, were observed in grasslands on the site during the June 2021 survey. Common small mammal species expected to occur in this area include the native western harvest mouse (*Reithrodontomys megalotis*) and nonnative house mouse, Norway rat, and black rat. Larger native mammal species that are associated with developed areas such as the striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), and raccoon are also likely to occur here.

3.3 Adjacent and Surrounding Areas

A large brackish marsh is present approximately 215 feet northeast of the project site, north of the Dumbarton Rail Corridor and east of Willow Road. This brackish marsh, which extends north to State Route 84 and east to University Avenue, is dominated by salt marsh and brackish marsh plants and contains several channels. As a result, marsh-associated wildlife species such as the San Francisco common yellowthroat (*Geothlypis trichas sinuosa*), Alameda song sparrow (*Melospiza melodia pusillula*), northern harrier (*Circus hudsonius*), and possibly the salt marsh harvest mouse (*Reithrodontomys raviventris*) may occur in that brackish marsh.

An area of native upland vegetation that surrounds the marsh is present approximately 43 feet northeast of the project site (Photo 4). This area is planted with native shrubs including coyote brush (*Baccharis pilularis*), California sagebrush (*Artemisia californica*), and toyon (*Heteromeles arbutifolia*). Nonnative grasses and forbs including wild oat, stinkwort (*Dittricia graveolens*), prickly lettuce (*Lactuca serriola*), and Italian thistle (*Carduus pychnocephala*) are also present in this area. At the time of the June 2021 survey, this habitat was disturbed by apparent homeless activity and scattered garbage present throughout this area. No sensitive wildlife species inhabit this area; however, sensitive species that inhabit the nearby marsh will forage opportunistically in these uplands.

Photo 4. An upland area planted with native woody vegetation is present east of Willow Road near the project site.

Sensitive biological areas identified in the ConnectMenlo EIR are also present in the site vicinity, but at greater distances from the project site. The Don Edwards San Francisco Bay National Wildlife Refuge (NWR) is located north of the project site; salt pond R3 is approximately 340 feet to the northwest, and salt pond SF2 is approximately 0.6 mile to the northeast. Ravenswood Open Space Preserve is located approximately 0.9 mile east of the project site. These areas provide foraging habitat for waterbirds such as the American coot (*Fulica americana*), bufflehead (*Bucephala albeola*), American wigeon (*Mareca americana*), and northern shoveler (*Spatula clypeata*), which occur in flocks of varying size during winter and migration. In addition, the coastal salt marsh habitat, mudflats, and tidal channels provide important shorebird habitat. Many species of shorebirds such as the western sandpiper (*Calidris mauri*), black-bellied plover (*Pluvialis squatarola*), marbled godwit (*Limosa fedoa*), dunlin (*Calidris alpina*), long-billed curlew (*Numenius americanus*), and American avocet (*Recurvirostra americana*) forage in the mudflats in this area, often also in flocks. Special-status species such as the California Ridgway's rail (*Rallus obsoletus obsoletus*), salt marsh harvest mouse, and others occur in these sensitive areas; however, as discussed in Section 4 below, the closest suitable habitat for Ridgway's rails is located approximately 0.5 mile to the east, and suitable habitat for salt marsh harvest mice approximately 340 feet to the north is isolated from the site by dense urban development and California State Route 84. As a result, special-status species that inhabit these areas are not expected to occur on or adjacent to the project site, or to be impacted by the project.

Section 4. Special-Status Species and Sensitive Habitats

Mitigation Measure BIO-1 requires an assessment of the effects of a project on "special-status" species. For the purpose of this report, special-status plants are considered plant species that are:

- Listed under the Federal Endangered Species Act as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under the California Endangered Species Act as threatened, endangered, rare, or a candidate species.
- Listed by the CNPS as CRPR 1A, 1B, 2, 3, or 4.

In addition, "special-status" animals are considered animal species that are:

- Listed under the Federal Endangered Species Act as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under the California Endangered Species Act as threatened, endangered, or a candidate threatened or endangered species.
- Designated by the CDFW as a California species of special concern.
- Listed in the California Fish and Game Code as fully protected species (fully protected birds are provided in Section 3511, mammals in Section 4700, reptiles and amphibians in Section 5050, and fish in Section 5515).

Information concerning threatened, endangered, and other special-status species that potentially occur on the project site was collected from several sources and reviewed by H. T. Harvey & Associates biologists as described in Section 2.1 above. Figures 4 and 5 depict CNDDB records of special-status plant and animal species in the general vicinity of the project site, respectively. These generalized maps show areas where special-status species are known to occur or have occurred historically.

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Figure 4. CNDDB-Mapped Records of Special-Status Plants

Willow Village Tunnel and North Ramp Biological Resources Assessment (10704)
July 2021

Legend

- Project Site
- 5-mile Radius

CNDDB Records

Wildlife

- Specific Location
- Approximate Location
- General Area

Note: CTS = California Tiger Salamander, CRLF = California Red-legged Frog

N 1.1 0.55 0 1.1 Miles

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Figure 5. CNDDB-Mapped Records of Special-Status Animals

Willow Village Tunnel and North Ramp Biological Resources Assessment (10704)
June 2021

4.1 Special-Status Plant Species

The CNPS (2021) and CNDDB (2021) identify a number of special-status plant species as potentially occurring in at least one of the nine U.S. Geological Survey 7.5-minute quadrangles containing or surrounding the project site for species in CRPR 1 and 2, or in San Mateo County for CRPR 3 and 4 species. However, the site is dominated by heavily disturbed anthropogenic habitat (i.e., developed/landscaped areas), which precludes the presence of special-status plant species that occur in more natural habitats in the region. The majority of the special-status plant species identified as potentially occurring in the region were determined to be absent from the project site for at least one of the following reasons: (1) absence of suitable habitat types; (2) lack of specific microhabitat or edaphic requirements, such as serpentine soils; (3) the elevation range of the species is outside of the range on the project site; and/or (4) the species is considered extirpated from the project region.

Suitable habitat, edaphic requirements, and elevation range were determined to be present on the project site for one special-status plant species: Congdon's tarplant. This species can persist in disturbed grasslands and has been documented by the CNDDB in the project vicinity (Figure 4). Suitable habitat for Congdon's tarplant is present on the project site within the small area of ruderal grassland habitat along the Dumbarton Rail Corridor. However, a focused survey for Congdon's tarplant was conducted within this area on June 12, 2020[1], and no individuals of this species were observed. Therefore, this species is determined to be absent from the project site.

4.2 Special-Status Animal Species

A number of special-status animal species are known to occur in the general project vicinity, including the western snowy plover (*Charadrius alexandrinus nivosus*), white-tailed kite (*Elanus leucurus*), California Ridgway's rail, California black rail (*Laterallus jamaicensis coturniculus*), northern harrier, loggerhead shrike (*Lanius ludovicianus*), Alameda song sparrow, Bryant's savanna sparrow (*Passerculus sandwichensis alaudinus*), San Francisco common yellowthroat, salt marsh harvest mouse, and salt marsh wandering shrew (*Sorex vagrans halicoetes*) (CNDDB 2021) (Figure 5). However, the dense urban surroundings and absence of specific habitat features favored by various special-status animal species make the site unsuitable for all of these species, as follows:

- The western snowy plover, federally listed as threatened, nests on dry, relatively homogenous salt pond bottoms surrounding the San Francisco Bay. Snowy plovers are known to nest in Don Edwards NWR, including at salt pond R3 located approximately 340 feet northwest of the project site and at salt pond SF2 located approximately 0.6 mile northeast of the project site (CNDDB 2021). However, no suitable foraging or nesting habitat is present on or adjacent to the project site, and the site is separated from these nesting areas by dense urban development and California State Route 84.
- The white-tailed kite, a California fully protected species, nests in tall shrubs and trees and forages in grasslands, marshes, and ruderal habitats. Tall trees on and adjacent to the project site provide ostensibly

[1] Congdon's tarplant was documented flowering at the Sunnyvale Baylands Park on June 15, 2020. Thus, this species would have been detectable at the time of the June 12, 2020 site visit.

suitable nesting sites for white-tailed kites, and open marsh areas to the north and east provide suitable foraging habitat. However, high levels of human disturbance on the project site preclude this species from nesting and foraging in this area. Thus, white-tailed kites may nest and forage in open space areas located near the site, but they are not expected to occur on the site itself.

- The California Ridgway's rail, state and federally listed as endangered and a California fully protected species, is a secretive marsh bird that is endemic to marshes of the San Francisco Bay. California Ridgway's rails nest in salt and brackish marshes along the edge of the Bay, and are most abundant in extensive salt marshes and brackish marshes dominated by Pacific cordgrass (*Spartina foliosa*), pickleweed (*Salicornia* spp.), and marsh gumplant (*Grindelia stricta*) and that contain complex networks of tidal channels. A population of California Ridgway's rails is known to occur in the wider portions of Ravenswood Slough approximately 0.5 mile northeast of the site and in Ravenswood Open Space Preserve approximately 0.9 mile east of the project site (CNDDB 2021). However, no suitable foraging or nesting habitat for this species is present on or adjacent to the project site, and the site is separated from suitable habitat areas by dense urban development.

- The California black rail, state listed as threatened and a California fully protected species, is a secretive marsh bird that nests in fresh, brackish, and tidal salt marshes. California black rails have been observed in the Faber-Laumeister Marsh, a coastal salt marsh located approximately 1.1 miles east of the project site (CNDDB 2021), and suitable habitat for this species is also present along wider portions of Ravenswood Slough approximately 0.5 mile northeast of the site, and in Ravenswood Open Space Preserve approximately 0.9 mile east of the site. However, no suitable foraging or nesting habitat for this species is present on or adjacent to the project site, and the site is separated from suitable habitat areas by dense urban development.

- The northern harrier, a California species of special concern, nests and forages in the large brackish marsh located 215 feet northeast of the project site. No suitable marsh habitat or open fields to support nesting or foraging by this species occurs on the project site itself, and high levels of human disturbance along Willow Road are expected to preclude nesting by this species in portions of the marsh located near the project site. Northern harriers are expected to nest in portions of this marsh located farther to the east, away from human disturbance.

- The loggerhead shrike, a California species of special concern, may nest in dense stands of coyote brush and other woody vegetation surrounding the large brackish marsh northeast of the site. However, Bay-area populations have declined substantially, and if the species breeds in or near this area, no more than one pair is expected to be present. In addition, high levels of disturbance along Willow Road are expected to preclude nesting by this species in portions of this habitat located close to (i.e., within at least 100 feet of) the project site.

- The Alameda song sparrow, a California species of special concern, is a subspecies of song sparrow that is endemic to the Central and South San Francisco Bay. This subspecies breeds in salt marsh habitats, primarily in marsh gumplant and cordgrass (*Spartina* sp.) along channels. Alameda song sparrows are known to commonly breed and occur in the brackish marsh approximately 215 feet northeast of the project site,

and in other wetlands in the site vicinity. However, no suitable foraging or nesting habitat is present on the project site or in adjacent areas.

- The Bryant's savannah sparrow, a California species of special concern, nests in pickleweed-dominant salt marsh and adjacent ruderal grasslands. This subspecies nests and occurs in the brackish marsh approximately 215 feet northeast of the project site, and in grasslands adjacent to the marsh. However, no suitable foraging or nesting habitat is present on the project site or in adjacent areas.

- The San Francisco common yellowthroat, a California species of special concern, is a subspecies of common yellowthroat that nests in fresh and saltwater marshes near the edge of the Bay. San Francisco common yellowthroats are known to commonly breed and occur in the brackish marsh approximately 215 feet northeast of the project site, and in other wetlands in the site vicinity. However, no suitable foraging or nesting habitat is present on the project site or in adjacent areas.

- The salt marsh harvest mouse, state and federally listed as endangered and a California fully protected species, and the salt marsh wandering shrew, a California species of special concern, are rodents endemic to salt and brackish marshes and adjacent tidally influenced areas of the San Francisco Bay estuary. Salt marsh harvest mice are known to occur in tidal marshes in the vicinity of the project site, including the salt marshes of Ravenswood Open Space Preserve approximately 0.9 mile to the east and in Faber-Laumeister Marsh approximately 1.1 miles to the east (CNDDB 2021). Suitable habitat for this species is also present in the brackish marsh approximately 215 feet northeast of the project site. However, no suitable habitat for salt marsh harvest mice is present on or adjacent to the project site, and the site is isolated from suitable habitat areas by dense urban development. The distribution of salt marsh wandering shrews in the project vicinity is poorly known, but this species can potentially occur in the same areas as the salt marsh harvest mouse.

- No suitable aquatic habitat to support special-status fish species is present on the project site. Suitable habitat for special-status fish species is present within Ravenswood Slough, which extends as close as 260 feet north of the site. However, the project site is not hydrologically connected to Ravenswood Slough, and is isolated from Ravenswood Slough by State Route 84. Thus, special-status fish species are determined to be absent from the site, adjacent areas, and downstream areas that would potentially be affected by the project.

- Although the Crotch bumble bee (*Bombus crotchii*) and western bumble bee (*Bombus occidentalis*) were historically found in the project vicinity, they are not expected to occur on the site or in nearby areas due to recent range contractions.

- The pallid bat (*Antrozous pallidus*), a California species of special concern, may forage aerially over habitats in the site vicinity, and several historical records of pallid bats are located in the site vicinity (CNDDB 2021). However, the buildings and trees on the site do not provide suitable roosting habitat for pallid bats, and the site does not provide suitable foraging habitat for this species.

- The California red-legged frog (*Rana draytonii*) is known to occur in less developed areas in San Mateo County, but is not known or expected to be present in valley-floor areas as heavily urbanized as the project

site. The closest California red-legged frog occurrences to the project site are more than 4.0 miles to the south in the Atherton Channel and at Stanford University (CNDDB 2021). However, no suitable aquatic or upland habitat to support California red-legged frogs is present on or near the site, and the project site is effectively isolated from the closest records of this species by dense urban development.

- The western pond turtle (*Emys pallida*) is known to occur approximately 9.3 miles to the east near Crystal Springs Reservoir, 6.7 miles to the southeast at Moffett Federal Airfield, and 6.7 miles to the south at Jasper Ridge (CNDDB 2021). No suitable foraging habitat for western pond turtles is present on the site or in adjacent areas. Further, the site is not hydrologically connected to any known populations of western pond turtles in the region. This species is considered absent from the project site and the surrounding vicinity.

The western snowy plover, white-tailed kite, California Ridgway's rail, California black rail, northern harrier, loggerhead shrike, Alameda song sparrow, Bryant's savanna sparrow, San Francisco common yellowthroat, saltmarsh harvest mouse, salt marsh wandering shrew, special-status fish, Crotch bumble bee, western bumble bee, pallid bat, California red-legged frog, western pond turtle, and other special-status animals are therefore not expected to nest, roost, or breed on or immediately adjacent to the project site, and are not expected to be affected by proposed site redevelopment. In addition, per the regional conservation plans reviewed as described in Section 2.1 above, no sensitive biological resources for special-status animals are identified on the project site.

4.3 Sensitive and Regulated Habitats

Sensitive and regulated habitats are rare, ecologically valuable, and/or protected by federal, state, regional, and/or local laws. Generally, such habitats require permits from regulatory agencies if they are to be disturbed, altered, or lost. The CDFW ranks certain rare or threatened plant communities, such as wetlands, tracked in the CNDDB. The most commonly regulated habitats are wetland and aquatic habitats including rivers, streams, ponds, and seasonal wetlands, which fall under the jurisdiction of the U. S. Army Corps of Engineers (USACE) via Section 404 of the Clean Water Act, the Regional Water Quality Control Board (RWQCB) via Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, and/or the CDFW via Section 1602 of the California Fish and Game Code.

No potentially jurisdictional features (e.g., wetlands or drainages that would be subject to jurisdiction of any resource agencies) were identified on or immediately adjacent to the project site during the reconnaissance-level survey. Thus, sensitive and regulated habitats are determined to be absent from the project site.

4.4 Wildlife Movement

For many species, the landscape is a mosaic of suitable and unsuitable habitat types. Environmental corridors are segments of land that provide a link between patches of suitable habitat and that allow animals to move among suitable habitat patches. Development that fragments natural habitats (i.e., breaks them into smaller, disjunct pieces) can have a twofold impact on wildlife: first, as habitat patches become smaller they are unable

to support as many individuals (patch size), and second, the area between habitat patches may be unsuitable for wildlife species to traverse (connectivity).

All proposed project activities are located within, or are surrounded by, existing development that is surrounded by a dense urban matrix of residential and commercial development to the east, west, and south and California State Route 84 to the north. Therefore, the project would not result in the fragmentation of natural habitats. Any common, urban-adapted wildlife species that currently move through the project site would continue to be able to do so following project construction, and any wildlife species associated with open habitats along the San Francisco Bay would also continue to be able to move past the site following construction. Thus, the project would not interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors in the site vicinity.

Section 5. Project Impacts on Sensitive Biological Resources and Identification of Avoidance and Minimization Measures

Mitigation Measure BIO-1 requires consideration of a number of issues related to sensitive biological resources. Issues that do not apply to the project, along with explanations regarding why they do not apply, are as follows:

- As discussed in Section 4.3 above, no jurisdictional wetlands are present on the project site or are expected to be impacted by the project.
- No undeveloped lands that support sensitive biological resources are present on or adjacent to the site such that they could be affected by the project, and the project will have no effect on sensitive biological resources at the Don Edwards San Francisco Bay NWR.
- No regional conservation plans apply to the project site.
- No take of state or federally listed species or California fully protected species will occur due to redevelopment of the project site.
- No species protected under the Marine Mammal Protection Act or the Magnuson-Stevens Fishery Conservation and Management Act are present on or immediately adjacent to the project site, or will be impacted by the project.
- No areas subject to the jurisdiction of the San Francisco Bay Conservation and Development Commission will be impacted by the project.
- Suitable habitat for or occurrences of special-status species are not present on the project site, and roosting bats are absent from the project site.
- No sensitive natural communities are present on the project site.
- There are no important movement corridors for wildlife on the project site.
- No buildings with glazed facades are proposed as part of the project; hence, no bird-safe design measures are required.

Sensitive biological resource issues that are required to be addressed under Mitigation Measure BIO-1 are related to the presence of common bird species protected under the MBTA and California Fish and Game Code. Section 5.1 below provides a discussion of project impacts on these resources and identifies appropriate avoidance and minimization measures to comply with Mitigation Measure BIO-1.

5.1 Impacts on Common Nesting Birds

A variety of common, urban-adapted bird species could nest on the site. Construction disturbance during the bird nesting season could result in the incidental loss of eggs or nestlings, either directly through the destruction or disturbance of active nests or indirectly by causing the abandonment of nests.

The project is also expected to increase the number of human users of the project site, potentially subjecting nesting birds to increased human disturbance. However, the project site is already heavily used by pedestrians, cyclists, and vehicles. The increase in human activity on the site as a result of this project is not expected to contribute substantially to human disturbance of birds that may nest on the site or in nearby areas.

All native birds that may nest in trees and vegetation on or immediately adjacent to the project site are protected under the MBTA and/or California Fish and Game Code. The removal of vegetation supporting active nests may cause the direct loss of eggs or young, while construction-related activities located near an active nest may cause adults to abandon their eggs or young. Therefore, per the requirements of Mitigation Measure BIO-1, measures to ensure that the project avoids impacts on nesting birds protected by the MBTA and California Fish and Game Code are required; recommended measures are provided below.

Measure 1. Nesting-Season Avoidance. To the extent feasible, construction activities should be scheduled to avoid the nesting season. If construction activities are scheduled to take place outside the nesting season, all impacts to nesting birds protected under the MBTA and California Fish and Game Code would be avoided. The nesting season for most birds in San Mateo County extends from February 1 through August 31, inclusive.

Measure 2. Preconstruction/Pre-Disturbance Surveys and Buffers. If it is not possible to schedule construction activities and/or tree removal between September 1 and January 31, preconstruction surveys for nesting birds shall be conducted by a qualified ornithologist to ensure that no nests shall be disturbed during project implementation. These surveys shall be conducted no more than seven days prior to the initiation of demolition or construction activities, including tree removal and pruning. During this survey, the ornithologist shall inspect all trees and other potential nesting habitats (e.g., trees, shrubs, ruderal grasslands, buildings) in and immediately adjacent to the impact areas for nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist shall determine the extent of a construction-free buffer zone to be established around the nest (typically 300 feet for raptors and 100 feet for other species), to ensure that no nests of species protected by the MBTA and California Fish and Game Code shall be disturbed during project implementation.

5.2 Impacts on Brackish Marsh Habitat

As discussed in Section 3.3 above, a large brackish marsh is present approximately 215 northeast of the project site, north of the Dumbarton Rail Corridor and east of Willow Road. A number of sensitive wildlife species may occur in this marsh, such as the San Francisco common yellowthroat, Alameda song sparrow, northern

harrier, and possibly the salt marsh harvest mouse. The areas in between the project site and the brackish marsh consist of a storage facility, the Dumbarton Rail Corridor, Willow Road, and an area of uplands planted with native vegetation. Due to the intervening 215-foot distance between the project site and the brackish marsh, and because the planted uplands surrounding the marsh are elevated above both the marsh and the project site, no direct or indirect impacts on the brackish marsh habitat, or sensitive species that may occur in this habitat, will occur as a result of the project.

Section 6. Additional Requirements

6.1 Coordination with Appropriate Agencies

Per Mitigation Measure BIO-1, if sensitive biological resources are determined to be present on the project site or may be present on any adjacent parcel containing natural habitat, coordination with the appropriate regulatory and resource agencies must occur.

As described above, we reviewed information from the Don Edwards San Francisco Bay NWR, USFWS, and CDFW, such as the NWR's *Comprehensive Conservation Plan* and information on special-status species regulated by those agencies, in enough detail to determine that the project will not have any impacts on the NWR or on sensitive species regulated by those agencies. As a result, no agency coordination (e.g., with the CDFW, USFWS, or Don Edwards NWR) regarding potential effects of the project on sensitive species is necessary, and no such coordination occurred.

6.2 Obtain Necessary Permits/Authorizations

Per Mitigation Measure BIO-1, where jurisdictional waters or federally and/or state-listed special-status species would be affected by the project, appropriate authorizations shall be obtained by the project applicant.

As described above, the project will not result in direct impacts on jurisdictional waters, or any impacts on federally and/or state-listed species. Therefore, permits from the USACE, RWQCB, CDFW, USFWS, National Marine Fisheries Service, San Francisco Bay Conservation and Development Commission, or other agencies are not required.

6.3 Applicable Zoning Regulations

Per Mitigation Measure BIO-1, the project will comply with zoning regulations enacted by the following ordinances:

- 16.43 O-Office District.
- 16.43.080 Corporate housing.
- 16.43.140 Green and sustainable building.
- 16.44 LS-Life Science District.
- 16.44.130 Green and sustainable building.

Section 7. Conclusions

The proposed project complies with the requirements of Mitigation Measure BIO-1 by documenting sensitive biological and regulated resources associated with the Willow Village Tunnel and North Ramp project site, the effects of the proposed project on these resources and on sensitive lands in the vicinity (such as Don Edwards NWR), and measures that the project will implement to avoid and minimize impacts on these resources.

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H. T. HARVEY & ASSOCIATES
Ecological Consultants
50 years of field notes, exploration, and excellence

Willow Village Master Plan
Bird-Safe Design Assessment

Project #3375-21

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Appendices

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Section 1. Introduction and Purpose

Per the request of Peninsula Innovation Partners, H. T. Harvey & Associates has performed an assessment of avian collision risk for the proposed Willow Village Master Plan project (Master Plan) located in Menlo Park, California.

It is our understanding that the project proposes to replace more than one million square feet of existing industrial, office, and warehouse space in the 59-acre Menlo Science and Technology Park with a new residential/mixed-used village that includes up to 1,730 residential units, up to 200,000 square feet of retail uses, a hotel with up to 193 rooms and accessory uses, approximately 1,600,000 square feet of space for office and accessory uses (with a maximum of 1,250,000 square feet of office uses and the balance 350,000 square feet [if office use is maximized] of accessory uses) on the project site. The site is bounded by Willow Road to the west, the Joint Powers Board (JPB) rail corridor to the north, the Hetch Hetchy right-of-way corridor and Mid-Peninsula High School to the south, and an existing life science complex to the east. To allow for the transformation of the site into a vibrant residential/mixed-use community, the plan will require demolition of all existing site improvements consisting of buildings, streets, and utilities.

This report provides an analysis of bird collision hazards associated with the conceptual design for the Master Plan and documents the bird-safe design measures that will be incorporated into the project to ensure that (1) project impacts due to bird collisions with buildings are reduced to less-than-significant levels under the California Environmental Quality Act (CEQA), and (2) the project complies with City of Menlo Park bird-safe design requirements.

This assessment is based on the project's Conditional Development Permit (CDP) application, as well as additional design details for the various Master Plan components identified in Appendix A to support our assessment. We will also review the final Architectural Control Plans (ACPs) and produce a subsequent final report for each Master Plan component to document (1) compliance with the CEQA mitigation measures the project will implement to mitigate significant CEQA impacts; and (2) compliance with City of Menlo Park bird-safe design requirements (with requests for waivers of certain requirements as permitted by the City bird-safe design requirements and including compliance with alternative City measures, where appropriate); and (3) compliance with the lighting design principles identified herein. If we find that modifications are needed to the ACPs to ensure that impacts are reduced to less-than-significant levels under CEQA and/or compliance with City requirements, we will provide recommended modifications in our reports for individual ACPs.

Section 2. City Bird-Safe Design Requirements

In 2014, the City of Menlo Park initiated the process of updating its General Plan Land Use and Circulation Elements as well as its zoning for the M-2 area (also known as the Bayfront Area) in the northern portion of Menlo Park. Collectively, this update to the General Plan and zoning is known as *ConnectMenlo*. On November 29, 2016, the City Council certified the *ConnectMenlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update Environmental Impact Report* (ConnectMenlo EIR) and approved the General Plan Land Use and Circulation Elements. The Willow Village project is located within the ConnectMenlo area.

Mitigation Measure BIO-1 of the ConnectMenlo EIR requires measures to ensure that the project reduces bird collisions with new buildings. For the purpose of this report, we assume that the project will comply with City of Menlo Park bird-safe design requirements (including obtaining waivers, as permitted by the City bird-safe design requirements, where applicable) provided in Municipal Code Sections 16.43.140(6) and 16.45.130(6), which include measures to reduce bird collisions. Hereafter, the bird-safe design measures in the ConnectMenlo EIR and the City's Municipal Code are referred to together as *City bird-safe design requirements*. These requirements are as follows:

A. No more than 10% of facade surface area shall have non-bird-friendly glazing.

B. Bird-friendly glazing includes, but is not limited to, opaque glass, covering the outside surface of clear glass with patterns, paned glass with fenestration, frit or etching patterns, and external screens over nonreflective glass. Highly reflective glass is not permitted.

C. Occupancy sensors or other switch control devices with an astronomic time clock shall be installed on nonemergency lights and shall be programmed to shut off during non-work hours and between 10:00 p.m. and sunrise.

D. Placement of buildings shall avoid the potential funneling of flight paths towards a building facade.

E. Glass skyways or walkways, free-standing (see-through) glass walls and handrails, and transparent building corners shall not be allowed.

F. Transparent glass shall not be allowed at the rooflines of buildings, including in conjunction with roof decks, patios and roofs with landscape vegetation.

G. Use of rodenticides shall not be allowed.

A project may receive a waiver from requirements A through F, subject to the submittal of a site-specific evaluation from a qualified biologist (defined as an ornithologist familiar with local bird communities and populations and with expertise assessing avian collision risk) and review and approval by the planning commission. A waiver from requirement G is not authorized. The project will comply with requirement G, and this requirement is not discussed further in the body of this report.

However, to address collision risk with the project buildings, tailored alternative bird-safe design measures, derived from the City of Menlo Park's requirements with appropriate waivers, are provided in Section 5 of this report based on the conceptual designs in the project's CDP application to reduce collision impacts to less-than-significant levels under CEQA (hereafter, these alternative measures are referred to as *alternative City measures*). Sections 5 and 6 of this report provides a discussion of how the Master Plan components will comply with the City's bird-safe design requirements, as well as examples of locations where waivers to the City requirements are, in our professional opinion, appropriate in areas of low collision risk. Waivers are requested in order for the project to achieve design excellence (e.g., related to aesthetics, energy efficiency, or project objectives). Waivers are requested only where strict adherence to the City's bird-safe design requirements (a) is not necessary to reduce project impacts to less-than-significant levels under CEQA and (b) would not substantively reduce bird collision risk beyond the alternative City measures proposed in Sections 5 and 6 (discussed in detail in Sections 5 and 6 below).

This report documents the CEQA mitigation measures and alternative City measures the project will implement to reduce impacts to less-than-significant levels and comply with the City's bird-safe design requirements. Documentation of compliance with this report will be provided in subsequent reports for each ACP for the project.

Section 3. Project Site Conditions

3.1 Existing Conditions

Habitat conditions and bird occurrence in the immediate vicinity of the project site (i.e., on the site and on immediately adjacent lands) are typical of much of the urbanized San Francisco Bay area. The approximately 64.0-acre project site currently supports office buildings, roadways, restaurants, a gas station, parking lots, walking paths, mulched and irrigated areas, and landscape areas (Photos 1–4). The site is located across the inactive JPB rail corridor from a storage facility and large brackish marsh to the north, and is otherwise surrounded by high-density commercial and residential development to the east, west, and south (Figure 1).

Photo 1. Office buildings, parking lots, and landscape areas on the project site.

Photo 2. Landscape areas and trees on the project site.

Photo 3. An overgrown wooded area with landscape trees on the project site.

Photo 4. Office buildings and landscape trees on the project site.

Figure 1. The project site (delineated in yellow) is surrounded by commercial and residential development to the east, west, and south. The inactive JPB rail corridor, a storage facility, and a large brackish marsh are located to the north.

Habitat conditions on the site are of low quality for most native birds found in the region due to the scarcity of vegetation, the lack of well-layered vegetation (e.g., with ground cover, shrub, and canopy tree layers in the same areas), and the small size of the vegetated habitat patches. Landscaped areas on the site support nonnative Canary Island pine (*Pinus canariensis*), Chinese pistache (*Pistacia chinensis*), London plane (*Platanus* x *hispanica*), eucalyptus (*Eucalyptus* sp.), and crepe myrtle (*Lagerstroemia* sp.) trees. Common understory plants include nonnative buckbrush (*Ceanothus* sp.) and rosemary (*Rosmarinus officinalis*). Nonnative vegetation supports fewer of the resources required by native birds compared to native vegetation, and the structural simplicity of the vegetation further limits resources available to birds (Anderson 1977, Mills et al. 1989). Nevertheless, there is a suite of common, urban-adapted bird species that occur in such urban areas that are expected to occur on the site regularly. These include the native Anna's hummingbird (*Calypte anna*), American crow (*Corvus brachyrhynchos*), Bewick's wren (*Thryomanes bewickii*), bushtit (*Psaltriparus minimus*), dark-eyed junco (*Junco hyemalis*), and house finch (*Haemorhous mexicanus*), as well as the non-native European starling (*Sturnus vulgaris*) and house sparrow (*Passer domesticus*). All of these birds are year-round residents that can potentially nest on or immediately adjacent to the project site. A number of other species, primarily migrants or winter visitors (i.e., nonbreeders), are expected to occur occasionally on the site as well, including the white-crowned sparrow (*Zonotrichia leucophrys*), golden-crowned sparrow (*Zonotrichia atricapilla*), and yellow-rumped warbler (*Setophaga coronata*). All of the species expected to occur regularly are regionally abundant species, and no special-status birds (i.e., species of conservation concern) are expected to nest or occur regularly on the site.

The habitat conditions located to the east, west, and south of the project site are very similar to those on the project site itself. These areas are dominated by commercial and residential uses and have landscaping similar to that on the project site (Figure 1). As a result, bird use of these surrounding areas is as described above for the project site.

A large brackish marsh is present approximately 150 feet north of the project site, north of the inactive JPB rail corridor and a storage facility (Figure 1). This brackish marsh, which extends north to State Route 84 and east to University Avenue, is dominated by salt marsh and brackish marsh plants and contains several channels. As a result, marsh-associated special-status birds such as the San Francisco common yellowthroat (*Geothlypis trichas sinuosa*), Alameda song sparrow (*Melospiza melodia pusillula*), and northern harrier (*Circus hudsonius*) – all of which are California species of special concern – may occur in this area. However, state and federally listed birds associated with tidal salt marshes, salt pannes, and aquatic habitats, such as the California Ridgway's rail (*Rallus obsoletus obsoletus*), California black rail (*Laterallus jamaicensis coturniculus*), western snowy plover (*Charadrius nivosus nivosus*), and California least tern (*Sternula antillarum browni*), are absent from these habitats.

Further to the northeast and northwest are former salt ponds, now managed as waterbird habitat, and the waters and marshes of the San Francisco Bay. Ravenswood Pond R3 is located approximately 750 feet north of the site, and is separated from the site by the inactive JPB rail corridor, commercial development, and Highway 84 (Figure 1). Ravenswood Pond SF2 is located approximately 1,760 feet northeast of the site, and is separated from the site by the inactive JPB rail corridor, a large brackish marsh (discussed above), and University Avenue (Figure 1). These ponds provide foraging habitat for a wide variety of waterbirds such as the American avocet (*Recurvirostra americana*), western sandpiper (*Calidris mauri*), marbled godwit (*Limosa fedoa*), ruddy duck (*Oxyura jamaicensis*), semipalmated plover (*Charadrius semipalmatus*), dunlin (*Calidris alpina*), least sandpiper (*Calidris minutilla*), red knot (*Calidris canutus*), long-billed dowitcher (*Limnodromus scolopaceus*), northern shoveler (*Spatula clypeata*), green-winged teal (*Anas crecca*), canvasback (*Aythya valisineria*), American white pelican (*Pelecanus erythrorhynchos*), black-bellied plover (*Pluvialis squatarola*) and others (Cornell Lab of Ornithology 2021). The federally threatened western snowy plover also nests and forages in Pond SF2.

Due to their location along the edge of the San Francisco Bay and the extensive areas of habitat present, the managed ponds located northeast and northwest of the project site support relatively high numbers of species of birds compared to areas located farther inland in San Mateo (Figure 2). Based on observations by birders over the years, approximately 138 species of birds have been recorded at pond SF2 and 136 species along the Bay Trail adjacent to Pond R3, including year-round resident, migrant, and wintering landbirds (associated with upland areas), shorebirds (associated with the shoreline), and waterbirds (associated with open water habitat) (Cornell Lab of Ornithology 2021). Ebird records suggest that some species of shorebirds and waterbirds can occur in these areas in large numbers (i.e., 1,000 individuals), but the majority of these species occur in smaller flocks. A number of migrant bird species will remain in this area for days to weeks to rest and forage. Resident birds that are present in the vicinity year-round are similarly attracted to the open habitats within these salt ponds in relatively large numbers for foraging opportunities (Cornell Lab of Ornithology 2021).

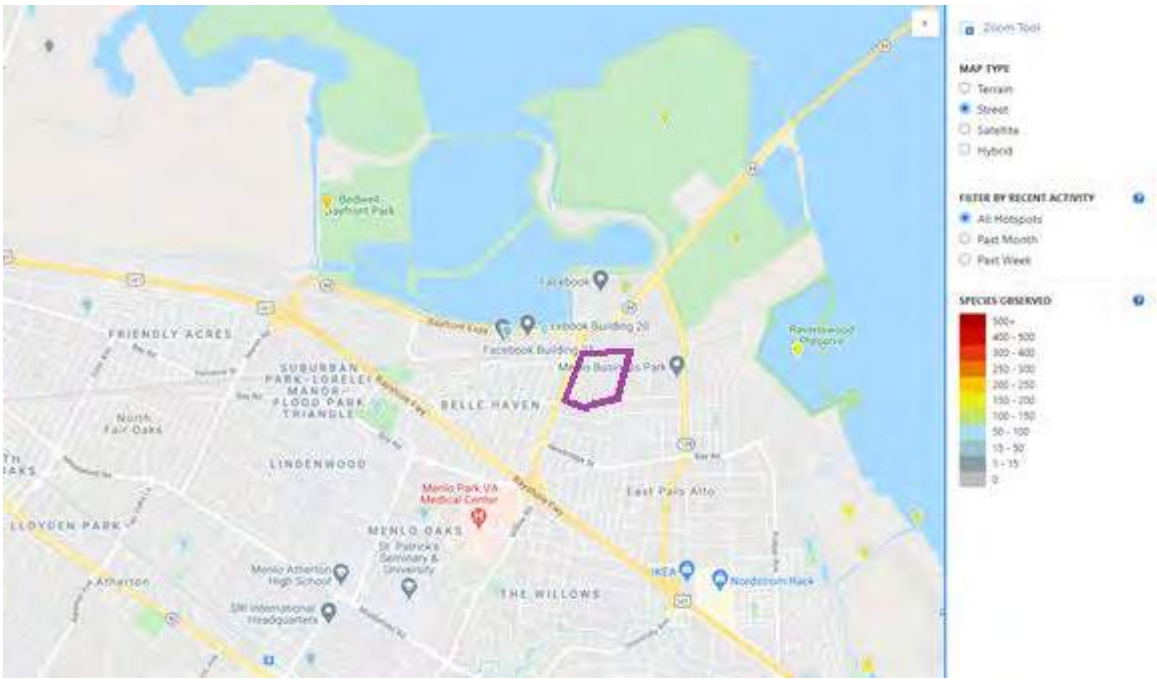

Figure 2. Map of eBird hotspots in the site vicinity. The project site is outlined in purple.

3.2 Proposed Conditions

The project would construct office and accessory space, parking garages, a hotel, retail, residential, and residential/mixed-use buildings on the majority of the site. A portion of the office and accessory space would be located inside a glass atrium. We do not expect these artificial structures to provide high-quality habitat for birds. However, the project will also create approximately 20 acres of open space areas consisting of paved pedestrian areas and landscape vegetation. The conceptual planting plans for these areas predominantly include nonnative trees, shrubs, and herbaceous plants (Appendix B). Nonnative trees to be planted on the site may include red maple (*Acer rubrum*), deodar cedar (*Cedrus deodara*), Canary Island pine, European olive (*Olea europea*), Mexican fan palm (*Washingtonia robusta*), agave (*Agave* sp.), ginkgo (*Ginkgo biloba*), Chinese elm (*Ulmus parvifolia*), crape myrtle, London plane, Brisbane box (*Lophostemon confertus*), coast redwood (*Sequoia sempervirens*) (which is not locally native to the project site), and red alder (*Alnus rubra*). In addition, native California sycamores (*Platanus racemosa*) and coast live oaks (*Quercus agrifolia*) may be planted on the site. Shrubs, forbs, and grasses that may be planted on the site include nonnative European grey sedge (*Carex divulsa*), small cape rush (*Chondropetalum tectorum*), horsetails (*Equisetum hyemale*), slender weavers (*Bambusa textilis*), bougainvillea (*Bougainvillea* sp.), and New Zealand flax (*Phormium* sp.); natives include common yarrow (*Achillea millefolium*), California wild rose (*Rosa californica*), California lilac (*Ceanothus* spp.), toyon (*Heteromeles arbutifolia*), and common rush (*Juncus patens*). While we understand that the exact species to be planted may change, we assume for purposes of this report that the characterization of proposed conditions as a mix of native and nonnative tree and plant species, with predominantly nonnative species, will remain the same.

In general, native plant species provide higher-quality food, nesting, roosting, and cover resources for native birds compared to nonnative plant species. Thus, under proposed conditions, the predominantly nonnative tree and plant species to be planted on the site will provide resources such as food (e.g., seeds, fruits, nectar, or foliage that supports insect prey), nesting sites, roosting sites, and cover from predators that is similar to existing conditions. However, due to the anticipated greater extent of this vegetation compared to existing conditions, this vegetation is expected to attract greater numbers of landbirds, including both resident birds and migrating birds, to the site compared to existing conditions. Nocturnal migrant landbirds that travel along the edge of San Francisco Bay are expected to be attracted to vegetated open space areas on the site following construction, as these areas will be visible from the San Francisco Bay as potential nesting, roosting, and foraging opportunities along a densely developed urban shoreline. Such migrants are expected to descend from their migration flights to the project site to rest and forage. Thus, a slight increase in the abundance of resident birds and a somewhat larger increase in the abundance of migrating birds is expected as a result of the proposed landscaping. Still, due to the extent of hardscape proposed in these open space areas, bird use will be much lower than in natural areas in the region.

Section 4. Method of Analysis

This assessment was prepared by H. T. Harvey & Associates wildlife ecologists/ornithologists Steve Rottenborn, Ph.D., and Robin Carle, M.S. Their qualifications are provided in Appendix C. Reconnaissance-level field surveys of the portion of the site located east of Willow Road, as well as areas within the JPB rail corridor east and west of Willow Road, were initially conducted by S. Rottenborn on October 26, 2017. After the project was redesigned in 2019, S. Rottenborn visited the project site again on April 22, 2019.

Although the subject of bird-friendly design is relatively new to the West Coast, S. Rottenborn and R. Carle have performed avian collision risk assessments and identified measures to reduce collision risk for several projects in the Bay Area, including projects in the cities of San Francisco, Oakland, Berkeley, South San Francisco, Redwood City, Menlo Park, Palo Alto, Mountain View, Santa Clara, Sunnyvale, and San José. The methods of analysis used for this report are consistent with the methods of analysis used for these other projects in the San Francisco Bay Area.

Section 5. Project Analysis

5.1 Analysis of Overall Project Site Conditions

Because birds do not necessarily perceive glass as an obstacle (Sheppard and Phillips 2015), windows or other structures that reflect the sky, trees, or other habitat may not be perceived as obstacles, and birds may collide with these structures. Similarly, transparent windows can result in bird collisions when they allow birds to perceive an unobstructed flight route through the glass (such as at corners), and when the combination of transparent glass and interior vegetation results in attempts by birds to fly through glass to reach vegetation. A number of factors play a role in determining the risk of bird collisions with buildings, including the amount and type of glass used, lighting, properties of the building (e.g., size, design, and orientation), type and location of vegetation around the building, and building location.

As noted above, moderate numbers of native, resident birds occur in the project vicinity. Because resident birds are present within an area year-round, they are more familiar with their surroundings and can be less likely to collide with buildings compared with migrant birds (discussed below). However, the numbers of resident birds that collide with buildings can still be relatively high over time. Young birds that are more naïve regarding their surroundings are more likely to collide with glass compared to adult birds. In addition, although adult birds are often more familiar with their surroundings, they still collide with glass with some frequency, especially when they are startled (e.g., by a predator) and have limited time to assess their intended flight path to avoid glazed facades. As a result, a moderate number of resident (i.e., breeding or overwintering) landbirds may collide with the project buildings over time.

Nocturnal migrant landbirds are also expected to be attracted to the project vicinity, especially the marsh and scrub habitat to the north of the site, during migration periods in the spring and fall. When these birds arrive in the site vicinity they are tired from flying all night, they are hungry, and they are less likely to be aware of risks such as glass compared to well-fed, local resident, summering, or wintering birds familiar with their surroundings. As these migrants descend from higher elevations, they will seek suitable resting and foraging resources in the new landscape vegetation adjacent to the buildings. During this reorientation process, migrants will be susceptible to collisions with the buildings if they cannot detect the glass as a solid structure to be avoided. Migrant birds that use structures for roosting and foraging (such as swifts and swallows) will also be vulnerable to collisions if they perceive building interiors as potential habitat and attempt to enter the buildings through glass walls.

Once migrants have descended and decided to settle into vegetation on or adjacent to the project site, they may collide with the glass because they do not detect it as a solid surface and think they can fly through the building (e.g., if they are on the west side of the building and try to fly through a glazed corner to reach trees on the north side). Foggy conditions may exacerbate collision risk, as birds may be even less able to perceive that glass is present in the fog. The highest collision risk would likely occur when inclement weather enters the region on

a night of heavy bird migration, when clouds and fog make it difficult for birds to find high-quality stopover sites once they reach ground level.

The project site is located in a highly urbanized area, and is surrounded on three sides by high-intensity development (Figure 1). As a result, relatively low numbers of birds are expected to occur in the general vicinity of the site to the east, west, and south (i.e., away from less developed, higher-quality habitats along the edge of the baylands to the north).

In addition, several features of the proposed buildings' architecture would further reduce the frequency of avian collisions (referred to in this report as *beneficial project features*) (Appendix A). For instance, the presence of beneficial project features such as overhangs and awnings on many of the project buildings may reduce the potential for bird collisions with buildings by helping buildings to appear as more solid structures from a distance (San Francisco Planning Department 2011, Sheppard and Phillips 2015), and we expect that birds using habitats on the project site or in adjacent areas would be more likely to interpret the building as a solid structure (rather than as reflected sky or vegetation) due to the presence of these beneficial project features. At a more localized scale, these beneficial project features reduce collisions by blocking views of glazing to birds using areas of trees or roof vegetation located above the overhangs and awnings. However, overhangs and awnings do not eliminate issues related to reflections or transparency, or block the view of birds unless birds are located above the overhang or awning (San Francisco Planning Department 2011, Sheppard and Phillips 2015). Thus, these beneficial project features are typically used in combination with bird-safe glazing treatments, such as incorporation of visible patterns on the glass, as scientific trial studies have documented that these treatments effectively reduce bird collisions. Incorporation of the beneficial project features identified in this Assessment as depicted on the figures included in Appendix A will be required as a condition of the CDP so that they are part of the project description for CEQA review of the Master Plan.

Many of the project buildings are also articulated, with numerous features that break up the building's exterior surfaces so they do not appear smooth and unbroken. Well-articulated buildings are better perceived by birds as solid structures, particularly as birds approach buildings from a distance (San Francisco Planning Department 2011); as discussed above for awnings and overhangs, this is expected to reduce bird collisions. At a more localized/closer scale, building articulations can influence the potential for collisions in different ways. A recent study (Riding et al. 2020) found that buildings with alcoves (i.e., indentations/concavities in the building outline when viewed from above) experienced higher collision rates compared to other façade types (including flat facades), possibly because these features "trap" birds within an area where they are surrounded on three sides by glazing. These findings suggest that alcoves represent high-risk collision hazards to birds that are attracted to vegetation within the alcoves. In contrast, porticos (i.e., areas where an overhang creates a covered paved walkway), which are present in several locations on the Master Plan buildings, have been found to have relatively low collision rates compared to other façade types (Riding et al 2020). However, if porticos are vegetated (rather than entirely paved) or located immediately adjacent to native vegetation and trees that will attract birds, collision rates are expected to be higher because birds would be drawn towards the glass by the vegetation. In addition, porticos on the project buildings include transparent glass corners, which represent high-risk collision

hazards. Thus, it is necessary to consider the presence of collision hazards at porticos that may be created by vegetation and/or transparent glass corners when determining if porticos should be used independently, or in combination with bird-safe glazing treatments, to ensure that collision hazards are effectively addressed.

The project includes landscape vegetation that will be planted immediately adjacent to glazed facades in a number of locations, especially at the elevated park adjacent to the south façade of the atrium and in landscape areas adjacent to the north façade of the atrium. Where landscape vegetation must be planted adjacent to buildings, some agencies recommend planting the vegetation very close to (i.e., within 3 feet of) glazed facades to reduce bird collisions, as this obscures reflections of the vegetation in glazing and reduces fatal collisions by reducing birds' flight speed if they should fly into the glass (Klem 1990, New York City Audubon Society, Inc. 2007). However, not all studies have documented a reduction in bird collisions when resources are placed within 3 feet of windows (Kummer and Bayne 2015), and birds are fragile enough that they may still be killed due to window collisions when flying at relatively slow speeds (Klem 2008). In our professional opinion, vegetation that is (1) dense enough that birds cannot fly swiftly through it to reach glazed windows, and (2) located close enough to windows that birds will not be flying fast when they leave the vegetation and hit the glass, reduces the potential for collisions with glazing that is immediately adjacent to the vegetation. However, while dense shrubs and herbaceous plants will reduce collision hazards with immediately adjacent glazing, they will not protect glazing located above or to the side of the vegetation. Similarly, while a dense crown of a tree located immediately adjacent to a façade will reduce collision hazards on the adjacent glass, birds may still have a relatively high collision risk with glass located below the crown, where there is no dense vegetation. All trees and vegetation also grow and are trimmed over time, and areas of adjacent facades with higher or lower collision risk are expected to change accordingly over time. As a result, although planting vegetation adjacent to facades is expected to reduce collision hazards with immediately adjacent glazing, the effectiveness of this strategy is limited because (1) birds may still be killed or injured even when they fly into windows at relatively low speeds; (2) the vegetation only reduces the collision hazard where it is dense very close to the façade, and not in adjacent areas; and (3) vegetation is not uniformly shaped, and grows or is trimmed back over time, and so does not provide uniform or consistent protection for entire facades over time.

There are also some features evident in the project's plans where bird collisions may be more frequent than at other features because they may not be easily perceived by birds as physical obstructions; these features are related to the presence of a location-related hazard on the site as well as feature-related hazards on the proposed new buildings. A *location-related hazard* occurs where new construction is located within 300 feet of an *urban bird refuge*, which is defined as an open space 2 acres or larger dominated by vegetation (San Francisco Planning Department 2011). The project is located immediately adjacent to open areas to the north that provide habitat for birds. In addition, the project will construct new landscape areas on the site within approximately 20 acres of open space (composed of extensive paved areas with some landscape vegetation) that is accessible to birds. The connectivity of the new open space on the site with open habitats to the north is expected to draw birds onto the site, especially where trees are present to attract migrant birds. The northern portion of the site is expected to attract the highest numbers of birds due to its proximity to open habitats along the edge of San Francisco Bay. Although some birds will also occur farther south within the project site, the number of

individuals is likely to decline farther south due to the urbanized conditions that will be present on the project site and urbanization present to the west, south, and east.

Within areas of relatively high collision risk, the greatest potential for bird collisions is where a feature-related hazard is located adjacent to a location-related hazard. A *feature-related hazard* is a design feature that represents a high-risk collision hazard regardless of its location. Feature-related hazards on the site include free-standing glass railings, transparent glass corners with clear sight lines through a building, and alcoves and atria surrounded by glazing. In addition, feature-related hazards include areas of extensive glazing, as the extent of glazing on a building and the presence of vegetation opposite the glazing are known to be two of the strongest predictors of avian collision rates (Gelb and Delacretaz 2009, Borden et al. 2010, San Francisco Planning Department 2011, Cusa et al. 2015, Sheppard and Phillips 2015, Riding et al. 2020). The risk of collision is highest when a feature-related hazard is located adjacent to a location-related hazard, especially when vegetation is present on either side of the hazard, creating a perceived "flight path" through the glazing. Where these features are located along potential flight paths that birds may use when traveling to and from landscape vegetation on the site or in nearby areas, the risk of bird collisions is higher because birds may not perceive the intervening glass and may therefore attempt to fly to vegetation on the far side of the glass.

5.2 Hotel and Residential/Mixed-Use Buildings

The hotel and residential/mixed-use buildings are discussed together because the conceptual designs indicate that their facades are predominantly opaque (with the exception of retail areas on the lower levels of the buildings) and they are located in portions of the site with less extensive vegetation. Thus, bird collisions with these buildings are generally expected to be lower compared to other buildings on the project site, although certain facades of these buildings face areas of landscape vegetation (e.g., parks and courtyards) where bird collisions are generally expected to be relatively higher.

5.2.1 Building Descriptions

5.2.1.1 Hotel

A hotel is located at the eastern end of the Town Square District, adjacent to Willow Road; the hotel will be a maximum of 120 feet tall (Figure 3). The conceptual design of the hotel includes a central courtyard on Level 1, a pool deck on Level 3, and balconies on Level 6 (Figure 4). A bridge will connect the hotel's Level 3 pool deck to the elevated park to the north. The facades of the hotel are intended to be predominantly opaque, with extensive glazing on Level 1 on the west, east, and south facades as well as all Level 1 facades surrounding the courtyard (Figure 5). Free-standing glass railings may be included in the hotel design, and landscape vegetation may be present on roof terraces.

Figure 3. Illustration of buildings in the northern portion of the site showing the proposed atrium, elevated park, hotel, Town Square, Office Building 04, and event building.

Figure 4. The conceptual hotel plan includes a central courtyard on Level 1, a pool deck on Level 3, and vegetated balconies on Level 6.

Figure 5. The conceptual east (top left), north (top right), west (bottom left), and south (bottom right) facades of the hotel.

Birds using open marsh and scrub habitats, or migrating, north of the site may be attracted to landscape vegetation along the façades of the hotel. The conceptual project plans show vegetation and trees at the elevated park to the northeast within the Town Square to the east, and within the hotel's central courtyard (Figures 3 and 5). Street trees and limited vegetation are proposed along Willow Road to the northwest and future Main Street to the southwest (Figure 5).

Although the hotel is located in the northern portion of the site and adjacent to the elevated park (i.e., in areas where higher numbers of birds are expected to be present, compared to areas farther south within the Master Plan area), the extensive opaque panels on the exterior facades as shown in the conceptual design are beneficial project features that substantially reduce the expected frequency of bird collisions with this building by helping the building appear as a solid structure from a distance (Figure 5). Features of the architecture of the hotel where collision risk is expected to be relatively highest include transparent glass corners (through which sight lines between vegetation on either side of the corners create collision hazards for birds), at roofs with landscape vegetation (which are expected to attract birds towards glazing on the building), in the central courtyard (where birds are surrounded on three or three sides by glazed facades), and at areas of contiguous glazing that face landscape vegetation within approximately 60 feet of the ground.

5.2.1.2 Residential/Mixed-Use Buildings

The residential/mixed-use buildings on Parcels 2–7 are assessed together because they are similar in structure, and collision hazards with these buildings are expected to be similar. These buildings are located in the southeast portion of the Master Plan area (Figure 6) and will be a maximum of 85 feet tall. Figures 7 and 8, which show the Parcel 2 building, are representative of the conceptual appearance of the residential/mixed-use buildings: their facades are intended to be predominantly opaque with residential windows, with more extensive glazing typically present at ground-floor public spaces. All buildings incorporate courtyards and open space areas, and landscape vegetation may be present on roof terraces. Free-standing glass railings may be included in the building designs.

Figure 6. Illustrative site plan showing the proposed residential/mixed-use buildings and associated open space areas. Facades with relatively highest collision risk are delineated in red.

Figure 7. The conceptual Parcel 2 residential/mixed-use building plan includes open space courtyards on Level 3.

Figure 8. The conceptual east (top), west (middle), south (bottom left), and north (bottom right) facades of the Parcel 2 residential/mixed-use building.

Birds are expected to use landscape vegetation planted adjacent to the façades of the residential/mixed-use buildings within public areas (e.g., street trees), planted landscape areas, and parks. However, according to the conceptual designs, the majority of the residential/mixed-use buildings are not located adjacent to large open space areas; as a result, fewer birds are expected to occur along these buildings compared to other buildings on the project site. In general, higher numbers of birds are expected to be present at the approximately 3.5-acre publicly accessible park on Parcel A and at the Town Square to the north/northeast of Parcels 2 and 3, and fewer birds are expected to be present in smaller/narrower vegetated areas (e.g., in between buildings).

Beneficial project features of the architecture of residential/mixed-use buildings that would reduce the frequency of avian collisions include opaque panels, overhangs, mullions, and porticos that are not vegetated or located immediately adjacent to vegetation (Figure 8). Nevertheless, some bird collisions with these façades are expected to occur despite the presence of certain features that reduce collision risk. Features of the architecture of the facades of the residential/mixed-use buildings where collision risk is expected to be relatively highest include transparent glass corners (through which sight lines between vegetation on either side of the corners create collision hazards for birds), at alcoves (which surround trees and vegetation that are expected to attract birds), at green roofs (which are expected to attract birds towards glazing on the building), in courtyards (where birds are surrounded on three or four sides by glazed facades), and at areas of contiguous glazing that face landscape vegetation within approximately 60 feet of the ground (Figure 8). At transparent glass corners, the collision hazard extends as far from the corner as it is possible to see through the corner (and can potentially extend through an entire floor or section of a building, if it is possible to see through from one side of the building to the other).

5.2.2 Compliance with City Bird-Safe Design Requirements

Collision risk for the hotel and residential/mixed-use buildings is expected to be lower compared with other buildings in the Master Plan area because the conceptual designs indicate that their facades are predominantly opaque (with the exception of retail areas on the lower levels of the buildings) and they are located in portions of the site with less extensive vegetation. To address collision risk, the project will comply with City bird-safe design requirements, with requests for appropriate waivers, as permitted by the City bird-safe design requirements, by focusing bird-safe treatment of glazing within areas of relatively highest collision risk.

5.2.2.1 Requirements for which No Waiver is Requested

As currently proposed, the hotel and residential/mixed-use buildings anticipate complying with City bird-safe design requirements B, D, and G without requesting waivers; requirements B and D are listed below. Where the project's bird-safe design strategy is more specific than the City's requirements, sub-bullets specify how the project will comply with those requirements.

B. Bird-friendly glazing includes, but is not limited to, opaque glass, covering the outside surface of clear glass with patterns, paned glass with fenestration, frit or etching patterns, and external screens over nonreflective glass. Highly reflective glass is not permitted.

- Specifically, glazing used on the hotel and residential/mixed-use buildings shall have the following specifications:

    a. Vertical elements of the window patterns should be at least 0.25 inches wide at a maximum spacing of four inches and/or have horizontal elements at least 0.125 inches wide at a maximum spacing of two inches;

    OR

    b. Bird-safe glazing shall have a Threat Factor[1] less than or equal to 30.

- To reduce reflections of clouds and vegetation in glass and help ensure that bird-safe treatments on the lower surfaces of glass are visible below any reflections, all glazing on the hotel and residential/mixed-use buildings will have a visible reflectance of 15% or lower.

D. Placement of buildings shall avoid the potential funneling of flight paths towards a building facade.

Discussion of project compliance with City requirement C, related to occupancy sensors, is provided in Section 6.2.2 below.

[1] A material's Threat Factor is assigned by the American Bird Conservancy, and refers to the level of danger posed to birds based on birds' ability to perceive the material as an obstruction, as tested using a "tunnel" protocol (a standardized test that uses wild birds to determine the relative effectiveness of various products at deterring bird collisions). The higher the Threat Factor, the greater the risk that collisions will occur. An opaque material will have a Threat Factor of 0, and a completely transparent material will have a Threat Factor of 100. Threat Factors for many commercially available façade materials can be found at https://abcbirds.org/wp-content/uploads/2021/01/Master-spreadsheet-1-25-2021.xlsx.

5.2.2.2 Requirements for which Waivers will be Requested

Waivers Requested. As currently proposed, the project anticipates complying with City bird-safe requirements A, E, and F by requesting waivers for the hotel and residential/mixed-use buildings, as permitted by the City bird-safe design requirements. These waivers are requested in order for the project to achieve design excellence. City requirements A, E, and F are as follows:

A. No more than 10% of facade surface area shall have non-bird-friendly glazing.

E. Glass skyways or walkways, free-standing (see-through) glass walls and handrails, and transparent building corners shall not be allowed.

F. Transparent glass shall not be allowed at the rooflines of buildings, including in conjunction with roof decks, patios and roofs with landscape vegetation.

Alternative City Measures Proposed. As an alternative to these requirements, to ensure that the project meets the City's intent of designing bird-safe buildings and addresses high-risk collision hazards, the project proposes to implement the following alternative City measures:

- The hotel and residential/mixed-use buildings shall focus bird-friendly glazing treatments within areas of extensive glazing on lower floors and roof terraces that face the approximately 3.5-acre publicly accessible park (Parcel A), Town Square, and elevated park (i.e., the north, east, and south facades of the hotel; the north and south façades of the Parcel 2 building; the north/northeast facades of the Parcel 3 buildings; a portion of the south façade of the Parcel 4 building; and the west façades of the Parcel 6 building as indicated on Figure 6), as these represent areas of heightened collision risk. The focal façade areas to be treated shall be identified by a qualified biologist on building-specific façade views; no more than 10% of these areas shall have non-bird-friendly glazing.
- If free-standing glass railings are included on the hotel and/or residential/mixed-use buildings, all glazing on free-standing glass railings shall be 100% treated with a bird-safe glazing treatment.
    - Specifically, all glazing on free-standing glass railings on the buildings shall have a Threat Factor (see footnote 1 above) less than or equal to 15. This Threat Factor is relatively low (and the effectiveness of the bird-safe treatment correspondingly high) due to the relatively high risk of bird collisions with free-standing glass railings.
- All glazed features of the hotel and residential/mixed-use with clear sight lines between vegetation on either side of the feature (e.g., at glazed corners) shall be 100% treated with a bird-safe glazing treatment where they are located within or adjacent to (i.e., on both sides of a corner where one side of the corner falls within a focal treatment area) the focal treatment areas identified by the qualified biologist. These transparent building corners shall treated as far from the corner as it is possible to see through to the other side of the corner.

With respect to the bird-safe glazing treatments recommended in connection with these alternatives, Figure 9 provides an example of identified areas that would be required to be treated on the conceptual Parcel 2 residential/mixed-use building based on the January 2021 façade elevations.

Figure 9. An example mark-up of areas (shown in blue) that would be required to be treated on north (top left), south (top right), east (middle) and west (bottom) facades of the conceptual Parcel 2 residential/mixed-use building to ensure that avian collisions are less-than-significant. Transparent glass corner delineations are estimated; these corners should be treated as far from the corner as it is possible to see through the corner. Free-standing glass railings are not indicated on this figure but are required to be treated in all locations.

In lieu of complying with City requirements A, E, and F per se, this proposed approach would reduce bird collisions at the locations where bird collisions are most likely to occur and, in our professional opinion, adequately meet the objective of the City's requirements (i.e., to minimize bird collisions with the buildings). Therefore, the requested waivers to the City's bird-safe design requirements are appropriate. Alternatively, if the City does not grant a waiver for requirements A, E, and F, the project will comply with these City requirements. In our professional opinion, this strategy (i.e., compliance with City requirements or compliance via approved waivers, as permitted by the City bird-safe design requirements, and alternative City measures) will avoid significant CEQA impacts for these buildings.

5.2.3 Additional Mitigation Measures Proposed Under CEQA

Based on our assessment of the conceptual design of the hotel and residential/mixed-use buildings, we have determined that there is an overall low likelihood of collisions with the buildings. With the project's compliance with City requirements (either via compliance with the listed requirements or by requesting waivers, as permitted by the City bird-safe design requirements, and proposing alternative City measures, where

appropriate), it is our professional opinion that project impacts due to bird collisions with the hotel and residential/mixed-use buildings would be less than significant under CEQA. As such, no additional mitigation measures under CEQA for impacts related to avian collisions are proposed.

5.2.4 CEQA Impacts Summary

The hotel and residential/mixed-use buildings will comply with the City's bird-safe design requirements by implementing requirements B, D, and G; requesting waivers for requirements A, E, and F, as permitted by the City bird-safe design requirements; and implementing alternative City measures for requirements A, E, and F. Compliance with requirement C is discussed in Section 6.2.2 below. No additional mitigation measures under CEQA for impacts related to avian collisions are proposed. As stated above, with compliance with City requirements (including the implementation of the proposed alternative City measures), it is our professional opinion that project impacts due to bird collisions with the hotel and residential/mixed-use buildings would be less than significant under CEQA.

A subsequent report prepared by a qualified biologist will accompany the final ACPs for each of the residential/mixed-use buildings and the hotel. It is our understanding based on coordination with the design teams that (1) the final ACP designs for the residential/mixed-use buildings and hotel will substantially conform with the conceptual designs reviewed for this report, such that our analysis and conclusions are expected to be valid for the final designs; (2) the proposed bird-safe treatments within the areas where such treatments are expected to be necessary (per the example shown in Figure 9) are feasible; and (3) the project will implement alternative City measures as described herein. Nevertheless, because the designs and renderings for the hotel and residential/mixed-use buildings that were reviewed for this assessment are conceptual, a qualified biologist shall review the final ACPs for the hotel and residential/mixed-use buildings to confirm that the alternative City measures described herein, or other alternative measures reasonably acceptable to the qualified biologist[2], are incorporated into the final design, such that project impacts due to bird collisions would be less than significant under CEQA as indicated herein.

5.3 Office Campus

Office Buildings 01, 02, 03, 05, and 06 are assessed together because the conceptual designs indicate that they are similar in structure, and collision hazards with these buildings are expected to be similar.

5.3.1 Building Descriptions

5.3.1.1 Office Buildings 01, 02, 03, 05, and 06

Office Buildings 01, 02, 03, 05, and 06 will be a maximum of 120 feet tall. As shown on Figure 13 in Section 5.4.1.2 below, Office Building 04 is representative of the appearance of all proposed office buildings; their facades are predominantly glazed, although portions of the lower levels incorporate opaque wall panels. All

[2] If alternative measures are used that are not discussed in this report for the project's CDP, those measures will be submitted to the City for review in accordance with the City's Zoning Code and CEQA with the project's ACPs.

buildings have open space areas on rooftops that may support landscape vegetation. Free-standing glass railings may be included in the design of Office Buildings 01, 02, 03, 05, and 06.Birds are expected to use landscape vegetation along the façades of the office buildings. In general, higher numbers of birds are expected to be present in larger vegetated open space areas (e.g., in the plaza north of Office Building 05), and fewer birds are expected to be present in smaller/narrower vegetated areas (e.g., in between Office Building 06 and the South Garage) (Figure 10).

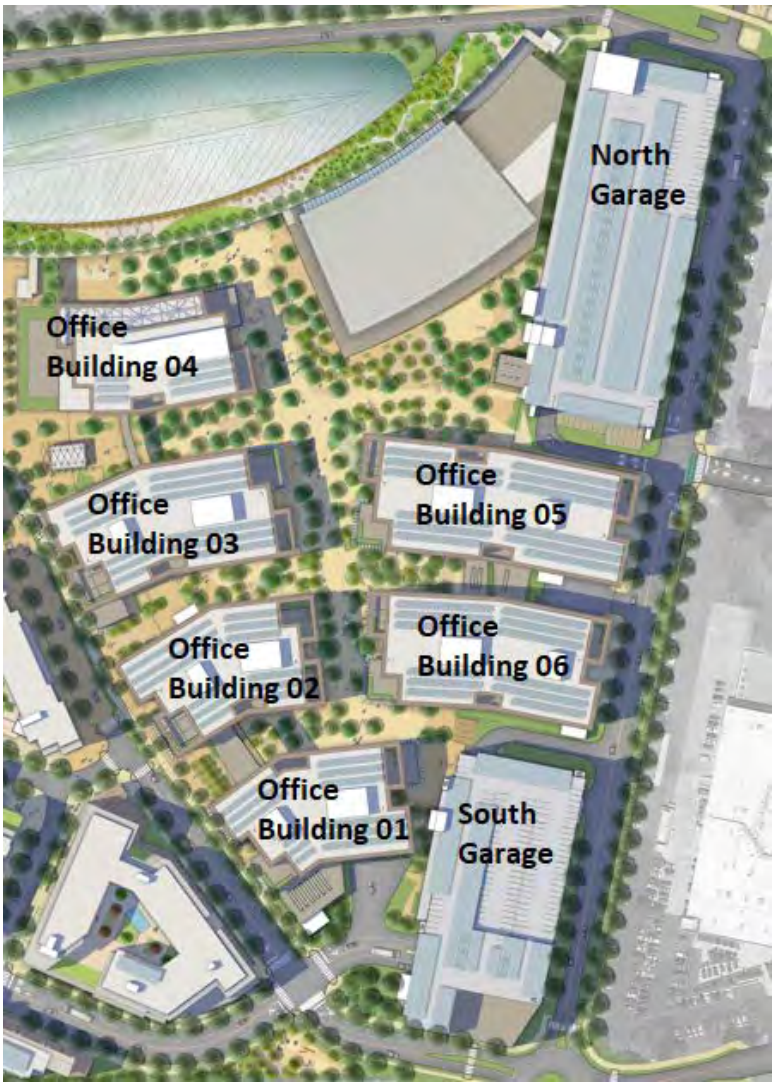

Figure 10. Conceptual site plan showing the locations of proposed office buildings and garages, as well as the proposed extent of landscape vegetation and trees.

Beneficial project features of the architecture of office building facades that would reduce the frequency of avian collisions include opaque panels, exterior vertical and horizontal solar shades, overhangs, mullions, and porticos that are not vegetated or located immediately adjacent to native vegetation. Nevertheless, because (1) the façades of the office buildings are extensively glazed and (2) this glazing faces landscape vegetation, bird

collisions with these façades are expected to occur despite the presence of certain features that reduce collision risk. Features of the architecture of the facades of the office buildings where collision risk is expected to be relatively highest include transparent glass corners (through which sight lines between vegetation on either side of the corners create collision hazards for birds), at alcoves (which surround trees and vegetation that are expected to attract birds), at roofs with landscape vegetation (which are expected to attract birds towards glazing on the building), at free-standing glass railings, and at areas of contiguous glazing that face landscape vegetation within approximately 60 feet of the ground. At transparent glass corners, the collision hazard extends as far from the corner as it is possible to see through the corner (and can potentially extend through an entire floor or section of a building, if it is possible to see through from one side of the building to the other).

5.3.1.2 Parking Garages

The North Garage is located in the northeast corner of the project site and the South Garage is located in the southeast corner of the project site (Figure 10). These garages are similar in structure, and will be a maximum of 120 feet tall. The conceptual plans indicate that the facades of the garages are predominantly opaque, with limited glazing only on two approximately 15-foot wide elevator towers on the west and north facades on all levels (Figure 11). Free-standing glass railings may be included in the project design, and landscape vegetation may be present above the ground level.

Figure 11. Conceptual North Garage elevations: east (top), west (middle), north (bottom left), and south (bottom right). The building facades are predominantly opaque; glazed areas are located on all levels the elevator towers on the west and north facades.

Birds using open marsh and scrub habitats, or migrating, north of the site may use landscape vegetation along the façades of the North Garage and South Garage. In general, higher numbers of birds are expected to be present opposite the north façade of the North Garage (which faces open habitats associated with the San Francisco Bay) and in larger vegetated open space areas (e.g., in the plaza southwest of the North Garage), and

fewer birds are expected to be present in smaller/narrower vegetated areas opposite the garage facades (e.g., in between the North Garage and Office Building 05).

The extensive opaque facades on the North Garage and South Garage shown on the conceptual plans are beneficial project features that will substantially reduce bird collisions with these buildings. Nevertheless, bird collisions are expected to occur where glazing is present opposite open space areas and landscape vegetation, at free-standing glass railings, and at roofs where landscape vegetation is located adjacent to glazing. No high-risk collision hazards (e.g., transparent glass corners) are present on these buildings.

5.3.2 Compliance with City Bird-Safe Design Requirements

Although a number of beneficial project features in the project design mentioned above will reduce bird collisions (e.g., opaque facades, exterior solar shades, mullions, and porticos), the number of collisions with Office Buildings 01, 02, 03, 05, and 06 as well as the North Garage and South Garage is expected to be relatively higher compared with certain other buildings in the Master Plan area (e.g., the hotel and mixed-use buildings described above) because (1) the building facades incorporate extensive glazing, and (2) this glazing faces landscape vegetation that will be used by birds. To address collision risk, the project will comply with City bird-safe design requirements, with appropriate waivers, as permitted by the City bird-safe design requirements.

5.3.2.1 Requirements for which No Waiver is Requested

As currently proposed, Office Buildings 01, 02, 03, 05, and 06 as well as the North Garage and South Garage anticipate complying with City bird-safe design requirements A, B, C, D, and G without requesting waivers; requirements A, B, C, and D are listed below. Where the project's bird-safe design strategy is more specific than the City's requirements, sub-bullets specify how the project will comply with those requirements.

A. No more than 10% of facade surface area shall have non-bird-friendly glazing.

   - Specifically, all portions of Office Buildings 01, 02, 03, 05, and 06 shall be treated with a bird-safe glazing treatment with the exception of certain portions of the facades on Level 1. The area of untreated glazing shall be less than 10% of the total surface area of the atrium. Specific treatment areas on the North Garage and South Garage are unknown, but will comply with this requirement.

B. Bird-friendly glazing includes, but is not limited to, opaque glass, covering the outside surface of clear glass with patterns, paned glass with fenestration, frit or etching patterns, and external screens over nonreflective glass. Highly reflective glass is not permitted.

   - Specifically, glazing used on Office Buildings 01, 02, 03, 05, and 06 as well as the North Garage and South Garage shall have the following specifications:

     c. Vertical elements of the window patterns should be at least 0.25 inches wide at a maximum spacing of four inches and/or have horizontal elements at least 0.125 inches wide at a maximum spacing of two inches;

     OR

d. Bird-safe glazing shall have a Threat Factor (see footnote 1 above) less than or equal to 30.

- To reduce reflections of clouds and vegetation in glass and help ensure that bird-safe treatments on the lower surfaces of glass are visible below any reflections, all glazing on Office Buildings 01, 02, 03, 05, and 06 as well as the North Garage and South Garage will have a visible reflectance of 15% or lower.

D. Placement of buildings shall avoid the potential funneling of flight paths towards a building facade.

Discussion of project compliance with City requirement C, related to occupancy sensors is provided in Section 6.2.2 below.

5.3.2.2 Requirements for which Waivers will be Requested

Waivers Requested. As currently proposed, the project anticipates complying with City bird-safe design requirements E and F by requesting waivers for Office Buildings 01, 02, 03, 05, and 06 as well as the North Garage and South Garage, as permitted by the City bird-safe design requirements. City requirements E and F are as follows:

E. Glass skyways or walkways, free-standing (see-through) glass walls and handrails, and transparent building corners shall not be allowed.

F. Transparent glass shall not be allowed at the rooflines of buildings, including in conjunction with roof decks, patios and roofs with landscape vegetation.

Alternative City Measures Proposed. As an alternative to these requirements, to ensure that the project meets the City's intent of designing bird-safe buildings and addresses high-risk collision hazards, the project proposes to implement the following alternative City measures:

- All glazed features with clear sight lines between vegetation on either side of the feature (e.g., at glazed corners and free-standing glass railings) shall be 100% treated with a bird-safe glazing treatment. Transparent building corners shall be treated as far from the corner as it is possible to see through to the other side of the corner (and will potentially extend through an entire floor or section of a building, if it is possible to see through from one side of the building to the other).
- All glazing above Level 1 of Office Buildings 01, 02, 03, 05, and 06 (i.e., all glazing adjacent to roof terraces with landscape vegetation) will be 100% treated with a bird-safe glazing treatment. Specific treatment areas on the North Garage and South Garage are unknown, but no more than 10% of the façade surface area shall have non-bird-friendly glazing.
- All transparent glass at the rooflines adjacent to vegetated roof decks will be 100% treated with a bird-safe glazing treatment. The only untreated glazing on for Office Buildings 01, 02, 03, 05, and 06 will be located on the ground level, which does not create a collision hazard due to landscape vegetation on roofs. No vegetated roof decks are proposed for the North Garage and South Garage, and all transparent glass at the rooflines of these buildings will be 100% treated with a bird-safe glazing treatment.

- If free-standing glass railings are included on Office Buildings 01, 02, 03, 05 and/or 06, all glazing on free-standing glass railings shall be 100% treated with a bird-safe glazing treatment.
    - Specifically, all glazing on free-standing glass railings on the building shall have a Threat Factor (see footnote 1 above) less than or equal to 15. This Threat Factor is relatively low (and the effectiveness of the bird-safe treatment correspondingly high) due to the relatively high risk of bird collisions with free-standing glass railings.

In lieu of complying with City requirements E and F per se, this proposed approach would reduce bird collisions at the locations where bird collisions are most likely to occur and, in our professional opinion, adequately meet the objective of the City's requirements (i.e., to minimize bird collisions with the buildings). Therefore, the requested waivers to the City's bird-safe design requirements are appropriate. Alternatively, if the City does not grant a waiver for requirements E and F, the project will comply with these City requirements. In our professional opinion, this strategy (i.e., compliance with City requirements or compliance via approved waivers, as permitted by the City bird-safe design requirements, and alternative City measures) will avoid significant CEQA impacts for these buildings.

5.3.3 Additional Mitigation Measures Proposed Under CEQA

With the project's compliance with City requirements (either via compliance with the listed requirements or by requesting waivers, as permitted by the City bird-safe design requirements, and proposing alternative City measures, where appropriate), it is our professional opinion that project impacts due to bird collisions with Office Buildings 01, 02, 03, 05, and 06 would be less than significant under CEQA. As such, no additional mitigation measures under CEQA for impacts related to avian collisions are proposed.

5.3.4 CEQA Impacts Summary

Office Buildings 01, 02, 03, 05, and 06 as well as the North Garage and South Garage will comply with the City's bird-safe design requirements by implementing requirements A, B, C, D, and G; requesting waivers for requirements E and F, as permitted by the City bird-safe design requirements; and implementing alternative City measures for requirements E and F. Compliance with requirement C is discussed in Section 6.2.2 below. No additional mitigation measures under CEQA for impacts related to avian collisions are proposed. As stated above, with compliance with City requirements (including the implementation of the proposed alternative City measures), it is our professional opinion that project impacts due to bird collisions with Office Buildings 01, 02, 03, 05, and 06 as well as the North Garage and South Garage would be less than significant under CEQA.

A subsequent report prepared by a qualified biologist will accompany the final ACPs for Office Buildings 01, 02, 03, 05, and 06 as well as the North Garage and South Garage. It is our understanding based on coordination with the design teams that (1) the final ACP designs for these buildings will substantially conform with the conceptual designs reviewed for this report, such that our analysis and conclusions are expected to be valid for the final designs; (2) the proposed bird-safe treatments within the areas where such treatments are expected to be necessary are feasible; and (3) the project will implement alternative City measures as described herein.

Nevertheless, because the designs and renderings for Office Buildings 01, 02, 03, 05, and 06 as well as the North Garage and South Garage that were reviewed for this assessment are conceptual, a qualified biologist shall review the final ACPs for these buildings to confirm that the alternative City measures described herein, or other alternative measures reasonably acceptable to the qualified biologist (see footnote 2 above), are incorporated into the final design such that project impacts due to bird collisions would be less than significant under CEQA as indicated herein.

5.4 Event Building and Nearby Buildings

The event building, Office Building 04, Town Square retail pavilion, pavilions SP1 and SP2, and stair/elevator towers are discussed together because the conceptual designs indicate that they are located in the northern portion of the project site reasonably close to open space areas with extensive trees and landscape vegetation (Figure 3). Because these open space areas are relatively large compared to other areas of the project site, and because the structures addressed in this section all incorporate extensive glazing, avian collision risk with these buildings is expected to be relatively higher than on the other office campus buildings, hotel, and residential/mixed-use buildings discussed in Sections 5.2 and 5.3 above.

5.4.1 Building Descriptions

5.4.1.1 Event Building

An event building is located southeast of the atrium (Figure 3), and it will have a maximum height of 120 feet. The northwest façade of this facility abuts the elevated park, and the facility connects directly with the atrium via a partially glazed passageway that extends beneath the elevated park (Figure 12). The southwest and northeast facades of the event building will be entirely opaque, and the lower portions of the northwest and southeast facades will also be opaque (Figure 12). Glazing will be present on the upper portions of the northwest and southeast facades; this glazing will face the vegetation at the adjacent elevated park (Figure 12). Landscape vegetation may be present on the sides of the building above the ground level, and free-standing glass railings may be included in the project design.

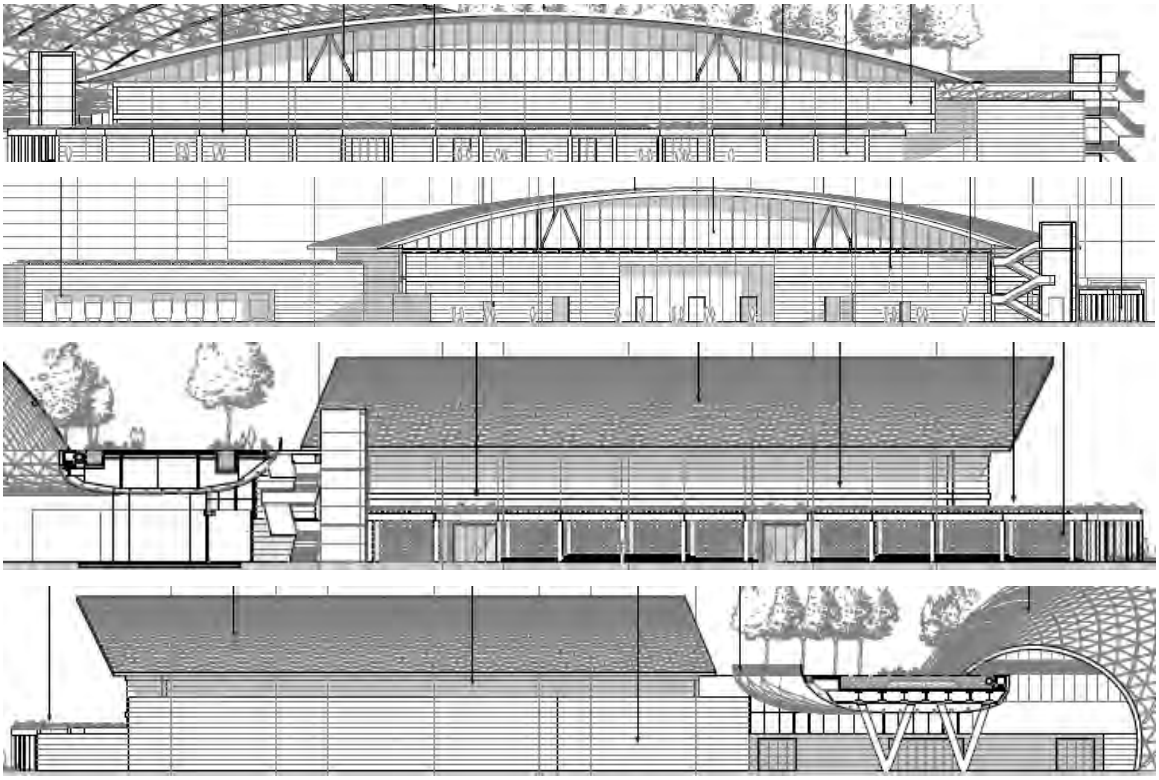

Figure 4. Illustration of the event building façades. Top to bottom: the southeast, northwest, northeast, and southwest facades.

Birds using open marsh and scrub habitats, or migrating, north of the site may be attracted to landscape vegetation along the façades of the event building. Because the conceptual plans show that the event building is surrounded by vegetated open space areas, including the elevated park to the northwest and a plaza with landscape vegetation to the southwest and southeast, relatively high numbers of birds are expected to be present around the building (Figure 3).

The extensive opaque facades on the event building are beneficial project features that will substantially reduce bird collisions with the building. However, bird collisions are expected to occur in several locations where glazing is present. For instance, birds using vegetation at the elevated park northwest of the event building will be able to see vegetation within the open space area southeast of the building, and vice-versa, through the glazing on the building's northwest and southeast facades. In addition, birds using vegetation adjacent to the glazed passageway will also be able to see vegetation on the other side of this feature. The risk of bird collisions at these locations is expected to be relatively high because birds may not perceive the intervening glass and may therefore attempt to fly to vegetation on the far side of the glass. Bird collisions are also expected to be relatively high where vegetation above the ground level is located adjacent to glazing, and at free-standing glass railings.

5.4.1.2 Office Building 04

Office Building 04 will have a maximum height of 120 feet. Open space areas will be located on rooftop terraces that may support landscape vegetation, and free-standing glass railings may be included in the project design.

Figure 13 shows the facades of Office Building 04, which are predominantly glazed, although portions of the lower levels incorporate opaque wall panels.

Figure 13. Conceptual Office Building 04 elevations: west (top left), east (top right), north (middle), and south (bottom).

Birds using open marsh and scrub habitats, or migrating, north of the site may be attracted to landscape vegetation along the façades of Office Building 04. Higher numbers of birds are expected to be present around this building compared to buildings located farther south on the project site (e.g., Office Buildings 01–03 and 05–06, which are discussed in Section 5.3 above) due to the presence of large open space areas with landscape vegetation in the northern portion of the site. The conceptual plans show vegetation and trees at the elevated park north of Office Building 04 and within open space areas at grade level to the east, west, and south of this building (Figure 10).

Features of the architecture of the facades of Office Building 04 (and connected building TS3) that represent beneficial project features that would reduce the frequency of avian collisions include opaque panels, exterior vertical and horizontal solar shades, overhangs, mullions, and porticos that are not vegetated or located immediately adjacent to native vegetation (Figure 13). Nevertheless, because (1) the façades of the office building are extensively glazed and (2) this glazing faces landscape vegetation, bird collisions with these façades are expected to occur despite the presence of certain features that reduce collision risk. Features of the architecture of the building where collision risk is expected to be relatively highest include transparent glass corners (through which sight lines between vegetation on either side of the corners create collision hazards for birds), at roofs with landscape vegetation (which are expected to attract birds towards glazing on the building), at free-standing glass railings, and at areas of contiguous glazing that face landscape vegetation within approximately 60 feet of the ground. At transparent glass corners, the collision hazard extends as far from the

corner as it is possible to see through the corner (and can potentially extend through an entire floor or section of a building, if it is possible to see through from one side of the building to the other).

5.4.1.3 Town Square

The Town Square is located east of the hotel, south of the elevated park, and west of Office Building 04 (Figure 3). This area includes a new access road (West Street), a below-grade parking garage, a paved plaza with landscape vegetation and trees, several seating areas, bicycle parking, and a retail pavilion (Figure 14). Glazing will be present on the facades of the retail pavilion, which will have a maximum height of 120 feet (Figure 15). Free-standing glass railings may be included in the Town Square design, and landscape vegetation may be present on the roof of the retail pavilion.

Figure 14. The conceptual Town Square includes a paved plaza with landscape vegetation and trees, seating areas, a glazed elevator to the elevated park, bicycle parking, and a retail pavilion.

Figure 15. The conceptual west (top left), east (top right), south (middle), and north (bottom) facades of the Town Square retail pavilion.

Birds using open marsh and scrub habitats, or migrating north of the site may be attracted to landscape vegetation in the Town Square. The Town Square is an open space area with paved pedestrian areas as well as landscape vegetation and trees, and vegetation is also present to the north of the Town Square at the elevated park (Figures 3 and 14).

Beneficial project features of the Town Square retail pavilion that would reduce the frequency of avian collisions include opaque panels and mullions (Figure 15). Nevertheless, because (1) the façades of the retail pavilion are extensively glazed and (2) this glazing faces landscape vegetation, bird collisions with these façades are expected to occur despite the presence of certain features that reduce collision risk. Features of the architecture of the pavilion where collision risk is expected to be relatively highest include transparent glass corners (through which sight lines between vegetation on either side of the corners create collision hazards for birds), at the roof (which is expected to attract birds towards glazing on the pavilion due to the potential presence of landscape vegetation), at free-standing glass railings, and at areas of contiguous glazing that face landscape vegetation. In addition, birds using vegetation north of the pavilion will be able to see vegetation south of the pavilion, and vice-versa, though the glazing on the pavilion's north and south facades. The risk of bird collisions at these locations is expected to be relatively high because birds may not perceive the intervening glass and may therefore attempt to fly to vegetation on the far side of the glass.

5.4.1.4 Security Pavilions

Accessory buildings Security Pavilions 1 and 2 (SP1 and SP2) are located in the northern portion of the site: SP1 in between Office Buildings 03 and 04, and SP2 at the southwest corner of the North Garage (Figure 10). These pavilions are discussed together because they are similar in structure, and collision risk with the pavilions' facades is expected to be similar. SP1 and SP2 will have a maximum height of 120 feet. Figure 16 is

representative of the appearance of these buildings, and indicates that glazing will be present on all sides of the buildings and pergolas will be present above the roofs. Free-standing glass railings may be included in the design of the pavilions, and landscape vegetation may be present on the building's roofs.

Figure 16. The conceptual south (top left), west (top right), north (bottom left), and east (bottom right) facades of buildings SP1 and SP2.

Birds using open marsh and scrub habitats, or migrating, north of the site may be attracted to landscape vegetation along the pavilions. Higher numbers of birds are expected to be present around these buildings compared to buildings located farther south on the project site (e.g., Office Buildings 01–03 and 05–06, which are discussed in Section 5.3 above) due to the presence of large open space areas with landscape vegetation in the northern portion of the site. The conceptual project plans show vegetation and trees in large open space areas/plazas surrounding buildings SP1 and SP2 (Figure 10).

Features of the architecture of the pavilions that represent beneficial project features that would reduce the frequency of avian collisions include opaque panels and mullions (Figure 16). Nevertheless, because the facades of these pavilions incorporate extensive glazing that faces landscape vegetation, bird collisions with these facades are expected to occur despite the presence of certain features that reduce collision risk. Features of the architecture of the pavilions where collision risk is expected to be relatively highest include transparent glass corners (through which sight lines between vegetation on either side of the corners create collision hazards for birds), at free-standing glass railings, where rooftop vegetation is located adjacent to glazing, and at areas of contiguous glazing that face landscape vegetation. In addition, birds using vegetation east of the pavilions will be able to see vegetation west of the pavilions, and vice-versa, though the glazing on the pavilion's east and west facades (Figure 16). The risk of bird collisions at these locations is expected to be relatively high because birds may not perceive the intervening glass and may therefore attempt to fly to vegetation on the far side of the glass.

5.4.1.5 Stair/Elevator Towers

Five stair/elevator towers are present that connect the ground level with the elevated park in the following locations (Figure 3):

- At the eastern end of the elevated park
- At the northwest corner of the event building (also see Figure 12)
- At the Town Square (also see Figure 14)
- At the hotel (also see Figure 5)
- At the western end of the elevated park

The conceptual plans indicate that the stair/elevator towers incorporate extensive glazing; as a result, bird collisions with facades of these towers are expected to occur. Because these towers create clear sight lines between vegetation on either side of the towers, the risk of bird collisions at these locations is expected to be relatively high because birds may not perceive the intervening glass and may therefore attempt to fly to vegetation on the far side of the glass.

5.4.2 Compliance with City Bird-Safe Design Requirements

To address collision risk, the project will comply with City bird-safe design requirements, with appropriate waivers, as permitted by the City bird-safe design requirements.

5.4.2.1 Requirements for which No Waiver is Requested

As currently proposed, the event building, Office Building 04, Town Square retail pavilion, security pavilions, and elevator towers shall anticipate complying with City bird-safe design requirements A–D and G without requesting waivers; requirements A–D are listed below. Where the project's bird-safe design strategy is more specific than the City's requirements, sub-bullets specify how the project will comply with those requirements.

A. No more than 10% of facade surface areas shall have non-bird-friendly glazing.

B. Bird-friendly glazing includes, but is not limited to, opaque glass, covering the outside surface of clear glass with patterns, paned glass with fenestration, frit or etching patterns, and external screens over nonreflective glass. Highly reflective glass is not permitted.

   - Specifically, glazing used on the event building, Office Building 04, Town Square retail pavilion, security pavilions, and elevator towers shall have the following specifications:

     e. Vertical elements of the window patterns should be at least 0.25 inches wide at a maximum spacing of four inches and/or have horizontal elements at least 0.125 inches wide at a maximum spacing of two inches;

     OR

     f. Bird-safe glazing shall have a Threat Factor (see footnote 1 above) less than or equal to 30.

   - To reduce reflections of clouds and vegetation in glass and help ensure that bird-safe treatments on the lower surfaces of glass are visible below any reflections, all glazing on the event building, Office

Building 04, Town Square retail pavilion, security pavilions, and elevator towers will have a visible reflectance of 15% or lower.

D. Placement of buildings shall avoid the potential funneling of flight paths towards a building facade.

Discussion of project compliance with City requirement C, related to occupancy sensors, is provided in Section 6.2.2 below.

5.4.2.2 Requirements for which Waivers will be Requested

Waivers Requested. As currently proposed, the project anticipates complying with City bird-safe design requirements E and F by requesting waivers for the event building, Office Building 04, Town Square retail pavilion, security pavilions, and elevator towers, as permitted by the City bird-safe design requirements. City requirements E and F are as follows:

E. Glass skyways or walkways, free-standing (see-through) glass walls and handrails, and transparent building corners shall not be allowed.

F. Transparent glass shall not be allowed at the rooflines of buildings, including in conjunction with roof decks, patios and roofs with landscape vegetation.

Alternative City Measures Proposed. As an alternative to these requirements, to ensure that the project meets the City's intent of designing bird-safe buildings and addresses high-risk collision hazards, the project proposes to implement the following alternative City measures:

- All glazed features of the event building, Office Building 04, Town Square retail pavilion, security pavilions, and elevator towers with clear sight lines between vegetation on either side of the feature (e.g., at glazed corners) shall be 100% treated with a bird-safe glazing treatment. Transparent building corners of these buildings shall be treated as far from the corner as it is possible to see through to the other side of the corner (and will potentially extend through an entire floor or section of a building, if it is possible to see through from one side of the building to the other).
- Any glazing of the event building, Office Building 04, Town Square retail pavilion, security pavilions, and elevator towers that creates see-through conditions where vegetation will be visible from one side of the building to the other shall be 100% treated. Examples include the north and south facades of the event building, the north and south facades of the Town Square retail pavilion, and facades of pavilions SP1 and SP2.
- If free-standing glass railings are included on the event building, Office Building 04, Town Square retail pavilion, security pavilions, and elevator towers, all glazing on free-standing glass railings shall be 100% treated with a bird-safe glazing treatment.
    - Specifically, all glazing on free-standing glass railings on the event building, Office Building 04, Town Square retail pavilion, security pavilions, and elevator towers shall have a Threat Factor (see footnote 1 above) less than or equal to 15. This Threat Factor is relatively low (and the effectiveness of the bird-

safe treatment correspondingly high) due to the relatively high risk of bird collisions with free-standing glass railings.

- All glazing above Level 1 of Office Building 04 (i.e., all glazing adjacent to roof terraces with landscape vegetation) will be 100% treated with a bird-safe glazing treatment.

In lieu of complying with City requirements E and F per se, this proposed approach would reduce bird collisions at the locations where bird collisions are most likely to occur and, in our professional opinion, adequately meet the objective of the City's requirements (i.e., to minimize bird collisions with the buildings). Therefore, the requested waivers to the City's bird-safe design requirements are appropriate. Alternatively, if the City does not grant a waiver for requirements E and F, the project will comply with these City requirements. In our professional opinion, this strategy (i.e., compliance with City requirements or compliance via approved waivers, as permitted by the City bird-safe design requirements, and alternative City measures) will avoid significant CEQA impacts for these buildings.

5.4.3 Additional Mitigation Measures Proposed Under CEQA

With the project's compliance with City requirements (either via compliance or by requesting waivers, as permitted by the City bird-safe design requirements, and proposing alternative City measures, where appropriate), it is our professional opinion that project impacts due to bird collisions with the event building and nearby buildings would be less than significant under CEQA. As such, no additional mitigation measures under CEQA for impacts related to avian collisions are proposed.

5.4.4 CEQA Impacts Summary

The Town Square retail pavilion, security pavilions, and stair/elevator towers will comply with the City's bird-safe design requirements by implementing requirements A–D and G, requesting waivers for requirements E and F, as permitted by the City bird-safe design requirements, and implementing alternative City measures for requirements E and F. Compliance with requirement C is discussed in Section 6.2.2 below. No additional mitigation measures under CEQA for impacts related to avian collisions are proposed. As stated above, with compliance with City requirements (including the implementation of the proposed alternative City measures), it is our professional opinion that project impacts due to bird collisions with the Town Square retail pavilion, security pavilion, and stair/elevator towers would be less than significant under CEQA.

A subsequent report prepared by a qualified biologist will accompany the final ACPs for the event building, Office Building 04, the Town Square retail pavilion, the security pavilions, and the stair/elevator towers. It is our understanding based on coordination with the design teams that (1) the final ACP designs for these buildings will substantially conform with the conceptual designs reviewed for this report, such that our analysis and conclusions are expected to be valid for the final designs; (2) the proposed bird-safe treatments within the areas where such treatments are expected to be necessary are feasible; and (3) the project will implement alternative City measures as described herein. Nevertheless, because the designs and renderings for the event building, Office Building 04, the Town Square retail pavilion, the security pavilions, and the stair/elevator

towers that were reviewed for this assessment are conceptual, a qualified biologist shall review the final ACPs for these buildings to confirm that the alternative City measures described herein, or other alternative measures reasonably acceptable to the qualified biologist (see footnote 2 above), are incorporated into the final design such that project impacts due to bird collisions are less than significant under CEQA as described herein.

5.5 Atrium

Due to the unique structure of the atrium and the potential for bird collisions with the atrium to occur, additional supporting information from the project's ACP for the atrium was referenced for this analysis (Appendix A). Although the ACP for the atrium is not yet final, it is our understanding based on considerable coordination with the design teams that the designs in the final ACP for the atrium will substantially conform with the designs referenced in this report, such that our analysis and conclusions are expected to be valid for the final design. Incorporation of the beneficial project features identified in this Assessment as depicted on the figures included in Appendix A will be required as a condition of the CDP so that they are part of the project description for CEQA review of the Master Plan.

5.5.1 Building Description

5.5.1.1 Overall Description of the Atrium Structure

The structure located north of the elevated park is proposed to be covered by an approximately 117-foot tall, 129,000 square-foot glass atrium (hereafter referred to as the *atrium*) with four interior levels of office and accessory space and approximately 3.7 acres of interior open space that will include paved pedestrian areas, landscape vegetation, and trees. For the purpose of these sections, landscape vegetation, structures, and features outside the atrium are referred to as *exterior*, and landscape vegetation, structures, and features within the atrium are referred to as *interior*. The interior of the atrium will not be accessible to birds. The northern side of the atrium faces open marsh and scrub habitats and the San Francisco Bay, and the southern side of the atrium faces the remainder of the project site. A roadway, an open space area, and a bicycle park will be constructed along the northern side of the atrium (Figure 3). An approximately 36-foot tall elevated park will be constructed along the southern side of the atrium, and an event building, office building, town square, and hotel will be located immediately south of the elevated park (Figure 3). Vegetation and trees at the elevated park and in the area immediately north of the atrium will be planted as close to the atrium's north and south façades as feasible (this is discussed as a general 'good practice' in Section 5 above).

The lower approximately 12.5 feet[3] of the atrium's south façade will consist of vertical glazing with several building entrances, and the remaining areas of the atrium's north and south facades will be composed of a network of glass panels that create a curved 'dome' shape (Figure 17). At its eastern end along the south façade, the atrium is connected to the event building via a partially glazed passageway; this connection is discussed in Section 5.4 above. A visitor center is located on the ground floor below the elevated park at the western end of

[3] The vertical façade beneath the elevated park consists of 12.5-foot tall contiguous untreated glazing below a solid roof, and a 4.5-foot tall zone of framed glass louvers in between the roof and the elevated park. The total height of the glazed façade beneath the elevated park is 18.5 feet.

the atrium, and connects with the atrium's westernmost interior building. Glass facades surround the visitor center (Figure 18) and are contiguous with the atrium's vertical south façade (Figure 17). The eastern and western ends of the atrium are closed off via large vertical predominantly glazed facades that are approximately 45–50 feet tall (Figure 18).

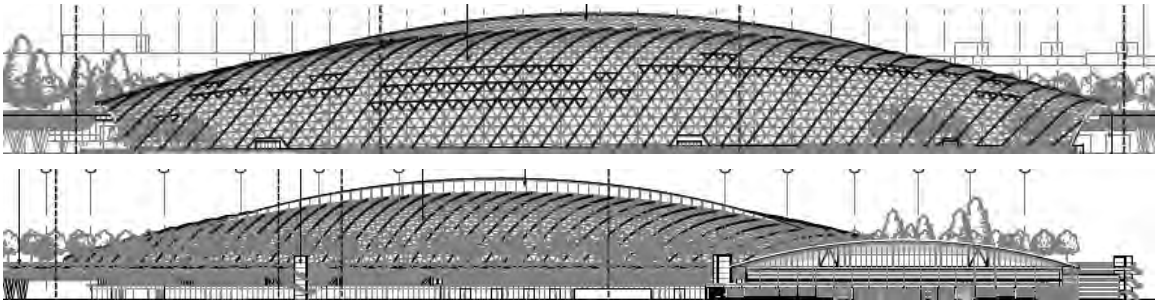

Figure 17. Conceptual drawings of the north façade (top) and south façade (bottom) of the atrium. Trees to be planted along the north façade are not shown.

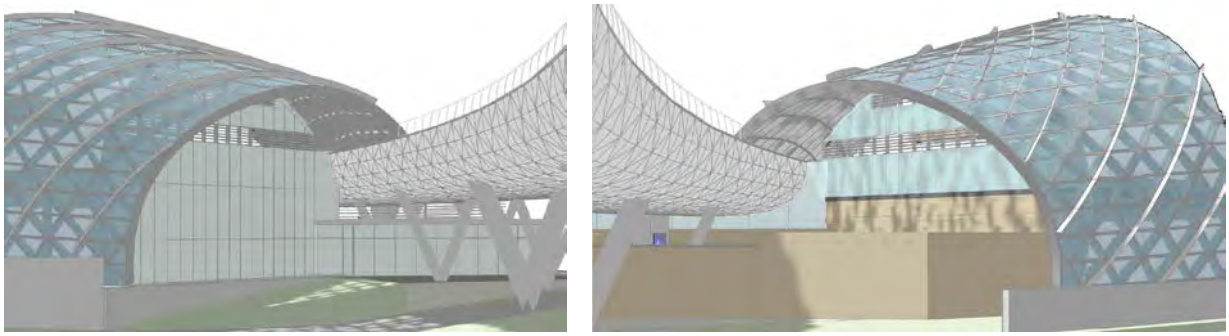

Figure 18. An illustration of the appearance of the vertical glass facades at the western (left) and eastern (right) ends of the atrium.

Figure 19 provides illustrative overhead views of proposed vegetation on each level inside the atrium. The vegetation in the atrium's interior will be similar in character to the exterior vegetation described in Section 3.2 (i.e., predominantly nonnative plant species).

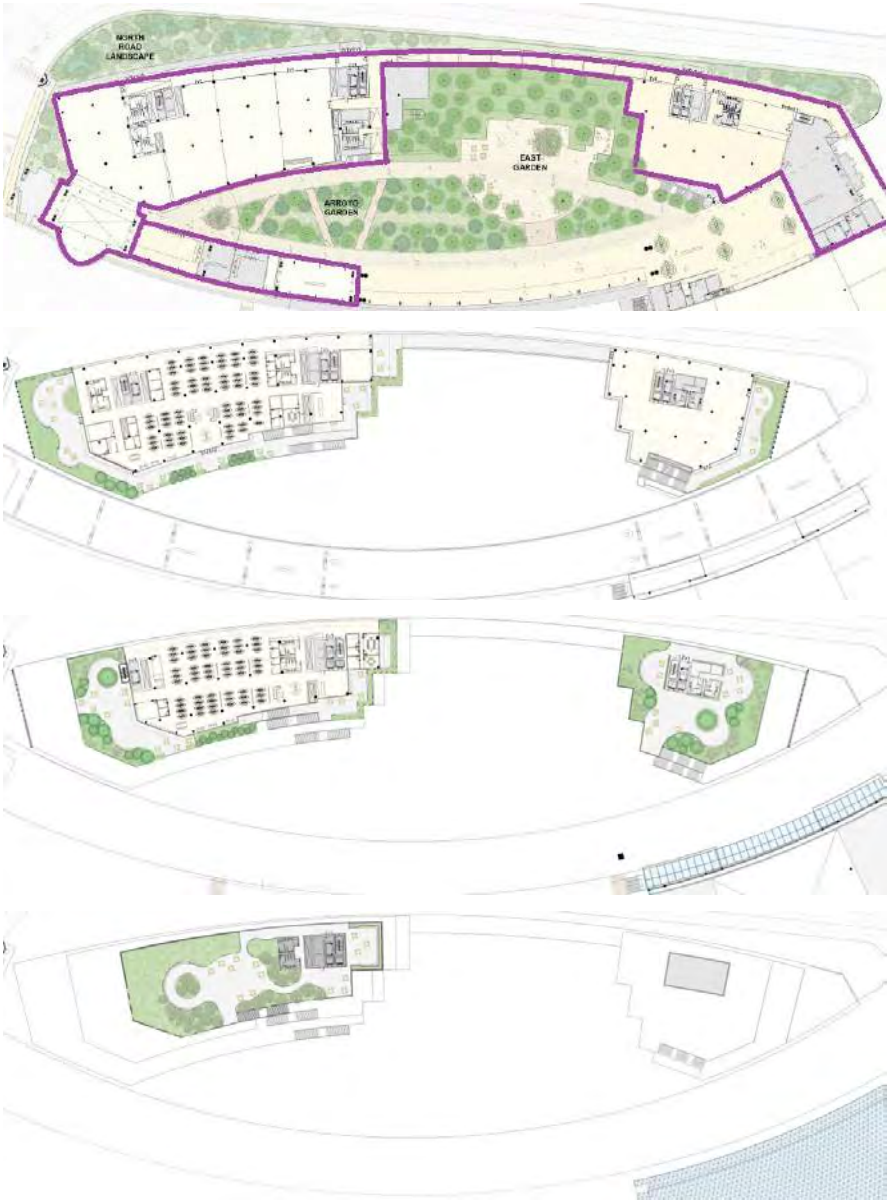

Figure 19. From top to bottom, illustrative views of landscape vegetation on Levels 1, 2, 3, and 4 of the atrium's interior. The interior building footprints and the connection between them are outlined in purple on the top image.

One four-story building and one three-story building will be located within the atrium, and the atrium's north façade composes the north façades of these buildings (Figure 19). These buildings incorporate vegetated terraces approximately 37 feet high on Level 2, 56 feet high on Level 3, and (on the westernmost building only) 75 feet high on Level 4 (Figure 19). A raised walkway connects the two buildings at Level 2 along the atrium's north facade; the area beneath the raised walkway is open with the exception of structural support beams. A security office and café with glass facades will be located beneath the elevated park; however, no interior structures will be located along the atrium's south façade; rather, this area will consist of open space gardens

with landscape vegetation and pedestrian pathways (Figure 19). An approximately 12.5-foot tall vertical glass façade is present along the base of the atrium's south facade beneath the elevated park, with several doorways/entrances that connect with the Town Square and courtyards to the south. As mentioned above and discussed in Section 5.4, a passageway directly connects the atrium with the event building to the south. In addition, a visitor center with glazed facades and a glazed entrance in the shape of a half-circle projects outwards from beneath the elevated park near the atrium's western end, connecting the interior building with the Town Square to the south, and a security office and café with glazed facades are located immediately east of this entrance beneath the elevated park (Figure 19). The only vegetation proposed beneath the elevated park consists of small low interior planters adjacent to the event building near the eastern end of the atrium and small low exterior planters adjacent to a bicycle parking area near the western end of the atrium.

The potential for avian collisions differs between the north, south, east, and west facades of the atrium due to differences in the designs of these facades; the habitats located opposite the façades; and the presence, location, and orientation of interior vegetation, structures, and features within the atrium. Due to these differences, Sections 5.5.1.2, 5.5.1.3, and 5.5.1.4 provide separate assessments of the frequency of bird collisions with the north, south, and east/west facades of the atrium, respectively. The atrium will be sealed such that birds are not expected to be able to enter the atrium's interior; as a result, bird collisions with the interior surfaces of the atrium and/or building facades within the atrium would not occur, and no bird-safe treatment of glazing inside the atrium would be necessary.

5.5.1.2 North Façade

Birds using habitats or descending from migration flights to the north of the site may be attracted to the exterior landscape vegetation along the northern façade of the atrium. There is also some potential for higher-flying birds (e.g., birds descending from migration) to be attracted to the interior vegetation within the atrium; however, the visibility of this interior vegetation to birds located north of the structure will be very limited for the following reasons: (1) interior structures located along the northern facade of the atrium will block the view of the majority of interior vegetation from the north, and (2) the articulated shape of the atrium's facades will substantially reduce the visibility of interior vegetation to birds.

The majority of interior vegetation planted on Level 1 of the atrium's interior will be entirely screened from view to birds located at grade level to the north by the presence of interior buildings along the northern periphery of the atrium (Figure 19). Although some interior trees will be partially visible to birds to the north beneath the walkway that connects the two interior buildings, most will be blocked from view by terraces of the East Garden. No exterior trees will be planted immediately adjacent to the atrium's north façade along the East Garden such that birds would be attracted to this section of the façade where they would be able to see interior vegetation within the East Garden.

Some interior trees planted on roof terraces on Levels 2, 3, and 4 of interior buildings will be visible to birds from the north; however, all trees on these terraces will be set back from the atrium's north façade by approximately 20 feet on Levels 2 and 3, and 25 feet on Level 4 (Figure 19). As a result, birds using exterior

vegetation and trees north of the atrium will have limited line-of-sight views to interior trees at grade level and no line-of-sight views to trees on rooftops. This reduces the potential for bird collisions with the atrium's north façade by blocking direct "flight paths" for birds between interior and exterior vegetation.

The articulated structure of the atrium is a beneficial project feature that will substantially reduce the visibility of all interior vegetation to birds, especially from a distance (Figure 20), reducing the likelihood that birds will collide with glazing on the north façade (in any location) because they are attempting to reach interior vegetation. The architect for the Willow Village atrium has indicated that a good comparison, with respect to birds' ability to view vegetation inside the atrium, is the Jewel Changi Airport in Singapore (Figure 20), which was also designed by the same architecture firm. Although the Jewel Changi Airport building also contains extensive vegetation in its interior, like the Jewel Changi Airport building, the articulated glass surface and fins at the Willow Village atrium (see Figure 21) would combine to mask the visibility of that vegetation, so that birds flying outside the Willow Village atrium will not be able to clearly see, and therefore will not be attracted to, interior vegetation.

Figure 20. The Jewel Changi Airport building, which has a comparable design and exterior appearance to the proposed atrium. Although extensive vegetation is present inside this building, it is largely invisible from outside the atrium.

Fin-like mullions on the exterior surface of the atrium's façade are a beneficial project feature that will help break up the smooth surface and increase the visibility of the façade to birds (Figure 21). As a result, birds located north of the atrium that are attracted to the project site are more likely to view the atrium as a solid structure and are less likely to collide with the atrium.

Figure 21. Fin-like mullions on the exterior surface of the conceptual north and south facades of the atrium will break up the smooth surface and increase the visibility of the facades to birds, especially from a distance.

5.5.1.3 South Façade

Birds are expected to be attracted to exterior landscape vegetation along the south side of the atrium, especially at the elevated park located immediately adjacent to the atrium's south façade. Vegetation will also be present in open space courtyards and at the Town Square to the south, and some birds are expected to be attracted to these areas as well. Interior vegetation consisting of small low planters adjacent to the event building will be present below the elevated park; these planters will be screened from the outside by the event building and an adjacent enclosed room, and hence will not be directly visible to birds on the atrium's exterior. Additional exterior vegetation proposed beneath the elevated park consists of small low planters adjacent to a bicycle parking area near the western end of the south façade.

The visibility of vegetation within the glass atrium to birds using vegetation at the elevated park will be limited for the following reasons: (1) interior solar shades will block the view of interior vegetation from the south in certain locations, and (2) the articulated shape of the atrium's façades will substantially reduce the visibility of interior vegetation to birds, as indicated in Figure 20. In addition, vegetation located at the elevated park will be planted immediately adjacent to glass, as feasible, so that birds' flight speeds may be reduced as they approach the glazing, further reducing the potential for collisions.

Interior operable, suspended solar shades along a large portion of the south façade are a beneficial project feature that will block views of interior vegetation to birds located south of the atrium (Figure 22). As a result, birds using exterior vegetation and trees or flying in certain areas south of the atrium (i.e., areas from which the solar shades block views of vegetation in the atrium's interior) will not have line-of-sight views to interior vegetation where these shades are present. This reduces the potential for bird collisions with portions of the atrium's south façade by preventing that interior vegetation from being a strong attractant to birds. However, birds located elsewhere along the south façade (i.e., areas where the solar shades do not block views of vegetation in the atrium's interior) would have line-of-sight views to interior vegetation. As discussed above for the north façade, the articulated structure of the atrium will substantially reduce the visibility of interior vegetation to birds on the atrium's south facade, especially from a distance (Figure 20), reducing the likelihood

that birds will collide with glazing on the south façade because they are attempting to reach interior vegetation. In addition, fin-like mullions on the exterior surface of the façade will help break up the smooth surface and increase the visibility of the façade to birds (Figure 21).

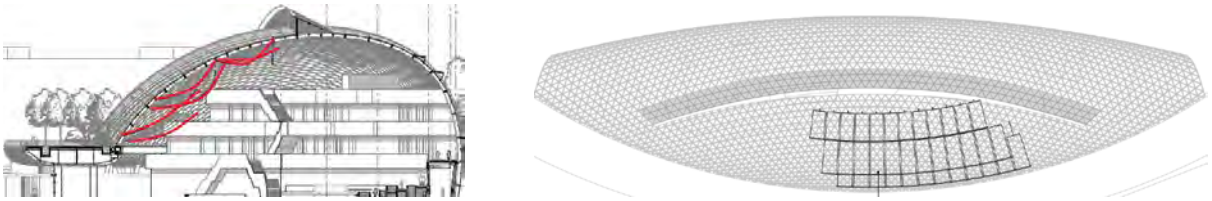

Figure 22. Interior sail shades, shown in red on the left cross-section image, are located along portions of the south façade of the atrium and will block views of interior vegetation to birds located at the elevated park or flying overhead. The approximate extent of the sail shades is shown in dark gray on the right (overhead) image.

To the extent feasible, exterior vegetation at the elevated park will be planted such that high-branching clear-stemmed trees are set back from the glass façade, and dense trees, shrubs, and other plants would be located immediately adjacent to glass facades (Figure 23). As discussed above, we expect this planting strategy to reduce the frequency of collisions with glazing that is immediately adjacent to the vegetation by obscuring reflections of the vegetation in glazing, and to reduce fatal collisions by reducing birds' flight speed if they should fly into the glass. However, even with this orientation of plantings, (1) birds may still be killed or injured even when they fly into windows at relatively low speeds; (2) the vegetation only reduces the collision hazard where it is dense very close to the façade, and not in adjacent areas; and (3) vegetation is not uniformly shaped, and grows or is trimmed back over time, and so does not provide uniform or consistent protection for entire facades over time. As a result, while this strategy represents a good practice for bird-safe design, collisions with the facades adjacent to the elevated park are still expected to occur.

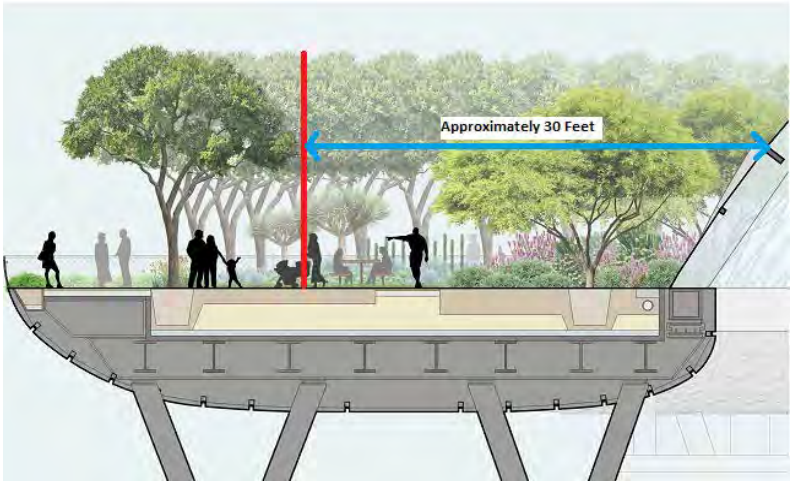

Figure 23. To the extent feasible, vegetation at the elevated park south of the site will be planted such that trees are set back from the glass façade, and dense shrubs and plants are located immediately adjacent to glass facades.

We expect potential bird collisions with the approximately 12.5-foot tall vertical glass façade beneath the elevated park to be reduced due to the following:

- The elevated park is approximately 50–65 feet wide, and trees on Level 1 within the atrium will be set back approximately 50 feet from the vertical glass façade. The resulting more than 50-foot distance of separation is expected to reduce the visibility of trees in the atrium to birds in the Town Square and courtyard.
- Birds would need to traverse more than 50 feet of minimally vegetated areas to attempt to travel in between trees in the Town Square/courtyard and the atrium's interior. Although some birds are expected to attempt to travel along this flight path, in our professional opinion the majority of birds will choose to travel to the immediately adjacent trees at the elevated park due to the closer proximity of these resources.
- A recent study (Riding et al. 2020) found that glass facades located at porticos (i.e., areas where an overhang creates a covered paved walkway, such as beneath the elevated park) have relatively low collision rates compared to other façade types. Thus, the overhang created by the elevated park, in combination with the lack of vegetation beneath the park, is expected to reduce the potential for collision risk.

Nevertheless, due to the presence of vegetation on either side of the atrium's south facade, birds are expected to collide with glazing on this façade when attempting to reach vegetation inside the atrium. Based on the project plans, this is especially true where vegetation on the Level 2 and 3 terraces are located adjacent to the atrium's south façade, because both of these areas are elevated at similar heights (Figure 19).

5.5.1.4 East and West Facades

Birds are expected to be attracted to exterior landscape vegetation along the east and west sides of the atrium. Within the atrium, Level 1 immediately adjacent to the west façade consists of the interior of a building, Level 2 consists of a vegetated roof terrace set back 30 feet from the facade, and Levels 3 and 4 consist of open air with vegetated roof terraces set back farther from the façade (Figure 19). Within the atrium immediately adjacent to the east façade, Level 1 consists of the interior of a building, Level 2 consists of a vegetated roof terrace set back 30 feet from the facade, Level 3 consists of open air with a vegetated roof terrace set back farther from the façade, and Level 4 consists of open air with an unvegetated roof terrace (Figure 19). Vegetation on the Level 2 terraces will be directly visible to birds using landscape vegetation in exterior areas east and west of the atrium. Vegetation on the Level 3 terraces will have limited visibility to birds east and west of the building due to the height of these terraces and because they are set back from the facades (Figure 19). Vegetation on the Level 4 terrace on the westernmost building is not expected to be visible to birds through the atrium's west façade (Figure 19).

Due to the presence of vegetation on either side of the atrium's east and west facades, birds are expected to collide with glazing on these facades when attempting to reach vegetation inside the atrium, especially at the Level 2 and 3 terraces.

5.5.2 Compliance with City Bird-Safe Design Requirements

To address collision risk with the atrium in part, the project will comply with City bird-safe design requirements, with appropriate waivers, as permitted by the City bird-safe design requirements.

5.5.2.1 Requirements for which No Waiver is Requested

As currently proposed, the atrium anticipates complying with City bird-safe design requirements A–D and G without requesting waivers; requirements A–D are listed below. Where the project's bird-safe design strategy is more specific than the City's requirements, sub-bullets specify how the project will comply with those requirements.

A. No more than 10% of facade surface area shall have non-bird-friendly glazing.
    - Specifically, all portions of the atrium shall be treated with a bird-safe glazing treatment with the exception of the vertical façade on the south side of the atrium below the elevated park. The area of untreated glazing shall be no more than 10% of the total surface area of the atrium.

B. Bird-friendly glazing includes, but is not limited to, opaque glass, covering the outside surface of clear glass with patterns, paned glass with fenestration, frit or etching patterns, and external screens over nonreflective glass. Highly reflective glass is not permitted.
    - Specifically, to reduce reflections of clouds and vegetation in glass and help ensure that bird-safe treatments on the lower surfaces of glass are visible below any reflections, all glazing on the atrium will have a visible reflectance of 15% or lower.

D. Placement of buildings shall avoid the potential funneling of flight paths towards a building facade.

Discussion of project compliance with City requirement C, related to occupancy sensors, is provided in Section 6.2.2 below.

5.5.2.2 Requirements for which Waivers will be Requested

Waivers Requested. As currently proposed, the project anticipates complying with the City's bird-safe design requirements E and F by requesting waivers for the atrium, as permitted by the City bird-safe design requirements. These waivers are requested in order for the project to achieve design excellence. City requirements E and F are as follows:

E. Glass skyways or walkways, free-standing (see-through) glass walls and handrails, and transparent building corners shall not be allowed.

F. Transparent glass shall not be allowed at the rooflines of buildings, including in conjunction with roof decks, patios and roofs with landscape vegetation.

Alternative City Measures Proposed. As an alternative to these requirements, to ensure that the project meets the City's intent of designing bird-safe buildings and addresses high-risk collision hazards, the project proposes to implement the following alternative City measures for the atrium:

- All glazed features of the atrium with clear sight lines between vegetation on either side of the feature (e.g., at glazed corners) shall be 100% treated with a bird-safe glazing treatment. Transparent building corners shall be treated in all locations where it is possible to see through to the other side of the visitor center.
- If free-standing glass railings are included in the project design in exterior areas adjacent to the atrium (e.g., at the elevated park), all glazing on free-standing glass railings shall be 100% treated with a bird-safe glazing treatment.
    - Specifically, all glazing on free-standing glass railings in exterior areas adjacent to the atrium shall have a Threat Factor (see footnote 1 above) less than or equal to 15. This Threat Factor is relatively low (and the effectiveness of the bird-safe treatment correspondingly high) due to the relatively high risk of bird collisions with free-standing glass railings.
- All transparent glass at the rooflines of the atrium adjacent to roof decks (i.e., the elevated park) will be 100% treated with a bird-safe glazing treatment. The only untreated glazing on the atrium will be located on the vertical façade beneath the elevated park, which does not create a collision hazard due to landscape vegetation on roofs.

In lieu of complying with City requirements E and F per se, this proposed approach would reduce bird collisions at the locations where bird collisions are most likely to occur and, in our professional opinion, adequately meet the objective of the City's requirements (i.e., to minimize bird collisions with the buildings). Therefore, the requested waivers to the City's bird-safe design requirements are appropriate. Alternatively, if the City does not grant a waiver for requirements E and F, the project will comply with these City requirements.

5.5.3 Additional Mitigation Measures Proposed Under CEQA

Due to the unique design of the atrium, compliance with City bird-safe design requirements (either via compliance with the listed requirements or by requesting waivers, as permitted by the City bird-safe design requirements, and proposing alternative City measures, where appropriate) may not reduce collision impacts with this structure sufficiently to avoid significant impacts under CEQA, and therefore these impacts may be potentially significant even with incorporation of the alternative City measures provided in Section 5.5.2 above. Therefore, additional CEQA mitigation measures are necessary to reduce impacts. With the implementation of the following mitigation measures, which go above and beyond the City's bird-safe design requirements as well as the alternative City measures, impacts due to bird collisions with the atrium will be reduced to less-than-significant levels under CEQA, in our professional opinion.

- **Mitigation Measure 1.** The project shall treat 100% of glazing on the 'dome-shaped' portions of the atrium's façades (i.e., all areas of the north façade, and all areas of the south façade above the elevated park)

with a bird-safe glazing treatment to reduce the frequency of collisions. This glazing shall have a Threat Factor (see footnote 1 above) of 15 or lower.

Because a Threat Factor is a nonlinear index, its value is not equivalent to the percent reduction in collisions that a glazing product provides. However, products with lower threat factors result in fewer bird collisions. Because the City's bird-safe design requirements (and requirements of other municipalities in the Bay Area) do not specify the effectiveness of required bird-safe glazing, Mitigation Measure 1 goes above and beyond what would ordinarily be acceptable to the City, as well as what is considered the industry standard for the Bay Area.

- **Mitigation Measure 2.** The project shall treat 100% of glazing on the atrium's east and west facades with a bird-safe glazing treatment to reduce the frequency of collisions. This glazing shall have a Threat Factor[1] of 15 or lower.

- **Mitigation Measure 3.** Interior trees and woody shrubs will be set back from the atrium's east, west, and non-sloped (i.e., vertical/perpendicular to the ground) portions of the south facades by at least 50 feet to reduce the potential for collisions with these facades due to the visibility of interior trees. This 50-foot distance is greater than the distance used in the project design for the north and sloped portions of the south facades (e.g., 20-25 feet for the north façade) due to the vertical nature of the east, west, and non-sloped portions of the south facades, as opposed to the articulated nature of the north and sloped portions of the south facades (which is expected to reduce the visibility of internal vegetation to some extent), as well as the direct line-of-sight views between interior and exterior vegetation through the east, west, and non-sloped portions of the south facades compared to the north façade (where internal vegetation is elevated above exterior vegetation). Interior trees and shrubs that are not visible through the east, west, and south facades may be planted closer than 50 feet to glass facades.

- **Mitigation Measure 4.** Because the glass production process can result in substantial variations in the effectiveness of bird-safe glazing, a qualified biologist will review physical samples of all glazing to be used on the atrium to confirm that the bird-safe frit will be visible to birds in various lighting conditions, and is expected to be effective.

- **Mitigation Measure 5.** The project shall monitor bird collisions around the atrium for a minimum of two years following completion of construction of the atrium to identify if there are any collision "hotspots" (i.e., areas where collisions occur repeatedly).

  A monitoring plan for the atrium shall be developed by a qualified biologist that includes focused surveys for bird collisions in late April–May (spring migration), September–October (fall migration), and mid-November–mid-January (winter) to maximize the possibility that the surveys will detect any bird collisions that might occur. Surveys of the atrium will be conducted daily for three weeks during each of these periods (i.e., 21 consecutive days during each season, for a total of 63 surveys per year). In addition, for the two-year monitoring period, surveys of the atrium will be conducted the day following all nighttime events held in the atrium during which temporary lighting exceeds typical levels (i.e., levels specified in the International Dark-Sky Association's defined lighting zone LZ-2 from dusk until 10:00 p.m., or 30% below these levels

from 10:00 p.m. to midnight, as described in Section 6.5 below). The applicant can assign responsibility for tracking events and notifying the biologist when a survey is needed to a designated individual who is involved in the planning and scheduling of atrium events. The timing of the 63 seasonal surveys (e.g., morning or afternoon) will vary on different days to the extent feasible; surveys conducted specifically to follow nighttime events will be conducted in the early morning.

At a frequency of no less than every six months, a qualified biologist will review the bird collision data for the atrium in consultation with the City to determine whether any potential hotspots are present (i.e., if collisions have occurred repeatedly in the same locations). A "potential hotspot" is defined as a cluster of three or more collisions that occur within one of the three-week monitoring periods described above at a given "location" on the atrium. The "location" shall be identified by the qualified biologist as makes sense for the observed collision pattern and may consist of a single pane of glass, an area of glass adjacent to a landscape tree or light fixture, the 8,990 square-foot vertical façade beneath the elevated park, the façade adjacent to vegetation on the elevated park, the atrium's east façade, the atrium's west façade, or another defined area where the collision pattern is observed. "Location" shall be defined based on observations of (1) collision patterns and (2) architectural, lighting, and/or landscape features contributing to the collisions, and not arbitrarily (e.g., by assigning random grids).

If any potential hotspots are found, the qualified biologist will provide an opinion regarding whether the potential hotspot will impact bird populations over the long-term to the point that additional measures (e.g., adjustments to lighting or the placement of vegetation) are needed to reduce the frequency of bird strikes at the hotspot location in order to reduce impacts to a less-than-significant level under CEQA (i.e., whether it constitutes an actual "hotspot"). This will be determined based on the number and species of birds that collide with the atrium over the monitoring period. In addition, a "hotspot" is automatically defined if a cluster of five or more collisions are identified at a given "location" on the atrium within one of the three-week monitoring periods described above. If a hotpot is identified, additional measures will be implemented at the potential hotspot location at the atrium; these may include one or more of the following options in the area of the hotspot depending on the cause of the collisions:

- The addition of a visible bird-safe frit pattern, netting, exterior screens, art, printed sheets, interior shades, grilles, shutters, exterior shades, or other features to untreated glazing (i.e., on the façade below the elevated park) to help birds recognize the façade as a solid structure.
- Installing interior or exterior blinds in the buildings within the atrium to prevent light from spilling outward though glazed facades at night.
- Reducing lighting by dimming fixtures, redirecting fixtures, turning lights off, and/or adjusting programmed timing of dimming/shutoff.
- Replacing certain light fixtures with new fixtures to provide increased shielding or redirect lighting.
- Adjusting or reducing lighting during events.
- Adjusting the timing of events to reduce the frequency of events during certain times of year (e.g., spring and/or fall migration) when relatively high numbers of collisions occur.

- Adjusting landscape vegetation by removing, trimming, or relocating trees or other plants (e.g., moving them farther from glass), or blocking birds' views of vegetation through glazing (e.g., using a screen or other opaque feature).

If modifications to the atrium are implemented to reduce collisions at a hotspot, one year of subsequent focused monitoring of the hotspot location will be performed to confirm that the modifications effectively reduce bird collisions to a less-than-significant level under CEQA. This monitoring may or may not extend beyond the two-year monitoring period described above, depending on the timing of the hotspot detection.

It is our understanding that the project proposes to use a frit consisting of ¼-inch white dots spaced in a 2x2-inch grid (i.e., similar in specifications to the Solyx SX-BSFD Frost Dot Bird Safety Film product rated with a Threat Factor of 15 by the American Bird Conservancy) for all treated façade areas on the atrium. We further understand that the atrium's glazing will have a dark gray thermal frit treatment (e.g., dark dots incorporated into the glass) in addition to the lighter-toned frit pattern that composes the bird-safe treatment. The extent of thermal frit will vary from the lower portions of the atrium to the upper portions of the atrium, with the upper portions incorporating more extensive (i.e., greater percent cover) thermal frit. Based on our review of preliminary physical glass samples supporting potential combinations of thermal frit and bird-safe frit, provided by the project team, it is our opinion that the combination of the bird-safe frit treatment with the thermal frit would produce very low Threat Factors (Figure 24). We are unaware of any glazing products that incorporate thermal frit patterns and have been assigned a Threat Factor by the American Bird Conservancy; however, the U.S. Green Building Council allows Threat Factors to be determined via any of the following options: (1) using a glass product that has been tested and rated by the American Bird Conservancy; (2) using a glass product with the same characteristics as a product that has been tested and rated by the American Bird Conservancy; or (3) using a glass product that has not been tested and rated, and asking the American Bird Conservancy to provide their opinion regarding an appropriate Threat Factor. We reached out to Dr. Christine Sheppard at the American Bird Conservancy to request her concurrence that the presence of the solar frit would not reduce the effectiveness of the bird-safe frit (and may even increase the effectiveness of the bird-safe frit). Dr. Sheppard responded in an email dated April 9, 2021 agreeing that the solar frit should make the lighter bird-safe frit dots more visible, and the proposed bird-safe treatment would have a Threat Factor of 15 as long as the bird-safe frit dots are ¼-inch in diameter (Sheppard 2021). Thus, the proposed bird-safe glazing treatment is appropriate for the atrium facades and goes above and beyond the City's minimum requirements, as well as the local standard for the San Francisco Bay Area.

Figure 24. Two preliminary glass samples that combine the dark gray thermal frit and lighter-toned bird-safe frit were reviewed by H. T. Harvey & Associates. The frit on these samples had very good visibility in different lighting conditions due to the contrast between the light and dark frit, and in our professional opinion are likely to reduce bird collisions with the atrium.

It is our understanding that only the proposed 12.5-foot tall vertical glazed facades on the south side of the atrium will remain untreated. This untreated area is relatively large (approximately 8,990 square feet, per the August 2021 ACPs); however, it will be less than 10% of the entire façade area in compliance with City bird-safe design requirements. Some collisions with this glazing are expected to occur when birds attempt to fly from trees and vegetation within the Town Square and courtyard located south of the elevated park to trees and vegetation within the atrium. As discussed above, because trees on either side of the untreated vertical glass façade will be separated by a distance of approximately 50 feet, and because the vertical glazed façade is located beneath the elevated park (creating a 'portico'), it is our opinion that the potential for collisions with this glazing would be low.

5.5.4 CEQA Impacts Summary

The atrium will comply with the City's bird-safe design requirements by implementing requirements A–D and G, requesting waivers for requirements E and F, as permitted by the City bird-safe design requirements, and implementing alternative City measures for requirements E and F. Compliance with requirement C is discussed in Section 6.2.2 below. In addition, the project will implement Mitigation Measures 1–5 above to reduce impacts to less-than-significant levels under CEQA. As stated above, with compliance with City requirements (including the implementation of proposed alternative City measures) and Mitigation measures 1–5 above, it is our professional opinion that project impacts due to bird collisions with the atrium would be less than significant under CEQA.

A subsequent report prepared by a qualified biologist will accompany the final ACP for the atrium. It is our understanding based on coordination with the design team that (1) the final ACP design for the atrium will

substantially conform with the designs reviewed for this report, such that our analysis and conclusions are expected to be valid for the final design; (2) the proposed bird-safe treatments within the areas where such treatments are expected to be necessary are feasible; and (3) the project will implement alternative City measures and CEQA mitigation measure as described herein. Nevertheless, because the designs and renderings for the atrium were based on conceptual CDP plans and preliminary ACP designs, a qualified biologist shall review the final ACP for the atrium to confirm that the alternative City measures and CEQA mitigation measures described herein , or other alternative measures reasonably acceptable to the qualified biologist (see footnote 2 above) are incorporated into the final design such that project impacts due to bird collisions are reduced to less-than-significant levels under CEQA as described herein.

Section 6. Assessment of Lighting Impacts on Birds

6.1 Overview of Potential Impacts on Birds from Artificial Lighting

Numerous studies indicate that artificial lighting associated with development can have an impact on both local birds and migrating birds. Below is an overview of typical impacts on birds from artificial lighting, including lighting impacts related to general site lighting conditions and up-lighting.

6.1.1 Impacts Related to General Site Lighting Conditions

Evidence that migrating birds are attracted to artificial light sources is abundant in the literature as early as the late 1800s (Gauthreaux and Belser 2006). Although the mechanism causing migrating birds to be attracted to bright lights is unknown, the attraction is well documented (Longcore and Rich 2004, Gauthreaux and Belser 2006). Migrating birds are frequently drawn from their migratory flight paths into the vicinity of an artificial light source, where they will reduce their flight speeds, increase vocalizations, and/or end up circling the lit area, effectively "captured" by the light (Herbert 1970, Gauthreaux and Belser 2006, Sheppard and Phillips 2015, Van Doren et al. 2017). When birds are drawn to artificial lights during their migration, they may become disoriented and possibly blinded by the intensity of the light (Gauthreaux and Belser 2006). The disorienting and blinding effects of artificial lights directly impact migratory birds by causing collisions with light structures, buildings, communication and power structures, or even the ground (Gauthreaux and Belser 2006). Indirect impacts on migrating birds might include orientation mistakes and increased length of migration due to light-driven detours.

6.1.2 Impacts Related to Up-Lighting

Up-lighting refers to light that projects upwards above the fixture. There are two primary ways in which the luminance of up-lights might impact the movements of birds. First, local birds using habitats on a site may become disoriented during flights among foraging areas and fly toward the lights, colliding with the lights or with nearby structures. Second, nocturnally migrating birds may alter their flight direction or behavior upon seeing lights; the birds may be drawn toward the lights or may become disoriented, potentially striking objects such as buildings, adjacent power lines, or even the lights themselves. These two effects are discussed separately below.

Local Birds. Seabirds may be especially vulnerable to artificial lights because many species are nocturnal foragers that have evolved to search out bioluminescent prey (Imber 1975, Reed et al. 1985, Montevecchi 2006), and thus are strongly attracted to bright light sources. When seabirds approach an artificial light, they seem unwilling to leave it and may become "trapped" within the sphere of the light source for hours or even days, often flying themselves to exhaustion or death (Montevecchi 2006). Seabirds using habitats associated with the San Francisco Bay to the north include primarily gulls and terns. Although none of these species are primarily nocturnal foragers, there is some possibility that gulls, which often fly at night, may fly in areas where they

would be disoriented by project up-lights under conditions dark enough that the lights would affect the birds. Shorebirds forage along the San Francisco Bay nocturnally as well as diurnally, and move frequently between foraging locations in response to tide levels and prey availability. Biologists and hunters have long used sudden bright light as a means of blinding and trapping shorebirds (Gerstenberg and Harris 1976, Potts and Sordahl 1979), so evidence that shorebirds are affected by bright light is well established. Though impacts of a consistent bright light are undocumented, it is possible that shorebirds, like other bird species, may be disoriented by a very bright light in their flight path.

Passerine species have been documented responding to increased illumination in their habitats with nocturnal foraging and territorial defense behaviors (Longcore and Rich 2004, Miller 2006, de Molenaar et al. 2006), but absent significant illumination, they typically do not forage at night, leaving them less susceptible to the attraction and disorientation caused by luminance when they are not migrating.

Migrating Birds. Hundreds of bird species migrate nocturnally in order to avoid diurnal predators and minimize energy expenditures. Bird migration over land typically occurs at altitudes of up to 5,000 feet, but is highly variable by species, region, and weather conditions (Kerlinger 1995, Newton 2008). In general, night-migrating birds optimize their altitude based on local conditions, and most songbird and soaring bird migration over land occurs at altitudes below 2,000 feet while waterfowl and shorebirds typically migrate at higher altitudes (Kerlinger 1995, Newton 2008).

It is unknown what light levels adversely affect migrating birds, and at what distances birds respond to lights (Sheppard and Phillips 2015). In general, vertical beams are known to capture higher numbers of birds flying at lower altitudes. High-powered 7,000-watt (equivalent to 105,000-lumen) spotlights that reach altitudes of up to 4 miles (21,120 feet) in the sky have been shown to capture birds migrating at varying altitudes, with most effects occurring below 2,600 feet (where most migration occurs); however, effects were also documented at the upper limits of bird migration at approximately 13,200 feet (Van Doren et al. 2017). A study of bird responses to up-lighting from 250-watt (equivalent to 3,750-lumen) spotlights placed on the roof of a 533-foot tall building and directed upwards at a company logo documented behavioral changes in more than 90% of the birds that were visually observed flying over the building at night (Haupt and Schillemeit 2011). One study of vertical lights projecting up to 3,280 feet found that higher numbers of birds were captured at altitudes below 650 feet, but this effect was influenced by wind direction and the birds' flight speed (Bolshakov et al. 2013). These studies have not analyzed the capacity for vertical lights to attract migrating birds flying beyond their altitudinal range, and the potential for the project up-lights to affect birds flying at various altitudes is unknown. Thus, birds that encounter beams from up-lights are likely to respond to the lights, and may become disoriented or attracted to the lights to the point that they collide with buildings or other nearby structures, but the range of the effect of the lights is unknown.

Observations of bird behavioral responses to up-lights indicate that their behaviors return to normal quickly once up-lights are completely switched off (Van Doren et al. 2017), but no studies are available that demonstrate bird behavioral responses to reduced or dimmed up-lights. In general, up-lights within very dark areas are more

likely to "capture" and disorient migrating birds, whereas up-lights in brightly lit areas (e.g., highly urban areas, such as Menlo Park) are less likely to capture birds (Sheppard 2017). Birds are also known to be more susceptible to capture by artificial light when they are descending from night migration flights in the early mornings compared to when they ascend in the evenings; as a result, switching off up-lights after midnight can minimize adverse effects on migrating birds (Sheppard 2017). However, more powerful up-lights (e.g., 3,000 lumen spotlights) may create issues for migrating birds regardless of the time of night they are used (Sheppard 2017).

6.2 Lighting Design Principles

To address potential impacts from artificial project lighting, the CDP requires the project to implement (i) certain lighting design principles as well as (ii) the occupancy sensor requirement in the City's bird-safe design requirements, as described below. For all Master Plan components, because the project's lighting plan has not yet been developed, a qualified biologist shall review the final lighting design as part of each ACP to ensure that the lighting design principles provided in Sections 6.2.1 and 6.2.2 below are incorporated into the final design.

The International Dark-Sky Association (2021a) recommends using lighting with a color temperature of no more than 3,000 Kelvins to minimize harmful effects on humans and wildlife. However, the effects of different light wavelengths on various species of birds are not consistent (Owens et al. 2020). Some studies have shown that using blue and green lights may be less disorienting to birds compared to red lights (Poot et al. 2008), but it is known that birds can be disoriented by red lights (Sheppard et al. 2015) and blue lights (Zhao et al. 2020). The American Bird Conservancy's Bird-Friendly Building Design guidance states that manipulating light color shows promise in its potential to reduce bird collisions with buildings, but additional study is needed to determine what colors should be used (Sheppard and Phillips 2015). Instead, the American Bird Conservancy recommends reducing exterior building and site lighting, which has been proven to reduce bird mortality (Sheppard and Phillips 2015). The City of San Francisco's Standards for Bird-Safe Buildings recommends that project proponents "consider" reducing red wavelengths where lighting is necessary, but this measure is not required; rather, they require avoidance of uplighting in lighting designs (San Francisco Planning Department 2011). As a result, the principles provided in Sections 6.5.2.1 to 6.4.2.4 below focus on minimizing lighting, rather than restricting lighting temperatures. Reducing, shielding, and directing lights on the project site and avoiding uplighting effectively limits the effects of lights by minimizing skyglow and the spillage of light outwards into adjacent natural areas, and is consistent with local (City of San Francisco) and national (American Bird Conservancy) standards for minimizing bird collisions.

6.2.1 Design Principles

The advancement of luminaires has substantially improved lighting design in recent years, and the project will employ a scientific approach to reduce overall lighting levels as well as Backlight, Up-light, and Glare ("BUG") ratings for individual fixtures to avoid and minimize the lighting impacts on birds discussed above. Accordingly, the CDP requires the following design principles to avoid and minimize potential lighting impacts on birds:

- Fixtures shall comply with lighting zone LZ-2, *Moderate Ambient*, as recommended by the International Dark-Sky Association (2011) for light commercial business districts and high-density or mixed-use residential districts. The allowed total initial luminaire lumens for the Master Plan area is 2.5 lumens per square foot of hardscape, and the BUG rating for individual fixtures shall not exceed B3-U2-G2, as follows:
    - B3: 2,500 lumens high (60–80 degrees), 5,000 lumens mid (30–60 degrees), 2,500 lumens low (0–30 degrees)
    - U2: 50 lumens (90–180 degrees)
    - G2: 225 lumens (forward/back light 80–90 degrees), 5,000 (forward 60–80 degrees), 1,000 (back light 60–80 degrees asymmetrical fixtures), 5,000 (back light 60–80 degrees quadrilateral symmetrical fixtures)
- Unshielded fixtures, flood lights, drop and sag lens fixtures, unshielded bollards, widely and poorly aimed lights, and searchlights shall be avoided. All lights shall be well-shielded and aimed appropriately to minimize up-light and glare. The materials of illuminated objects shall be considered to minimize up-lighting effects, and low-glare lighting shall be prioritized (e.g., fixtures shall be aimed no more than 25 degrees from vertical).
- Full cutoff fixtures, shielded fixtures, shielded walkway bollards, shielded and properly aimed lights, and flush-mounted fixtures will be encouraged. Full glare control and concealed sources shall be provided to minimize light trespass.
- Lighting controls such as automatic timers, photo sensors, and motion sensors shall be used. Luminaires not on emergency controls shall have occupancy sensors and an astronomic time clock.
- Low-level and human-scale lighting shall be prioritized while emphasizing areas of activity.
- All exterior luminaires shall be dimmable, and overall brightness at night shall be minimized.
- Exterior lighting along the perimeter of the Master Plan area shall be minimized.
- Soft transitions and low contrast shall be created between lighter and darker exterior spaces.
- Interior office lighting shall be directed and shielded to light task areas and minimize spillage outside of buildings.
- All energy efficiency standards shall be met.

With the adoption of these principles, the potential for lighting impacts on birds will be greatly reduced. In our professional opinion, compliance these design principles will reduce impacts due to overall lighting levels on birds to less-than-significant levels under CEQA. However, because the project lighting design has not yet been developed, and due to the sensitivity of the Master Plan area (which faces habitats along the San Francisco Bay) as well as the potential for collisions with certain project components (e.g., the atrium and stair/elevator towers), additional mitigation measures are needed in the absence of a finalized design to ensure that impacts of project lighting on birds are reduced to less-than-significant levels (see Section 6.3.1.2 below).

6.2.2 City Occupancy Sensor Requirements

As currently proposed, the project anticipates complying with City bird-safe design requirement C by implementing the requirement as stated or by requesting waivers where compliance is not feasible, as permitted by the City bird-safe design requirements. City requirement C is as follows:

C. Occupancy sensors or other switch control devices with an astronomic time clock shall be installed on nonemergency lights and programmed to shut off during non-work hours and between 10:00 p.m. and sunrise.

For the purpose of this report, we assume that the City intends this requirement to apply to interior lights only. No additional lighting measures are required as part of the City's bird-safe design requirements.

The two buildings inside the atrium, visitor center, Town Square retail pavilion, event building, Office Buildings 01–06, stair/elevator towers, security pavilions, North Garage, South Garage, hotel, and mixed-use buildings shall comply with City occupancy sensor requirements where feasible. However, occupancy sensors may not be feasible in some areas (e.g., because the space is occupied 24 hours per day). In addition, events at the atrium may extend later than 10:00 p.m. The applicant shall request waivers for areas where occupancy sensors are not feasible, as well as for events that extend later than 10:00 p.m., as permitted by the City bird-safe design requirements.

Alternative City Measures Proposed. As an alternative to this requirement, to ensure that the project meets the City's intent of minimizing the spill of lighting outwards from buildings at night and addresses high-risk collision hazards, the project proposes to implement the following alternative City measures to minimize lighting:

- When occupancy sensors are not feasible, the visitor center, Town Square retail pavilion, Office Building 04, event building, and North Garage shall program interior or exterior blinds to close on exterior windows during non-work hours and between 11:00 p.m. and sunrise in order to block lighting from spilling outward from the buildings.
- During events at the atrium, occupancy sensors shall be programmed so that interior lights shut off no later than midnight.
- For the remaining buildings on the project site (i.e., the two buildings within the atrium, hotel, residential/mixed-use buildings; Office Buildings 01, 02, 03, 05, and 06; stair/elevator towers; security pavilions, and the South Garage), if occupancy sensors or other switch control devices are not feasible, and/or interior lights cannot be programmed to shut off during non-work hours and between 10:00 p.m. and sunrise (e.g., because the space is occupied 24 hours per day or is residential), no alternative City measures are proposed.

In lieu of complying with City requirement C per se, this proposed approach would reduce bird collisions at the locations where bird collisions are most likely to occur and, in our professional opinion, adequately meet

the objective of the City's requirements (i.e., to minimize bird collisions with the buildings). Therefore, the requested waivers to the City's bird-safe design requirements are appropriate. Alternatively, if the City does not grant a waiver for requirement C, the project will comply with this requirement.

6.3 Analysis of Potential Impacts on Birds due to Lighting

No detailed information regarding the proposed lighting design for the project was available for review as part of this assessment. Nevertheless, construction of the project will create new sources of lighting on the project site. Lighting would emanate from light fixtures illuminating buildings, building architectural lighting, pedestrian lighting, and artistic lighting. Depending on the location, direction, and intensity of exterior lighting, this lighting can potentially spill into adjacent natural areas, thereby resulting in an increase in lighting compared to existing conditions. Areas to the south, east, and west of the project site are entirely developed as urban (i.e., within a city or town) habitats that do not support diverse or sensitive bird communities that might be substantially affected by illuminance from the project. Birds inhabiting more natural habitat areas along the San Francisco Bay to the north and/or the future vegetated open space areas on the project site may be affected by an increase in lighting. However, the number of shorebirds foraging near or flying over the project site is expected to be relatively low, as shorebirds do not congregate in large numbers at or near the project site.

Thus, lighting from the project has some potential to attract and/or disorient birds, especially during inclement weather when nocturnally migrating birds descend to lower altitudes. As a result, some birds moving along the San Francisco Bay at night may be (1) attracted to the site, where they are more likely to collide with buildings; and/or (2) disoriented by night lighting, potentially causing them to collide with the buildings. Certain migrant birds that use structures for roosting and foraging (such as swifts and swallows) would be vulnerable to collisions if they perceive illuminated building interiors as potential roosting habitat and attempt to enter the buildings through glass walls. Similarly, migrant and resident birds would be vulnerable to collisions if they perceive illuminated vegetation within buildings as potential habitat and attempt to enter a building through glass walls.

Potential impacts on birds due to lighting within the various Master Plan components, as well as applicable CEQA mitigation measures, are discussed Sections 6.3.1 to 6.3.4 below. For purposes of this analysis, Master Plan components are grouped together in these sections based on lighting impacts within these areas as well as the lighting design principles necessary to reduce impacts under CEQA, as follows:

- Master Plan components within the northern portion of the project site (i.e., areas north of Main Street and Office Buildings 03 and 05 surrounding the hotel, Town Square retail pavilion, Office Building 04, event building, and North Garage, but not including buildings within the atrium) are discussed together because lighting within these areas has a greater potential to (1) spill northwards into sensitive habitats along the San Francisco Bay, and (2) attract and/or disorient migrating birds during the spring and fall compared to areas farther south on the project site.

- The stair/elevator towers are discussed separately due to the potential for lighting of these towers to attract birds (especially migrants) towards these structures where they would able to see roosting opportunities behind glazed façades, and potentially collide with the glass.
- Due its unique structure and location along the northern boundary of the project site, the atrium and buildings within the atrium are discussed separately.
- Master Plan components within the southern portion of the project site (i.e., Office Buildings 01, 02, 03, 05, and 06 and the residential/mixed-use buildings) are discussed together because they have a lower potential to affect migrating birds due to the greater distance between these areas and the San Francisco Bay, the extensive opaque facades on these buildings, and the less extensive vegetation present compared to the northern portion of the site.

6.3.1 Potential Impacts due to Lighting within the Northern Portion of the Project Site

6.3.1.1 Description of Potential Impacts

As discussed above, birds inhabiting more natural habitat areas along the San Francisco Bay to the north and/or the future vegetated open space areas on the project site itself may be affected by an increase in lighting on the site. Because buildings within the northern portion of the site are located in closer proximity to natural habitats along the San Francisco Bay as well as proposed extensive vegetation on the project site itself (e.g., at the elevated park), lighting associated with the hotel, Town Square retail pavilion, Office Building 04, event building, and North Garage has a greater potential to (1) spill northwards into sensitive habitats along the San Francisco Bay, and (2) attract and/or disorient migrating birds during the spring and fall, compared to buildings located farther south on the project site. Due to the potential for birds to collide with glazing on these buildings, CEQA mitigation measures to minimize lighting at these locations are provided in Section 6.3.1.2 below to ensure that these impacts are minimized.

6.3.1.2 Additional Mitigation Measures Proposed Under CEQA

Due to the potential for lighting within the northern portion of the project site to affect birds, the City's requirement to include occupancy sensors in the project design (or the alternative City measures provided in Section 6.2.2 above) in combination with the lighting design principles provided in Section 6.2 may not reduce lighting-related impacts within this area sufficiently to avoid significant impacts under CEQA. While the project's lighting design principles provide a general strategy for lighting design and specify a BUG rating for exterior fixtures, these principles are not specific enough to ensure that the spill of lighting upwards and outwards into adjacent natural areas will be minimized to an appropriate level. With the implementation of Mitigation Measures 6–9 below, which provide greater specificity to ensure that lighting impacts are minimized, impacts on birds due to lighting in the northern portion of the site will be reduced to less-than-significant levels under CEQA, in our professional opinion.

For all exterior lighting in the northern portion of the project site (i.e., areas north of Main Street and Office Buildings 03 and 05 surrounding the hotel, Town Square retail pavilion, Office Building 04, event building, and North Garage):

- **Mitigation Measure 6.** To the maximum extent feasible, up-lighting (i.e., lighting that projects upward above the fixture) shall be avoided in the project design. All lighting shall be fully shielded to block illumination from shining upward above the fixture.

  If up-lighting cannot be avoided in the project design, up-lights shall be shielded and/or directed such that no luminance projects above/beyond objects at which they are directed (e.g., trees and buildings) and such that the light would not shine directly into the eyes of a bird flying above the object. If the objects themselves can be used to shield the lights from the sky beyond, no substantial adverse effects on migrating birds are anticipated.

- **Mitigation Measure 7.** All lighting shall be fully shielded to block illumination from shining outward towards San Francisco Bay habitats to the north. No light trespass shall be permitted more than 80 feet beyond the site's northern property line (i.e., beyond the JPB rail corridor).

- **Mitigation Measure 8.** Exterior lighting shall be minimized (i.e., total outdoor lighting lumens shall be reduced by at least 30% or extinguished, consistent with recommendations from the International Dark-Sky Association [2011]) from 10:00 p.m. until sunrise, except as needed for safety and City code compliance.

- **Mitigation Measure 9.** Temporary lighting that exceeds minimal site lighting requirements may be used for nighttime social events. This lighting shall be switched off no later than midnight. No exterior up-lighting (i.e., lighting that projects upward above the fixture, including spotlights) shall be used during events.

6.3.1.3 CEQA Impacts Summary

The project will implement the lighting design principles in Section 6.2 as well as Mitigation Measures 6–9 above and comply with City requirements (either via compliance with requirement C or the implementation of the proposed alternative City measures) to reduce impacts due to lighting in the northern portion of the project site to less-than-significant levels under CEQA. By incorporating these principles and measures, it is our professional opinion that project impacts due to bird collisions with the buildings in the northern portion of the project site would be less than significant under CEQA.

Subsequent reports prepared by a qualified biologist will accompany each of the final ACPs for the hotel, Town Square retail pavilion, Office Building 04, event building, and North Garage. It is our understanding based on considerable coordination with the design team that (1) the proposed lighting design principles, City measures, and mitigation measures are feasible, and (2) the project will implement the lighting design principles, City requirements or alternative City measures, and mitigation measures as described herein. Nevertheless, because detailed information about project lighting design was not available as part of this assessment, a qualified biologist shall review the final ACPs to confirm that the lighting design principles, City requirements or

alternative City measures, and mitigation measures described herein are incorporated into the final design such that project impacts due to bird collisions are reduced to less-than-significant levels under CEQA as described herein.

6.3.2 Potential Impacts Related to the Stair/Elevator Towers

6.3.2.1 Description of Potential Impacts

Five stair/elevator towers connect the plaza south of the atrium with the elevated park. These towers will be lit at night. As discussed above, certain migrant birds that use structures for roosting and foraging (such as swifts and swallows) would be vulnerable to collisions if they perceive illuminated building interiors as potential roosting habitat and attempt to enter the buildings through glass walls. Lighting of these towers is expected to illuminate their interiors, potentially attracting birds (especially migrants) towards these areas when they are able to see roosting opportunities behind glazed façades. Due to the potential for birds to collide with this glazing, CEQA mitigation measures to minimize lighting at these locations are provided in Section 6.3.2.2 below to ensure that impacts due to lighting at stair/elevator towers are minimized.

6.3.2.2 Additional Mitigation Measures Proposed Under CEQA

Due to the potential for lighting within the stair/elevator towers to result in bird collisions, the City's requirement to include occupancy sensors in the project design (or the alternative City measures provided in Section 6.2.2 above) in combination with the lighting design principles provided in Section 6.2 may not reduce collision impacts with these towers sufficiently to avoid significant impacts under CEQA. While the project's lighting design principles provide a general strategy for lighting design and specify a BUG rating for exterior fixtures, these principles are not specific enough to ensure that the spill of lighting outwards from the glass stair/elevator towers will be minimized to an appropriate level. With the implementation of Mitigation Measure 10 below, impacts due to lighting of the stair/elevator towers will be reduced to less-than-significant levels under CEQA, in our professional opinion.

- **Mitigation Measure 10.** Lights shall be shielded and directed so that lighting does not spill outwards from the elevator/stair towers into adjacent areas.

6.3.2.3 CEQA Impacts Summary

The project will implement the lighting design principles in Section 6.2 as well as Mitigation Measure 10 above and comply with City requirements (either via compliance with requirement C or the implementation of the proposed alternative City measures) to reduce impacts due to lighting within the stair/elevator towers to less-than-significant levels under CEQA. By incorporating these principles, requirements, and measures, it is our professional opinion that project impacts due to bird collisions with the stair/elevator towers would be less than significant under CEQA.

Subsequent reports prepared by a qualified biologist will accompany the final ACPs for the project components that include elevator towers (i.e., the hotel, Town Square, Office Building 04, event building, and atrium). It is

our understanding based on considerable coordination with the design team that (1) the proposed lighting design principles, City requirements or alternative City measures, and mitigation measures are feasible; and (2) the project will implement the lighting design principles, City requirements or alternative City measures, and mitigation measures as described herein. Nevertheless, because detailed information about project lighting design was not available as part of this assessment, a qualified biologist shall review the final ACPs to confirm that the lighting design principles, City requirements or alternative City measures, and mitigation measures described herein are incorporated into the final design such that project impacts due to bird collisions are reduced to less-than-significant levels under CEQA as described herein.

6.3.3 Potential Impacts Related to the Atrium

6.3.3.1 Description of Potential Impacts

In addition to the general site lighting impacts and up-lighting impacts discussed above, lighting within the atrium will illuminate interior vegetation and structures. The architectural features described above that are expected to make it difficult for birds to see interior vegetation during daytime would still mask the appearance of interior vegetation at night to some extent. However, if illumination makes interior vegetation more visible to birds (e.g., in early morning or late evening hours when exterior light levels are low), birds that are active between dusk and dawn may fly into the glazing on the atrium where they can see vegetation and/or structures (e.g., for roosting) on the other side of the glass. As discussed above, collisions by resident birds are expected to occur year-round; however, these birds are generally familiar with their surroundings and can be less likely to collide with buildings compared with migrant birds. In addition, resident birds are primarily active during the day. In contrast, nocturnal migrant landbirds may be attracted to lighting, and are less likely to be aware of risks such as glass compared to resident birds. As a result, relatively higher numbers of collisions by birds, especially migrant birds, could occur if vegetation and/or structures within the atrium are made more conspicuous between dusk and dawn due to interior illumination.

Conceptual views of night lighting levels within the atrium are provided in Figure 25. As discussed in Section 5 above, the visibility of interior vegetation to birds is limited within the atrium due to the presence of interior buildings and solar shades that partially block the view of this vegetation from the north and south, respectively. Nevertheless, lighting is expected to illuminate interior vegetation and structures such that they may be visible to birds outside of the atrium as follows:

- Birds located north of the atrium at any elevation will be able to see illuminated interiors of structures within the atrium. Birds flying at elevations 37 feet or higher will be able to see illuminated interior vegetation and structures on rooftops (Figure 19). The presence of exterior trees and other vegetation immediately adjacent to the north façade is expected to screen illuminated interior vegetation less than or equal to the height of these trees to birds from a distance, with the exception of the area along the East Garden (where no trees will be planted along the atrium's north façade).
- Birds located south of the atrium will be able to see illuminated interior structures and vegetation except where interior solar shades are present in between the birds and interior features (Figure 22). In addition,

the presence of exterior trees and other vegetation immediately adjacent to the south façade along the elevated park is expected to screen illuminated interior vegetation less than or equal to the height of these trees to birds from a distance.

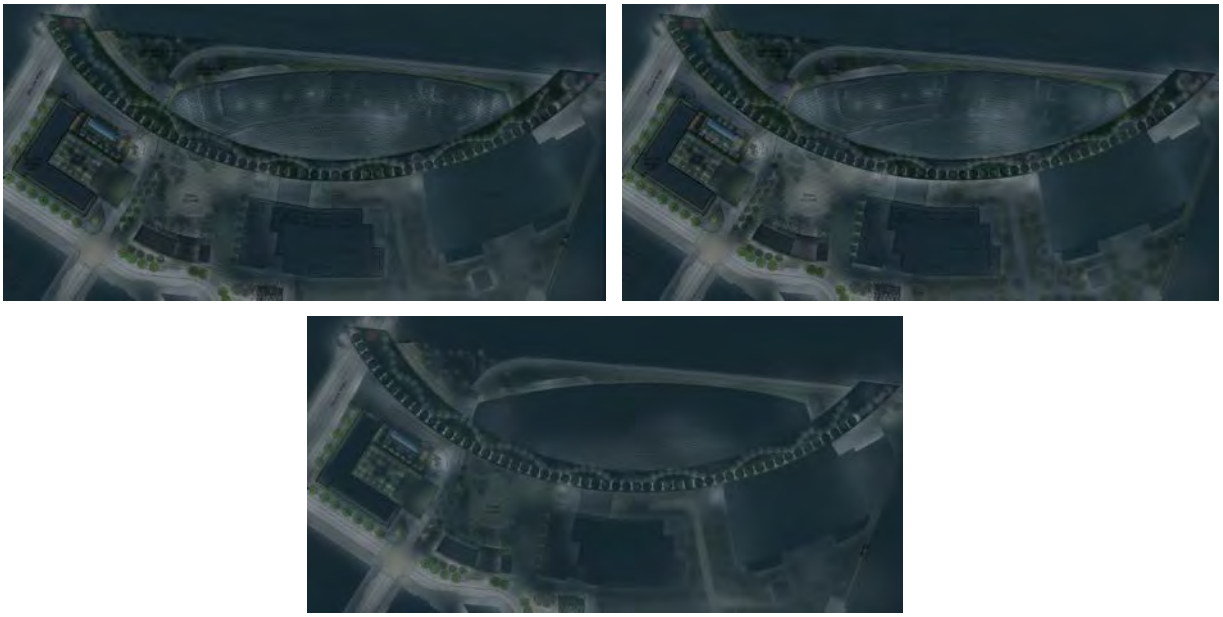

Figure 5. Anticipated conceptual lighting conditions within the atrium and immediately surrounding areas during evening hours (top left), events (top right), and after hours (bottom).

Due to the potential for birds to collide with glazing on the atrium if interior structures and vegetation are illuminated, CEQA mitigation measures to minimize the attraction of birds towards the atrium by minimizing light radiating outward from the atrium being perceived as a bright attractant to nocturnal migrants, as well as the illumination of vegetation and structures within the atrium, are provided in Section 6.3.3.2 below to ensure that impacts due to lighting within the atrium are minimized.

6.3.3.2 Additional Mitigation Measures Proposed Under CEQA

Buildings within the Atrium. Due to the potential for interior lighting within the buildings within the atrium to spill outwards to the north and affect birds, the City's requirement to include occupancy sensors in the project design (or the alternative City measures provided in Section 6.2.2 above), in combination with the lighting design principles provided in Section 6.2 above, may not reduce collisions with the atrium's north façade sufficiently to avoid significant impacts under CEQA. While the project's lighting design principles provide a general strategy for lighting design and specify a BUG rating for exterior fixtures, these principles do not ensure that any security lighting and lighting within occupied spaces will not spill outwards from these buildings towards sensitive habitats to the north. The project shall implement the following mitigation measure for interior lights within the buildings within the atrium to minimize impacts due to lighting:

- **Mitigation Measure 11.** Interior or exterior blinds shall be programmed to close on north-facing windows of interior buildings within the atrium from 10:00 p.m. to sunrise in order to block lighting from spilling outward from these windows.

Atrium. If birds are able to distinguish illuminated interior vegetation, trees, and structures within the atrium at night, collisions with the building are expected to be appreciably higher as birds attempt to fly through glazing to reach these features (e.g., during descent from migration at dawn). The project shall implement Mitigation Measures 6 and 8 above as well as the Mitigation Measure 12 below to ensure that structures, trees, and vegetation in the atrium are not illuminated by up-lighting or accent lighting such that they are more conspicuous to birds from outside compared to ambient conditions (i.e., lighting levels from fixtures within the atrium that do not specifically illuminate these features). Structures, trees, and vegetation are considered 'more conspicuous' to birds when they would be more conspicuous when viewed by the human eye from outside the atrium at any elevation.

- **Mitigation Measure 12.** Accent lighting within the atrium shall not be used to illuminate trees or vegetation. OR

  The applicant shall provide documentation to the satisfaction of a qualified biologist that the illumination of vegetation and/or structures within the atrium by accent lighting and/or up-lighting will not make these features more conspicuous to the human eye from any elevation outside the atrium compared to ambient conditions within the atrium. The biologist shall submit a report to the City following the completion of the lighting design documenting compliance with this requirement.

6.3.3.3 CEQA Impacts Summary

The project will implement the lighting design principles in Section 6.21 as well as Mitigation Measures 6, 8, 11, and 12 above and comply with City requirements (either via compliance with requirement C or the implementation of the proposed alternative City measures) to reduce impacts due to lighting within the atrium and the buildings within the atrium to less-than-significant levels under CEQA. By incorporating these principles and measures, it is our professional opinion that project impacts due to lighting within these areas would be less than significant under CEQA.

Subsequent reports prepared by a qualified biologist will accompany the final ACP for the atrium. It is our understanding based on considerable coordination with the design team that (1) the proposed lighting design principles, City requirements or alternative City measures, and mitigation measures are feasible; and (2) the project will implement the lighting design principles, City requirements or alternative City measures, and mitigation measures as described herein. Nevertheless, because detailed information about project lighting design was not available as part of this assessment, a qualified biologist shall review the final ACP to confirm that the lighting design principles, City requirements or alternative City measures, and mitigation measures described herein are incorporated into the final design such that project impacts are reduced to less-than-significant levels under CEQA as described herein.

6.3.4 Potential Impacts Related to the Southern Portion of the Project Site

6.3.4.1 Description of Potential Impacts

As discussed above, birds inhabiting more natural habitat areas along the San Francisco Bay to the north and/or the future vegetated open space areas on the project site itself may be affected by an increase in lighting on the site. Because buildings within the southern portion of the site are located farther from natural habitats along the San Francisco Bay as well as proposed extensive vegetation on the project site itself (e.g., at the elevated park), the potential for lighting associated with Office Buildings 01, 02, 03, 05, and 06 and the residential/mixed-use buildings is not expected to spill into sensitive habitats north of the site (due to the presence of buildings in between these areas and habitats to the north), and has a lower potential to attract and/or disorient migrating birds during the spring and fall compared to buildings located farther north on the project site. Nevertheless, due to the potential for birds to collide with glazing on these buildings due to lighting within these areas, CEQA mitigation measures to minimize lighting within this area are provided in Section 6.3.4.2 below to ensure that these impacts are less than significant.

6.3.4.2 Additional Mitigation Measures Proposed Under CEQA

Due to the potential for lighting within the southern portion of the project site to affect birds, the City's requirement to include occupancy sensors in the project design (or the alternative City measures provided in Section 6.2.2 above) in combination with the lighting design principles provided in Section 6.2.1 may not reduce collision impacts with Office Buildings 01, 02, 03, 05, and 06 and the residential/mixed-use buildings to less-than-significant levels under CEQA. While the project's lighting design principles provide a general strategy for lighting design and specify a BUG rating for exterior fixtures, these principles are not specific enough to ensure that lighting will be minimized sufficiently to avoid significant impacts under CEQA. With the implementation of Mitigation Measures 6 and 13, which provide greater specificity to ensure that lighting impacts are minimized, impacts due to lighting in the southern portion of the site will be reduced to less-than-significant levels under CEQA, in our professional opinion.

For Office Buildings 01, 02, 03, 05, and 06 and the residential/mixed-use buildings, the project shall implement Mitigation Measure 6 above as well as the following mitigation measure to minimize impacts due to increased lighting:

- **Mitigation Measure 13.** Exterior lighting shall be minimized (i.e., total outdoor lighting lumens shall be reduced by at least 30% or extinguished, consistent with recommendations from the International Dark-Sky Association [2011]) from midnight until sunrise, except as needed for safety and City code compliance.

6.3.4.3 CEQA Impacts Summary

The project will implement the lighting design principles in Section 6.2.1 as well as Mitigation Measures 6 and 13 and comply with City requirements (either via compliance with requirement C or the implementation of the proposed alternative City measures) to reduce impacts due to lighting in the southern portion of the project site to less-than-significant levels under CEQA. By incorporating these principles, requirements, and measures,

it is our professional opinion that project impacts due to lighting within this area would be less than significant under CEQA.

Subsequent reports prepared by a qualified biologist will accompany each of the final ACPs for Office Buildings 01, 02, 03, 05, and 06 and the residential/mixed-use buildings. It is our understanding based on considerable coordination with the design team that (1) the proposed lighting design principles, City requirements or alternative City measures, and mitigation measures are feasible; and (2) the project will implement the lighting design principles, City requirements or alternative City measures, and mitigation measures as described herein. Nevertheless, because detailed information about project lighting design was not available as part of this assessment, a qualified biologist shall review the final ACPs to confirm that the lighting design principles, City requirements or alternative City measures, and mitigation measures described herein are incorporated into the final design such that project impacts due to bird collisions are reduced to less-than-significant levels under CEQA as described herein.

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Appendix A. Additional Supporting Design Detail

The project will generally conform with the designs reviewed for this report, as depicted on the figures in this Appendix A to support H. T. Harvey & Associates analysis of bird collision hazards associated with the project. In addition, the CDP will require that the project comply with the specific beneficial project features identified in this Assessment as depicted on the figures in this Appendix A, in addition to the City bird-safe design requirements, City alternative measures, mitigation measures, and lighting design principles discussed in the Assessment, to avoid or reduce to less-than-significant levels under the California Environmental Quality Act project impacts due to bird collisions.

The images provided herein were used as the basis for the Willow Village Master Plan bird-safe design analysis; however, these images are conceptual and represent design intent rather than the final project design. Because the final design may differ from the images provided in Appendix A, a qualified biologist shall review the final ACPs for each project component to confirm that the final design is consistent with this bird-safe design assessment.

Hotel

Figure 6. Illustration of buildings in the northern portion of the site showing the proposed atrium, elevated park, hotel, Town Square, Office Building 04, and event building.

Figure 4. The conceptual hotel plan includes a central courtyard on Level 1, a pool deck on Level 3, and vegetated balconies on Level 6.

Figure 5. The conceptual east (top left), north (top right), west (bottom left), and south (bottom right) facades of the hotel.

Residential/Mixed-Use Buildings

Figure 6. Illustrative site plan showing the proposed residential/mixed-use buildings and associated open space areas. Facades with highest collision risk are delineated in red.

Figure 7. The conceptual Parcel 2 residential/mixed-use building plan includes open space courtyards on Level 3.

Figure 8. The conceptual east (top), west (middle), south (bottom left), and north (bottom right) facades of the Parcel 2 residential/mixed-use building.

Figure 9. An example mark-up of areas (shown in blue) that would be required to be treated on north (top left), south (top right), east (middle) and west (bottom) facades of the conceptual Parcel 2 residential/mixed-use building to ensure that avian collisions are less-than-significant. Transparent glass corner delineations are estimated; these corners should be treated as far from the corner as it is possible to see through the corner. Free-standing glass railings are not indicated on this figure but are required to be treated in all locations.

Office Buildings

Figure 10. Conceptual site plan showing the locations of proposed office buildings and garages, as well as the proposed extent of landscape vegetation and trees.

Parking Garages

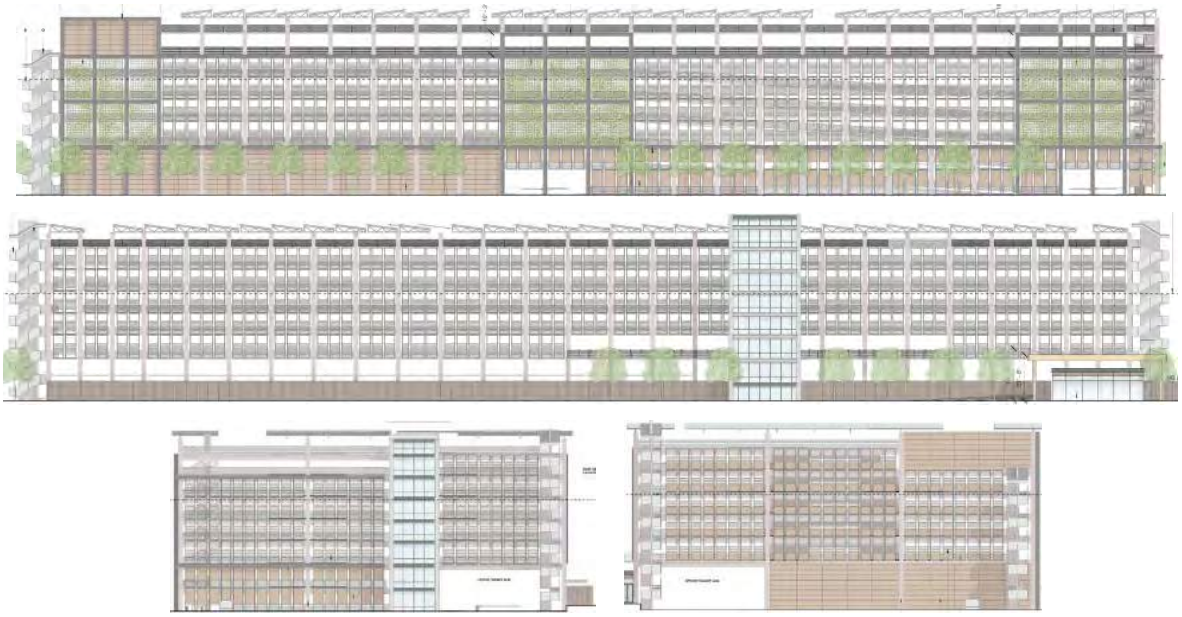


Figure 11. Conceptual North Garage elevations: east (top), west (middle), north (bottom left), and south (bottom right). The building facades are predominantly opaque; glazed areas are located on all levels the elevator towers on the west and north facades.

Event Building

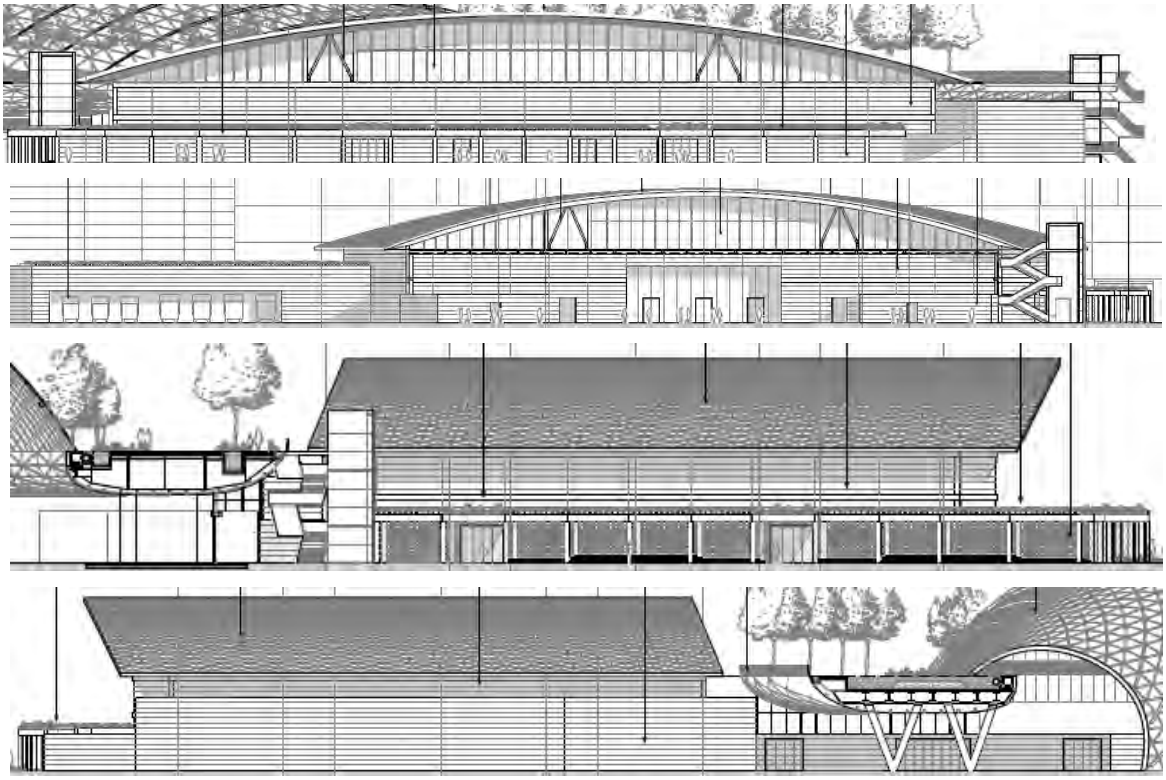


Figure 13. Illustration of the event building façades. Top to bottom: the southeast, northwest, northeast, and southwest facades.

Office Building 04

Figure 14. Conceptual Office Building 04 elevations: west (top left), east (top right), north (middle), and south (bottom).

Town Square

Figure 14. The conceptual Town Square includes a paved plaza with landscape vegetation and trees, seating areas, a glazed elevator to the elevated park, bicycle parking, and a retail pavilion.

Figure 15. The conceptual west (top left), east (top right), south (middle), and north (bottom) facades of the Town Square retail pavilion.

Security Pavilions

Figure 16. The conceptual south (top left), west (top right), north (bottom left), and east (bottom right) facades of buildings SP1 and SP2.

Atrium

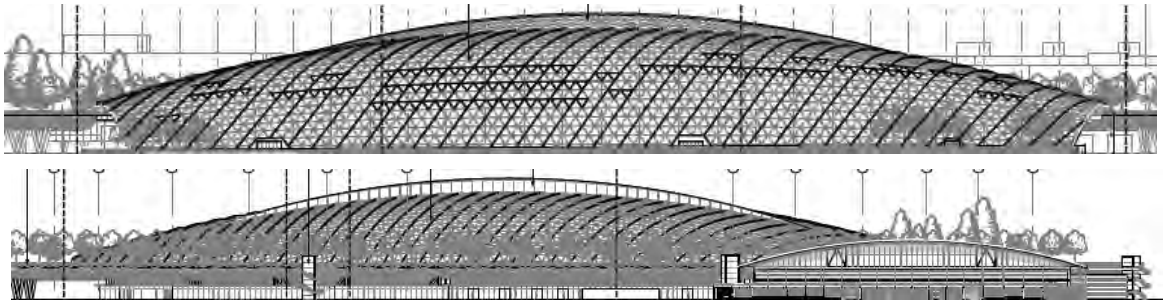


Figure 17. Conceptual drawings of the north façade (top) and south façade (bottom) of the atrium. Trees to be planted along the north façade are not shown.

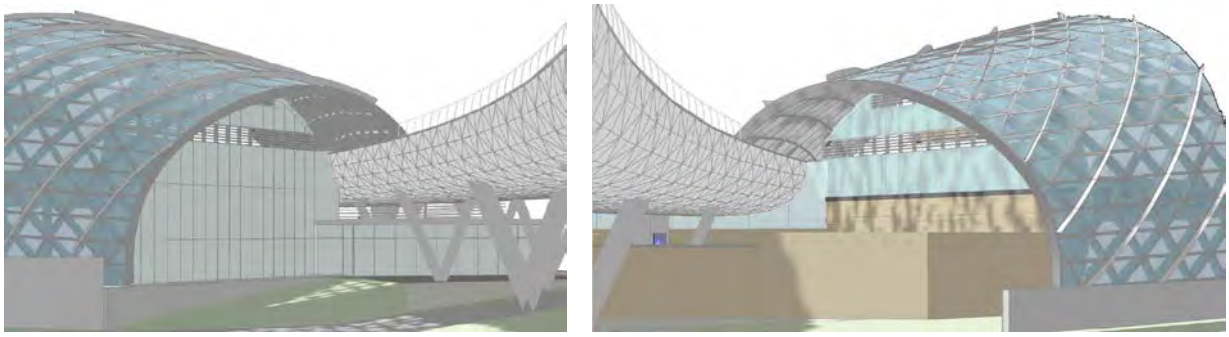


Figure 18. An illustration of the appearance of the vertical glass facades at the western (left) and eastern (right) ends of the atrium.

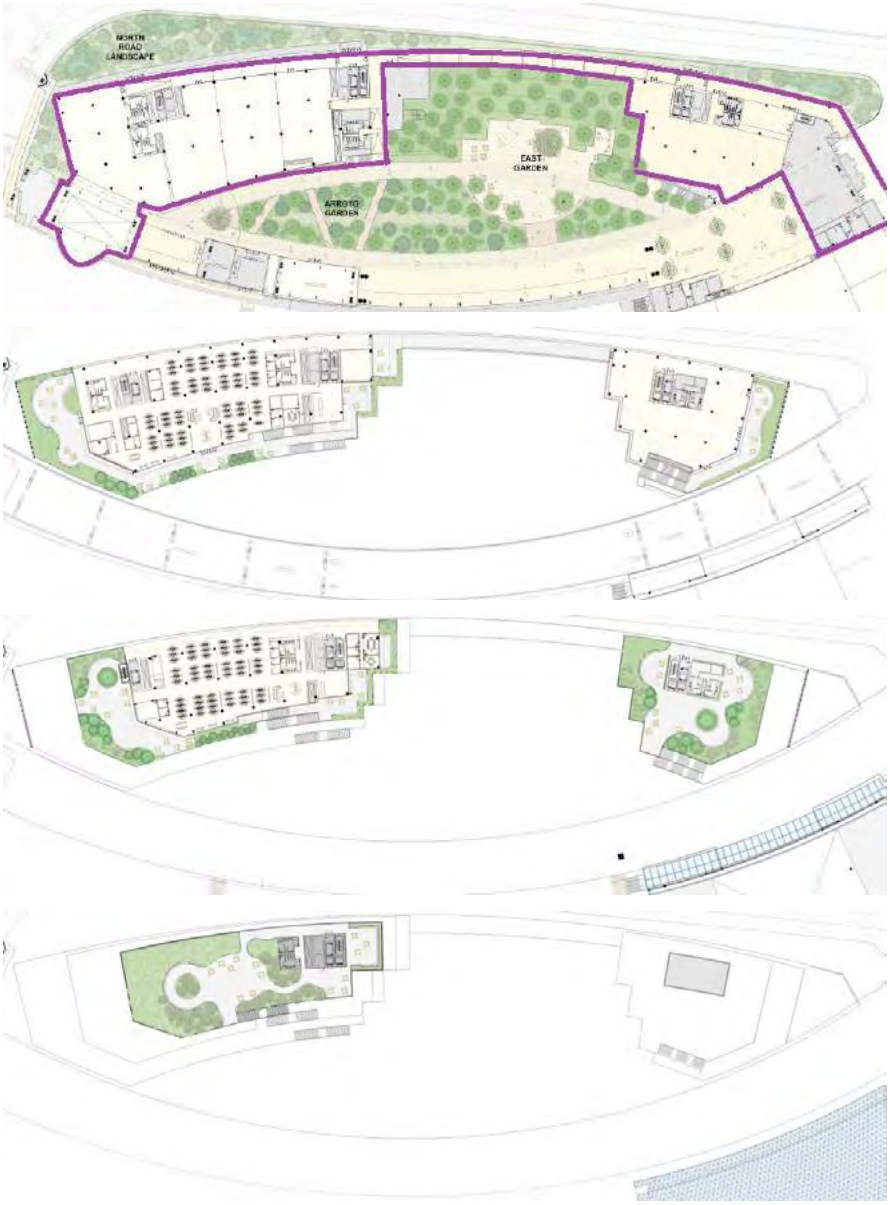


Figure 19. From top to bottom, illustrative views of landscape vegetation on Levels 1, 2, 3, and 4 of the atrium's interior. The interior building footprints and the connection between them are outlined in purple on the top image.

Figure 21. Fin-like mullions on the exterior surface of the conceptual north and south facades of the atrium will break up the smooth surface and increase the visibility of the facades to birds, especially from a distance.

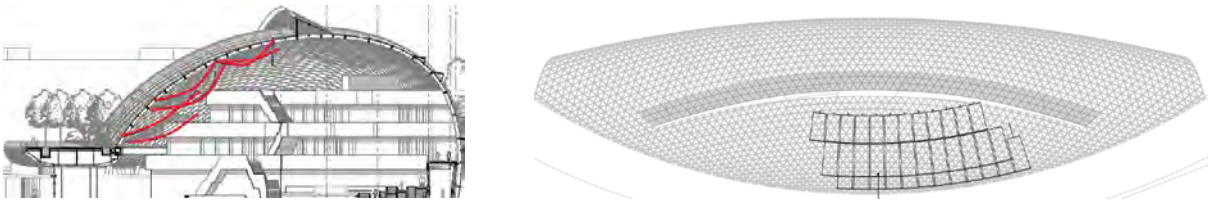


Figure 22. Interior sail shades, shown in red on the left cross-section image, are located along portions of the south façade of the atrium and will block views of interior vegetation to birds located at the elevated park or flying overhead. The approximate extent of the sail shades is shown in dark gray on the right (overhead) image.

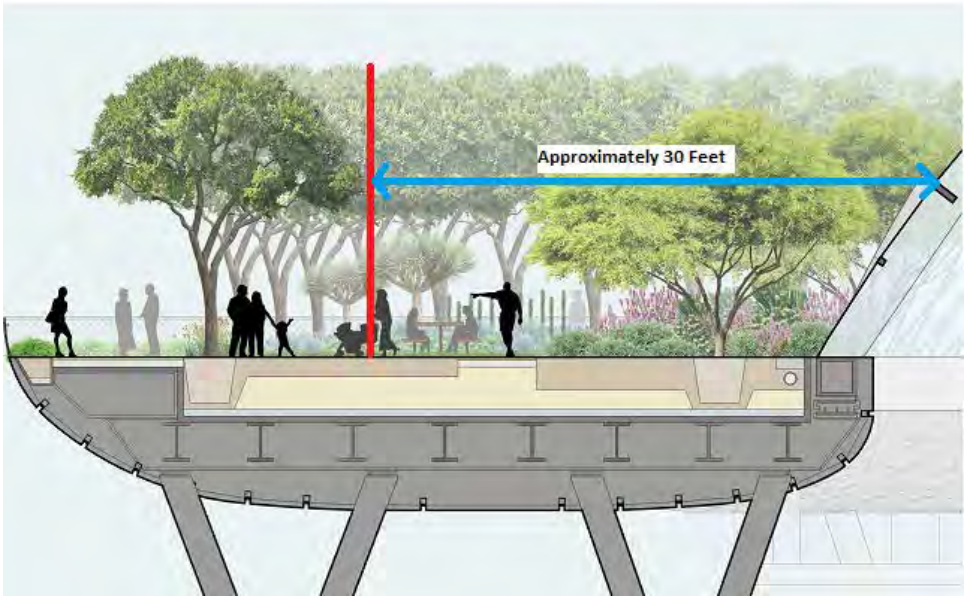


Figure 23. To the extent feasible, vegetation at the elevated park south of the site will be planted such that trees are set back from the glass façade, and dense shrubs and plants are located immediately adjacent to glass facades.

Lighting

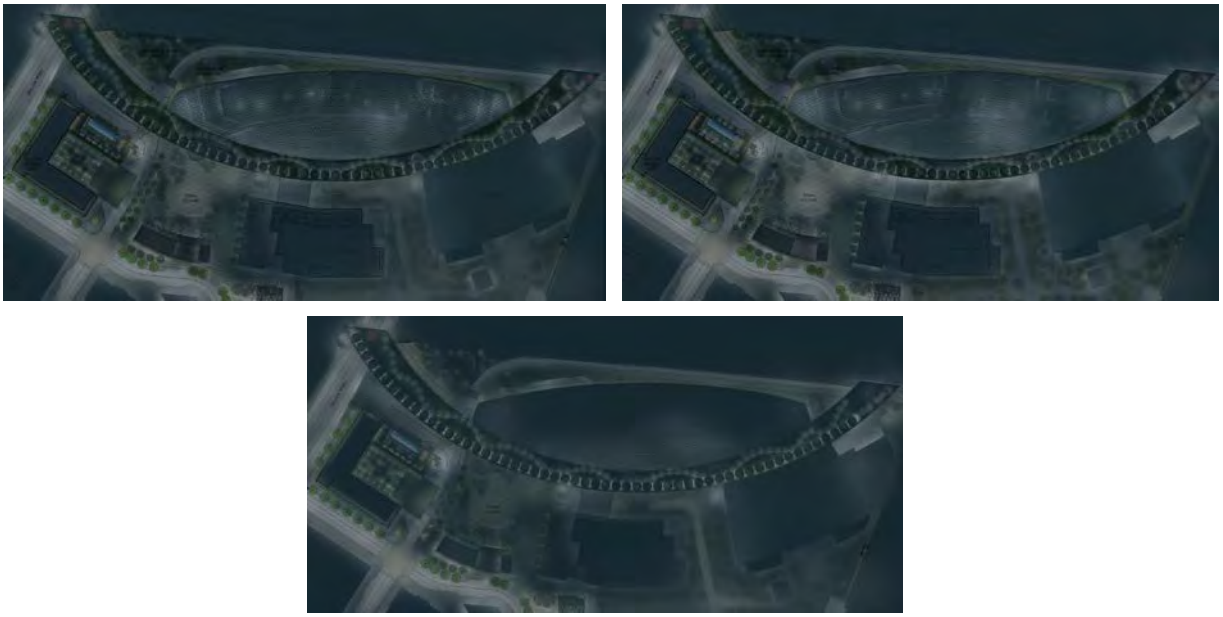
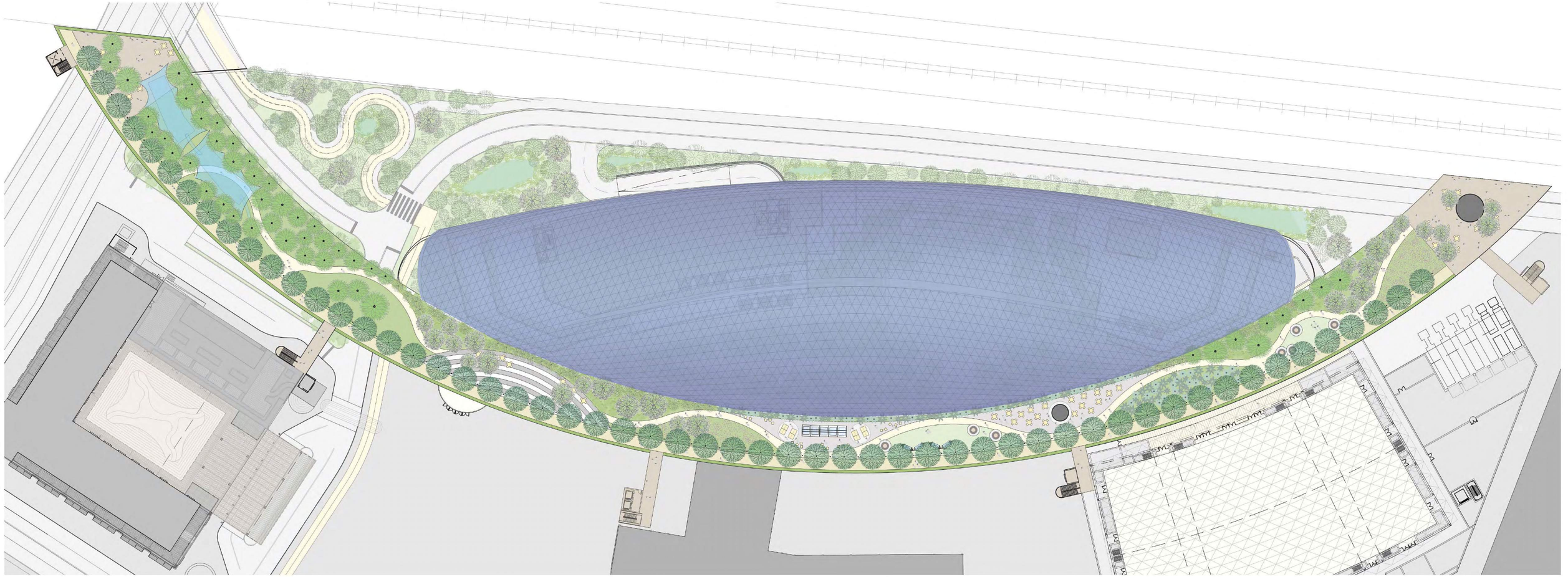


Figure 7. Anticipated conceptual lighting conditions within the atrium and immediately surrounding areas during evening hours (top left), events (top right), and after hours (bottom).

Beneficial Project Features

- The extensive opaque panels on the exterior facades of the hotel (Figure 5)
- Opaque panels, overhangs, mullions, and porticos that are not vegetated or located immediately adjacent to vegetation on the residential/mixed-use buildings (Figure 8)
- The extensive opaque facades on the North Garage and South Garage (Figure 11)
- The extensive opaque facades on the event building (Figure 13)
- Opaque panels, exterior vertical and horizontal solar shades, overhangs, mullions, and porticos that are not vegetated or located immediately adjacent to native vegetation on Office Buildings 01–06 (Figure 14)
- Opaque panels and mullions on the Town Square retail pavilion (Figure 15)
- Opaque panels and mullions on the security pavilions (Figure 16).
- The articulated structure of the atrium (Figure 20)
- Fin-like mullions on the exterior surface of the atrium's façade (Figure 21)
- Interior operable, suspended solar shades along a large portion of the south façade of the atrium Figure 22)

Appendix B. Conceptual Planting Plans and Plant Palettes



1 min. Walk

0 40 80 120 160 200 240 320'

1" = 40' at 22" x 34"

PARCEL 1 - MCS
Peninsula Innovation Partners
Conditional Development Permit

WILLOW VILLAGE

Menlo Park, CA

L1.00
Conceptual Landscape Plan
January 8, 2021

TREES

Sydney Red Gum
Angophora costata

Manzanita
Arctostaphylos manzanita

Brisbane Box
Lophostemon confertus

Chilean Myrtle
Luma apiculata

Catalina Ironwood
Lyonothamnus floribundus

Palo Verde
Parkinsonia ' Desert Museum'

African Sumac
Rhus lancea

Norfolk Island Palm
Auracaria heterophylla

Yew Plum Pine
Podocarpus spp.

London Plane Tree
Platanus x acerifolia

Chinese Elm
Ulmus parvifolia

Oak Tree
Quercus spp.

Quiver Tree
Aloe dichotoma

Ponytail Palm
Beaucarnea recurvata

Illawarra Flame Tree
Bracychiton acerifolius

Sago Palm
Cycas revoluta

Dragon Tree
Dracaena draco

UNDERSTORY PLANTING

Tree Houseleek
Aeonium spp.

Fox Tail Agave
Agave attenuate 'Boutin Blue'

Coral Aloe
Aloe striata

Blue Grama
Bouteloua gracilis

Leafy Reed Grass
Calamagrostis foliosa

California Lilac
Ceanothus horizontalis

Silk Floss Tree
Chorisia speciosa

Finger Aloe
Cotyledon orbiculata var. oblonga

Sunshine Bush Cone
Leucadendron spp.

Giant Dioon
Dioon spp.

Chalk Dudleya
Dudleya spp.

Mexican Snowball
Echeveria spp.

Golden Barrel Cactus
Echinocactus grusonii

California Fuscia
Epilobium canum

Red Buckwheat Erigonum
Eriogonum grande 'Rubescens'

California Fescue
Festuca californica

Lavander
Lavandula angustifolia

Blue Chalk Sticks
Senecio mandraliscae

Blue Lyme Grass
Leymus spp

Silver Bush Lupine
Lupinus albifrons

Burrawang
Macrozamia spp.

Bush Monkey Flower
Mimulus aurantiacus

Scarlet Bugler
Penstemon centranthifolius

Coffeeberry
Rhamnus californica

Firecracker Plant
Russelia equisetiformis

Protea
Protea spp.

Beaked Yucca
Yucca rostrata

Honeysuckle
Banksia spp.

White Sage
Salvia apiana

Western Sword Fern
Polystichum munitum

Woolybush
Adenanthos sericeus

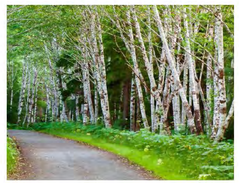
Puya
Puya venusta

Giant Chain Fern
Woodwardia fimbriata

LEVEL 1

TREES

Kauri Pine
Agathis robusta



Red Alder
Alnus rubra

Norfolk Island Pine
Auracaria heterophyla

Black Olive
Bucida buceras

Karaka
Corynocarpus laevigatus

Brisbane Box
Lophostemon confertus

Champak
Michelia champaca

Yew Plum Pine
Podocarpus spp.

Umbrella Tree
Schefflera actinophylla

UNDERSTORY PLANTING

Indian Mallow
Abutilon spp.

Japanese Rush
Acorus gramineus

Azalea
Azalea spp.

Rushes
Baumea spp.

Sedges
Carex spp.

Tree Ferns
Cyathea spp.

Rabbits Foot Fern
Davallia denticulata

Green Island Ficus
Ficus microcarpa 'Green Island'

Walking Iris
Neomarica gracilis

Western Sword Fern
Polystichum munitum

Rhododendron
Vireya rhododendron

Giant Chain Fern
Woodwardia fimbriata

Boston Fern
Nephrolepis exaltata

LEVEL 2-4

TREES

Alii Fig
Ficus alii

Weeping Fig
Ficus benjamina

Chinese Banyan
Ficus microcarpa

Rusty Leaf Fig
Ficus rubiginosa

Brisbane Box
Lophostemon confertus

Champak
Michelia alba

European Olive
Olea europaea

Umbrella Tree
Schefflera actinophylla

UNDERSTORY PLANTING

Calathea
Calathea zebrina

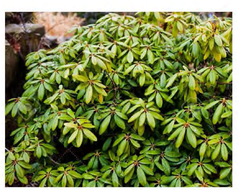
Spider Lily
Hymenocalis speciosa

Shell Ginger
Alpinia zerumbet

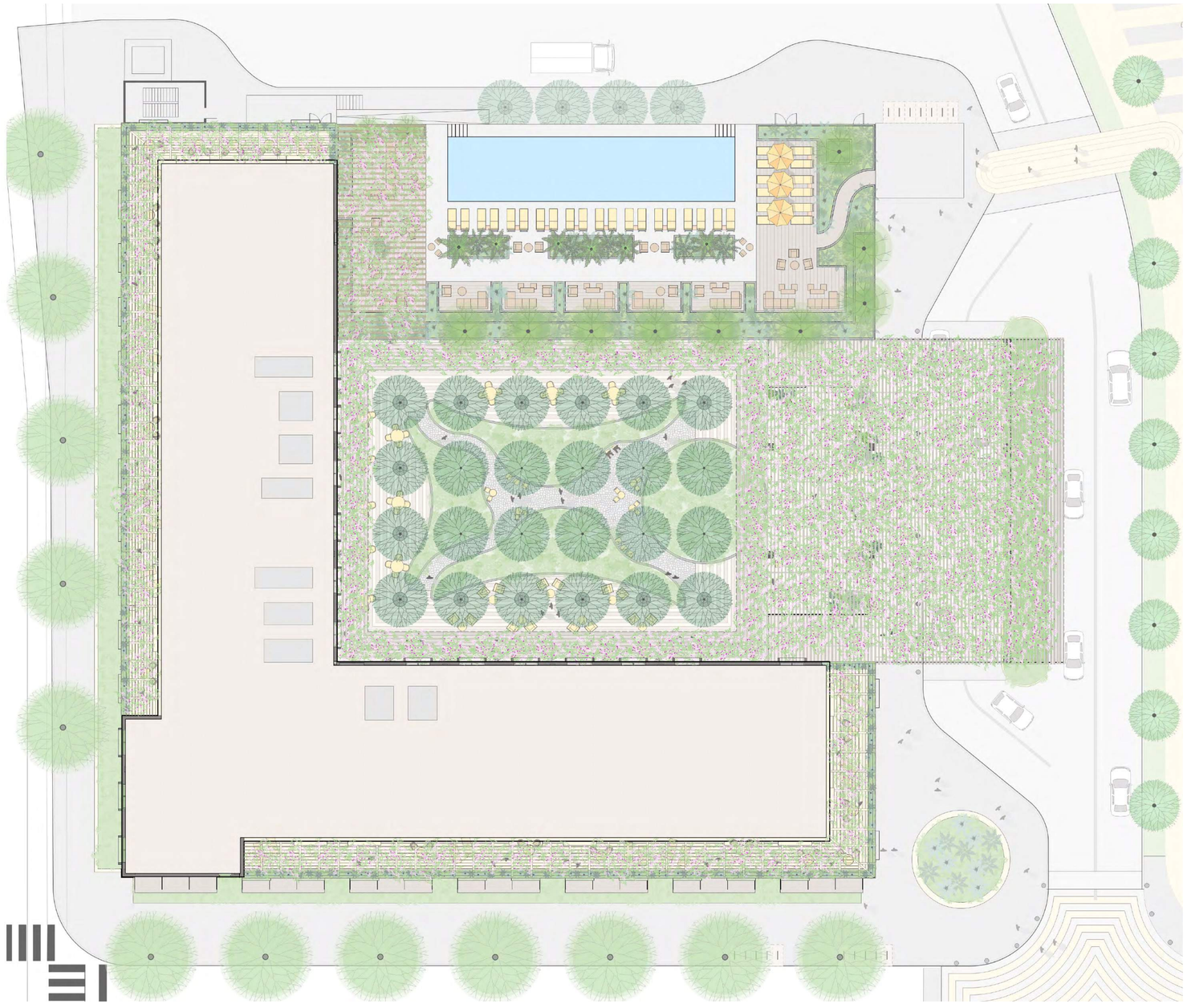
Mint Geranium
Pelargonium tomentosum

Asparagus Fern
Asparagus densiflorus 'Sprengeri'

Rattlesnake Plant
Calathea lancifolia



Dwarf Umbrella Tree
Schefflera arboricola



0 8 16 32'

1/16" = 1'-0" at 22" x 34"

PARCEL 1-HOTEL
Peninsula Innovation Partners
Conditional Development Permit

WILLOW VILLAGE

Menlo Park, CA

L1.00
CONCEPTUAL LANDSCAPE PLAN
January 8, 2021

LEVEL 1

TREES

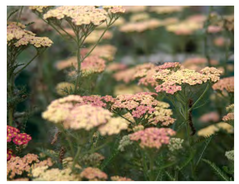
Eastern Redbud
Cercis canadensis

European Olive
Olea europaea

Brisbane Box
Lophostemon confertus

UNDERSTORY PLANTING

Foxtail Agave
Agave attenuata 'Nova'



Yarrow
Achillea spp.

Tree Houseleek
Aeonium spp.

Kangaroo Paw
Anigozanthos spp.

Wormwood
Artemisia

Rabbit's Foot Fern
Davallia spp.

Mexican Snowball
Echeveria spp.

Mediterranean Spurge
Euphorbia characias

Spider Flower
Grevillea

Sage
Salvia spp.

Lace Fern
Microlepia strigosa

Boston Fern
Nephrolepis exaltata

Western Sword Fern
Polystichum munitum

Giant Chain Fern
Woodwardia fimbriata

Carpet Geranium
Geranium incanum

Japanese Wisteria
Wisteria floribunda

California Lilac
Ceanothus horizontalis

Coffeeberry
Rhamnus californica

LEVEL 3

TREES AND PALMS

King Palm
Archontophoenix spp.

Mediterranean Fan Palm
Chamaerops humilis 'Cerifera'

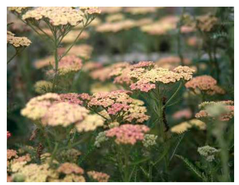
Kentia Palm
Howea forsteriana

Fruitless Olive
Olea europaea 'Swan Hill'

Pygmy Date Palm
Phoenix roebelenii

UNDERSTORY PLANTING

Foxtail Agave
Agave attenuata



Yarrow
Achillea spp.

Tree Houseleek
Aeonium spp.

Wormwood
Artemisia

Mexican Snowball
Echeveria spp.

Mediterranean Spurge
Euphorbia characias

Lavender
Lavandula spp.

LEVEL 6

Tree Houseleek
Aeonium spp.

Agave
Agave 'Blue Flame'

Mexican Snowball
Echeveria spp.

Blue Finger
Senecio talinoides spp. mandraliscae

Japanese Wisteria
Wisteria floribunda

Bougainvillea
Bougainvillea spp.

PARCEL 1-TOWN SQUARE
Peninsula Innovation Partners
Conditional Development Permit

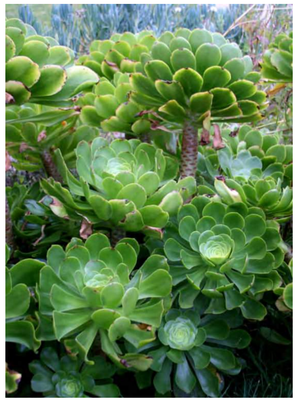
WILLOW VILLAGE

Menlo Park, CA

L1.00
Conceptual Landscape Plan
January 8, 2020

Peppermint Tree
Agonis flexuosa

London Plane Tree*
Platnus x acerifolia



Aeonium
Aeonium spp.

Kangaroo Paw
Anigozanthos cv.

Black Anther Flax Lily
Dianella revoluta

Lavender
Lavandula spp.

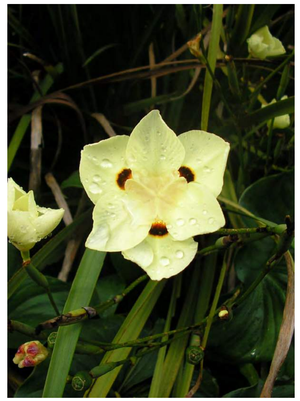
New Zealand Flax
Phormium cv.

Jacaranda
Jacaranda mimosifolia

Chinese Evergreen Elm
Ulmus parvifolia cv.

Agave
Agave spp.

Berkeley Sedge
Carex divulsa



Dietes
Dietes spp.

Lily Turf
Liriope muscari cv.

California Sword Fern
Polystichum californicum

Brisbane Box*
Lophostemon confertus

Zelkova*
Zelkova serrata cv.

Aloe
Aloe spp.

Small Cape Rush
Chondropetalum tectorum

Spurge
Euphorbia spp.

Deer Grass
Muhlenburgia rigens

Sage
Salvia spp.

1 min. Walk

0 80 160 240 320 400 480 640'

1" = 80' at 22" x 34"

1/4 ac

1/8 ac

PARCEL 1(PORTION) & 8
Peninsula Innovation Partners
Conditional Development Permit

WILLOW VILLAGE

Menlo Park, CA

L1.00

January 8, 2021

CHINESE PISTACHE

Pistacia chinensis

CHINESE PISTACHE

Pistacia chinensis multi-trunk

CALIFORNIA SYCAMORE

Platanus racemosa

CALIFORNIA SYCAMORE

Platanus racemosa multi-stem

SHUMARD OAK

Quercus shumardii

COASTAL REDWOOD

Sequoia sempervirens 'Aptos Blue'

ELM

Ulmus 'Accolade'

CHINESE ELM

Ulmus parviflora 'True Green'

OLIVE TREE

Olea europaea 'Mission'

MYRICA CALIFORNICA

Pacific Wax Myrtle

PARCEL 1(PORTION) & 8
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Conditional Development Permit

WILLOW VILLAGE

Menlo Park, CA

L1.01
Conceptual Representative Planting Palette
January 8, 2021

BLONDE AMBITION BLUE GRAMA

Bouteloua gracilis 'Blonde Ambition'

BERKELEY SEDGE

Carex divulsa (C. tumulicola)

SMALL CAPE RUSH

Chondropetalum tectorum

BLUE OAT GRASS

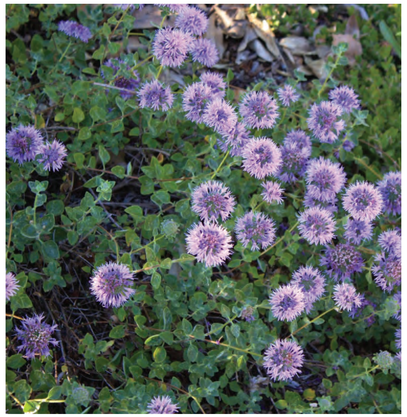
Helictotrichon sempervirens

SEA PINK

Armeria maritima

COREOPSIS

Coreopis grandiflora



COYOTE MINT

Monardella villosa

FOOTHILL PENSTEMON

Penstemon heterophyllus 'Blue Springs'

STONE CROP

Sedum sp. (many)

EMERALD CARPET MANZANITA

Arctostaphylos 'Emerald Carpet'

WAYNE RODERICK DAISY

Erigeron glaucus 'Wayne Roderick'

CALIFORNIA POPPY

Eschscholzia californica

COASTAL GUM PLANT

Grindelia stricta platyphylla

CREEPING SAGE

Salvia sonomensis

MOLATE FESCUE

Festuca rubra 'molate'

HOOKER'S MANZANITA

Arctostaphylos hookeri

ROCKROSE

Cistus spp.

LITTLE SUR COFFEEBERRY

Rhamnus californica 'Little Sur'

PARCEL 1(PORTION) & 8
Peninsula Innovation Partners
Conditional Development Permit

WILLOW VILLAGE

Menlo Park, CA

L1.01
Conceptual Representative Planting Palette

January 8, 2021

STICKY MONKEY

Mimulus aurantiacus

RED-FLOWERED BUCKWHEAT

Eriogonum grande var. rubescens

DEER GRASS

Muhlenbergia rigens

COMMON COYOTE MINT

Monardella villosa

CENTENNIAL CEANOTHUS

Ceanothus Centennial

BEE'S BLISS SAGE

Salvia 'Bee's Bliss'

DWARF SILVERGRASS

Miscanthus sp. 'Adagio'

CANYON PRINCE WILD RYE

Leymus condensatus 'Canyon Prince'

SIX HILLS GIANT CATMINT

Nepeta faassenii 'Six Hills Giant'

SPANISH LAVENDER

Lavandula otto quast

COMPACT MEXICAN SAGE

Salvia leucantha 'Santa Barbara'

UPRIGHT ROSEMARY

Rosmarinus officinalis 'Tuscan'

LITTLE OLLIE DWARF OLIVE

Olea europaea 'Little Ollie'

MOUNTAIN FLAX

Phormium cookianum

WYNYABBIE COAST ROSEMARY

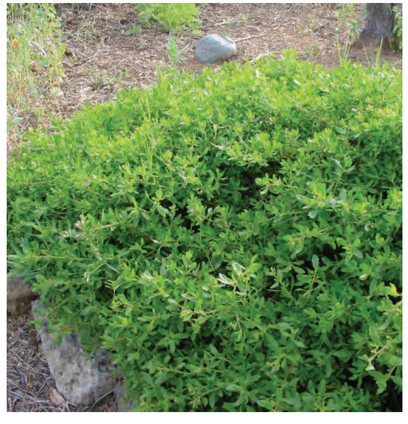
Westringia fruticosa 'Wynyabbie Gem'

COMMON YARROW

Achillea millefolium

FORTNIGHT LILY

Dietes iridioides



DWARF COYOTE BRUSH

Baccharis pilularis 'Twin Peaks'

PARCEL 1(PORTION) & 8
Peninsula Innovation Partners
Conditional Development Permit

WILLOW VILLAGE

Menlo Park, CA

L1.01
Conceptual Representative Planting Palette

January 8, 2021

WILLOW RD

PARK ST

MAIN ST

WEST ST

30 seconds Walk

0 20 40 60 80 100 120 160'

1" = 20' at 22" x 34"

PARCEL 2
Peninsula Innovation Partners
Conditional Development Permit

WILLOW VILLAGE

Menlo Park, CA

L1.00
Conceptual Landscape Plan

January 8, 2021

TREE PALETTE

Platanus × acerifolia
London Plane

Magnolia grandiflora
Magnolia Tree

Zelkova serrata
Japanese Zelkova

Platanus × acerifolia
London Plane

Quercus suber
Cork Oak

Arbutus Marina
Strawberry Tree

Quercus virginiana
Southern Live Oak

Olea europaea ‘Swan Hill’
Swan Hill Olive

Lyonothamnus floribundus
Catalina Ironwood

Myrica californica
Pacific Wax myrtle

Prunus ilicifolia
Hollyleaf cherry

Ceanothus
California lilacs

UNDERSTORY PALETTE

Verbena lilacina
Purple Cedros Island Verbena

Arctostaphylos ‘John Dourley’
John Dourley Manzanita

Bouteloua gracilis ‘Blonde Ambition’
mosquito grass

Arctostaphylos manzanita
whiteleaf manzanita

Aristida purpurea
Purple three-awn

Carpenteria californica
Tree Anemone

Ceanothus thyrsiflorus
Blue blossom ceanothus

Daphne x transatlantica
Eternal Fragrance

Agave attenuata
Foxtail Agave

Lessingia filaginifolia
California Dune Aster

Rosmarinus officinalis ‘Tuscan Blue
Italian Rosemary

Festuca mairei
Mt. Atlas Fescue

Kniphofia uvaria hybrids
Red-hot Poker

Olea europaea ‘Little Ollie’
Dwarf Olive

Sporobolus airoides
Sporobolus airoides

Achillea millefolium ‘coronation gold’
Common Yarrow

Myrica californica
Pacific Wax myrtle

Calycanthus occidentalis
Spice Bush

Salvia rosmarinus
Rosemary

Salvia sonomensis Bee’s Bliss
Bee’s Bliss Sage

30 sec. walk

0 20 40 60 80 100 120 160'

1" = 20' *at 24" x 36"*

PARCEL 3
Peninsula Innovation Partners
Conditional Development Permit

WILLOW VILLAGE

Menlo Park, CA

L1.00
Conceptual Landscape Plan

January 8, 2021

TREES

Chinese Elm
Ulmus parvifolia

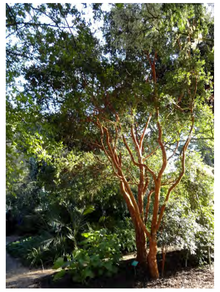
Zelkova
Zelkova serrata cv.

Ginkgo 'Autumn Gold'
Ginkgo biloba 'Autumn

Guadalupe Fan Palm
Brahea edulis

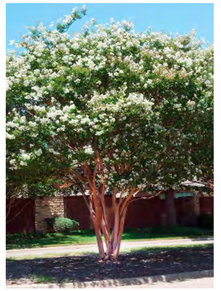
Peppermint Tree
Agonis flexuosa

Swan Hill Olive
Olea europaea 'Swan Hill'



Chilean Myrtle
Luma apiculate

Arapaho Crape Myrtle
Lagerstroemia indica x faueri 'Arapaho'

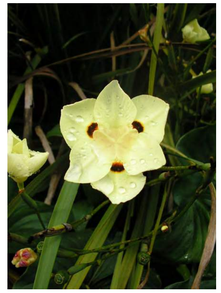


Natchez Crape Myrtle
Lagerstroemia indica x fauriei 'Natchez'

Jade Butterfly Ginkgo
Ginkgo biloba 'Jade Butterfly'

Venus Dogwood
Cornus 'Venus'

SHRUBS, PERENNIALS, GRASSES AND GROUND COVERS



Dieties
Dieties spp.

Baby Bliss Flax Lily
Dianella revoluta 'Baby Bliss'

Dwarf Red Kangaroo Paw
Anigozanthos 'Dwarf Red'

Weeping Lantana
Lantana montevidensis 'White Lightning'

Finescape Lomandra
Lomandra confertifolia

Platinum Beauty Lomandra
Lomandra longifolia 'Platinum Beauty'

Breeze Dwarf Mat Rush
Lomandra longifolia

Dwarf Germander
Teucrium chamaedrys 'nanum'

Snow in Summer
Cerastium tomentosum

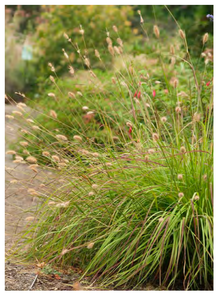
Elijah Blue Fescue
Festuca glauca 'Elijah Blue'

Small Cape Rush
Chondropetalum tectorum

Sheep's Fescue
Festuca amethystina

Berkeley Sedge
Carex divulsa

Amazing Red New Zealand Flax
Phormium 'Amazing Red'



Red Bunny Tails Fountain Grass
Pennisetum massaicum

Blue Oat Grass
Helictotrichon sempervirens

Mexican Feather Grass
Stipa tennuissima

30 seconds Walk

0 20 40 60 80 100 120 160'

1" = 20' at 22" x 34"

PARCEL 4
Peninsula Innovation Partners
Conditional Development Permit

WILLOW VILLAGE

Menlo Park, CA

L1.00
Conceptual Landscape Plan

January 8, 2021

TREE PALETTE

Platanus × acerifolia
London Plane

Magnolia grandiflora
Magnolia Tree

Zelkova serrata
Japanese Zelkova

Platanus × acerifolia
London Plane

Quercus suber
Cork Oak

Arbutus Marina
Strawberry Tree

Quercus virginiana
Southern Live Oak

Olea europaea 'Swan Hill'
Swan Hill Olive

Lyonothamnus floribundus
Catalina Ironwood

Myrica californica
Pacific Wax myrtle

Prunus ilicifolia
Hollyleaf cherry

Ceanothus
California lilacs

UNDERSTORY PALETTE

Verbena lilacina
Purple Cedros Island Verbena

Arctostaphylos 'John Dourley'
John Dourley Manzanita

Bouteloua gracilis 'Blonde Ambition'
mosquito grass

Arctostaphylos manzanita
whiteleaf manzanita

Aristida purpurea
Purple three-awn

Carpenteria californica
Tree Anemone

Ceanothus thyrsiflorus
Blue blossom ceanothus

Daphne x transatlantica
Eternal Fragrance

Agave attenuata
Foxtail Agave

Lessingia filaginifolia
California Dune Aster

Rosmarinus officinalis 'Tuscan Blue
Italian Rosemary

Festuca mairei
Mt. Atlas Fescue

Kniphofia uvaria hybrids
Red-hot Poker

Olea europaea 'Little Ollie'
Dwarf Olive

Sporobolus airoides
Sporobolus airoides

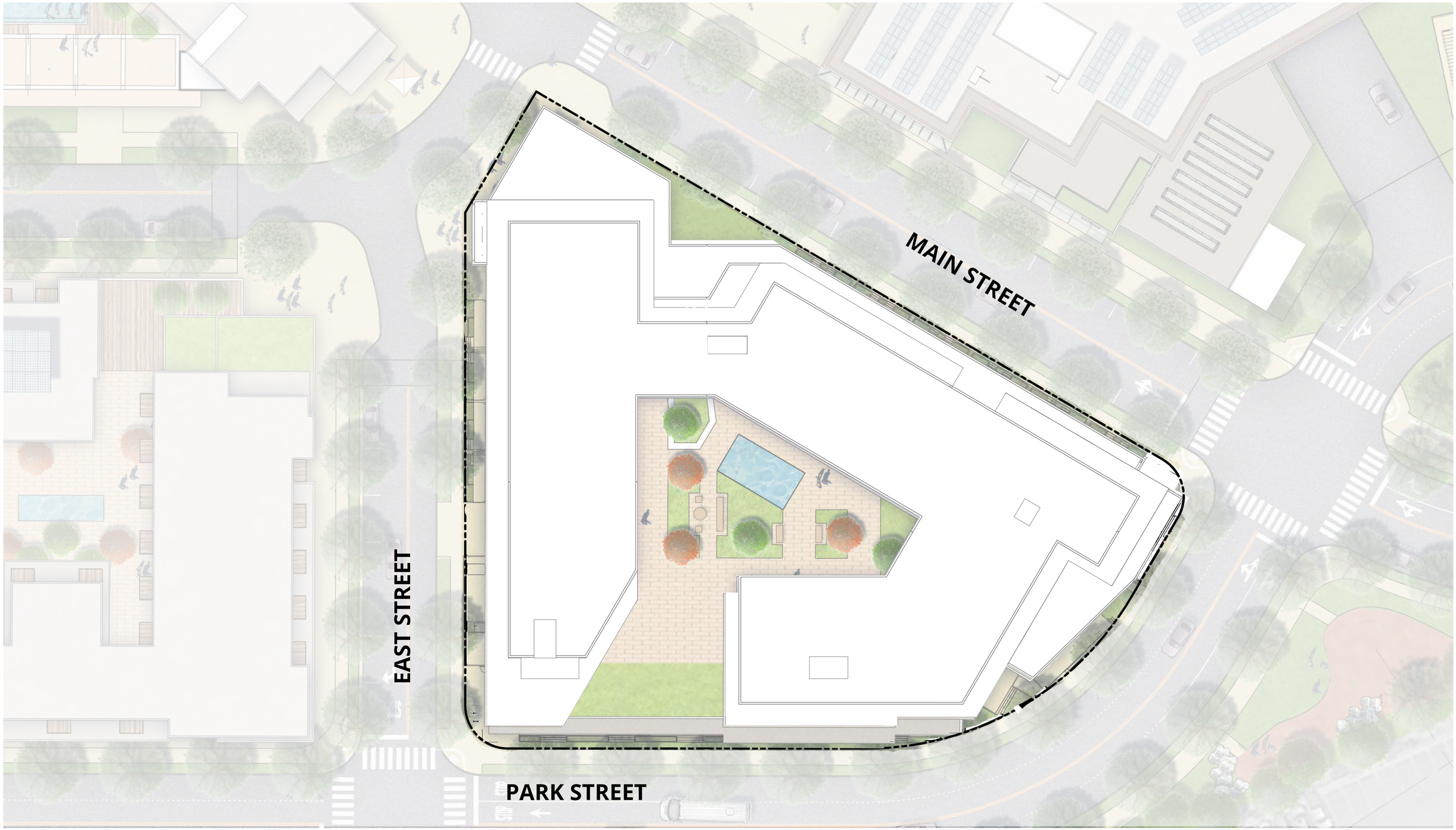
Achillea millefolium 'coronation gold'
Common Yarrow

Myrica californica
Pacific Wax myrtle

Calycanthus occidentalis
Spice Bush

Salvia rosmarinus
Rosemary

Salvia sonomensis Bee's Bliss
Bee's Bliss Sage



PARCEL 5
Peninsula Innovation Partners
Conditional Development Permit

WILLOW VILLAGE

Menlo Park, CA

L1.00
Conceptual Landscape Plan
January 8, 2021

TREE PALETTE

Platanus × acerifolia
London Plane

Magnolia grandiflora
Magnolia Tree

Zelkova serrata
Japanese Zelkova

Platanus × acerifolia
London Plane

Quercus suber
Cork Oak

Arbutus Marina
Strawberry Tree

Quercus virginiana
Southern Live Oak

Olea europaea 'Swan Hill'
Swan Hill Olive

Lyonothamnus floribundus
Catalina Ironwood

Myrica californica
Pacific Wax myrtle

Prunus ilicifolia
Hollyleaf cherry

Ceanothus
California lilacs

UNDERSTORY PALETTE

Verbena lilacina
Purple Cedros Island Verbena

Arctostaphylos 'John Dourley'
John Dourley Manzanita

Bouteloua gracilis 'Blonde Ambition'
mosquito grass

Arctostaphylos manzanita
whiteleaf manzanita

Aristida purpurea
Purple three-awn

Carpenteria californica
Tree Anemone

Ceanothus thyrsiflorus
Blue blossom ceanothus

Daphne x transatlantica
Eternal Fragrance

Agave attenuata
Foxtail Agave

Lessingia filaginifolia
California Dune Aster

Rosmarinus officinalis 'Tuscan Blue
Italian Rosemary

Festuca mairei
Mt. Atlas Fescue

Kniphofia uvaria hybrids
Red-hot Poker

Olea europaea 'Little Ollie'
Dwarf Olive

Sporobolus airoides
Sporobolus airoides

Achillea millefolium 'coronation gold'
Common Yarrow

Myrica californica
Pacific Wax myrtle

Calycanthus occidentalis
Spice Bush

Salvia rosmarinus
Rosemary

Salvia sonomensis Bee's Bliss
Bee's Bliss Sage

30 seconds Walk

0 20 40 60 80 100 120 160'

1" = 20' at 24" x 36"

PARCEL 6
Peninsula Innovation Partners
Conditional Development Permit

WILLOW VILLAGE

Menlo Park, CA

L1.00
Conceptual Landscape Plan
January 8, 2021

Carex divulsa
European Grey Sedge

Chondropetalum tectorum
Small Cape Rush

Juncus patens
Common Rush

Symphoricarpos albus
Common Snowberry

Acer rubrum 'Armstrong'
Armstrong Red Maple

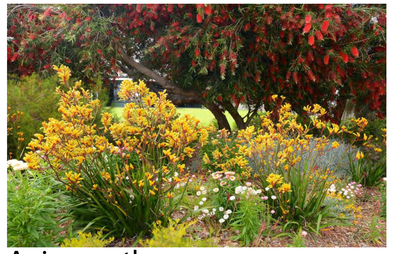
Cedrus deodara
Deodar Cedar

Gingko biloba 'Princeton Sentry'
Princeton Sentry Maidenhair Tree

Pinus canariensis
Canary Island Pine

Salvia elegans
Pineapple Sage

Lomandra longifolia
Spiny Headed Mat Rush



Anigozanthos var.
Kangaroo Paw

Calamagrostis x acutiflora 'Karl Foerster'
Feather Reed Grass

Hesperaloe parviflora
Red Yucca

Bouteloua gracilis 'Blonde Ambition'
Blonde Ambition Blue Grama Grass

Muhlenbergia capillaris 'Pink Muhly'
Pink Muhly Grass

Salvia 'Anthony Parker'
Anthony Parker Bush Sage

Aspidistra elatior
Cast Iron Plant

Dicksonia Antarctica
Soft Tree Fern

Salvia spathacea
Humming Bird Sage

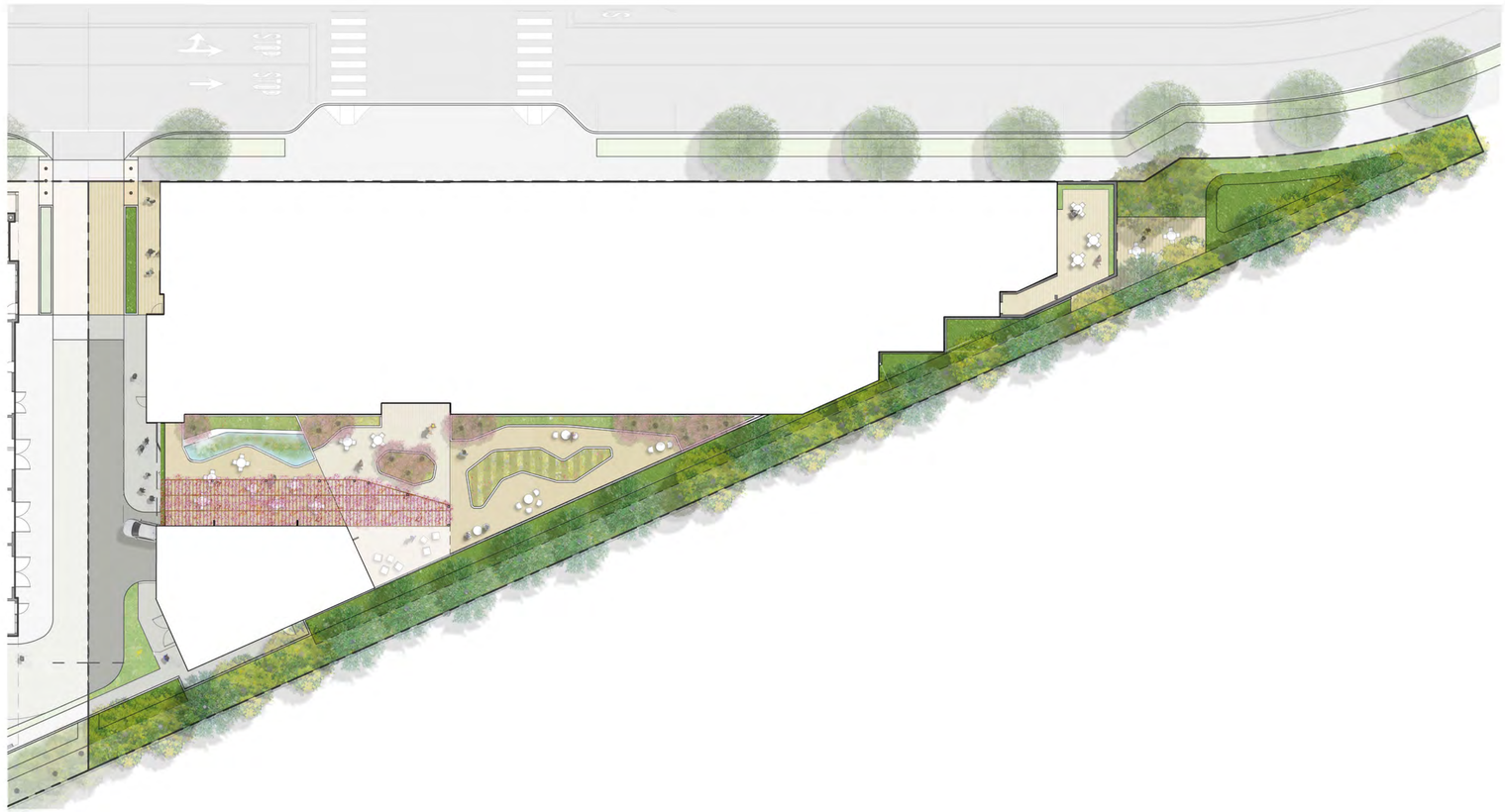
Woodwardia fimbriata
Giant Chain Fern

Agave attenuata
Century Plant

Calamagrostis foliosa
Leafy Reedgrass

Euphorbia rigida
Gopher Spurge

Washingtonia Robusta
Mexican Fan Palm



30 seconds Walk

0 20 40 60 80 100 120 160'

1" = 20' at 24" x 36"

PARCEL 7
Peninsula Innovation Partners
Conditional Development Permit

WILLOW VILLAGE

Menlo Park, CA

L1.00
Conceptual Landscape Plan
January 8, 2021

Carex divulsa
European Grey Sedge

Chondropetalum tectorum
Small Cape Rush

Juncus patens
Common Rush

Symphoricarpos Albus
Common Snowberry

Acer rubrum 'Armstrong'
Armstrong Red Maple

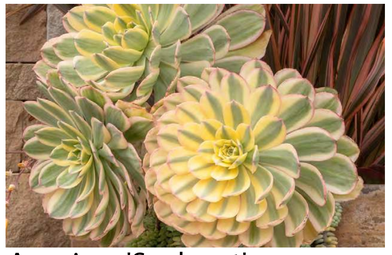
Cedrus deodara
Deodar Cedar

Gingko biloba 'Princeton Sentry'
Princeton Sentry Maidenhair Tree

Pinus canariensis
Canary Island Pine

Heuchera maxima
Island Alum Root

Polystichum munitum
Western Sword Fern



Aeonium 'Sunburst'
Copper Pinwheel

Gardenia jasminoides 'Leetwo'
Gardenia

Lavandula x intermedia
Lavender

Olea europaea 'Montra'
Little Ollie Dwarf Olive

Perovskia atriplicifolia
Russian Sage

Rosemary officinalis 'Chef's Choice'
Chef's Choice Rosemary

Salvia microphylla 'Killer Cranberry'
Autumn Sage

Salvia microphylla 'Little Kiss'
Cherry Sage

Westringia fruticosa
Coastal Rosemary

Bambusa multiplex 'Golden Goddess'
Golden Goddess Bamboo

Bambusa textilis 'Gracilis'
Slender Weavers

Anigozanthos Hybrid
Kangaroo Paw

Bouteloua 'Blonde Ambition'
Blue Grama Grass

Calandrinia Grandiflora
Rock Purslane

LEGEND

	BOTANIC NAME (COMMON NAME)	QUANTITY	SIZE	WUCOLS
	Existing Tree to Remain *Pinus canariensis* (Canary Island Pine)	23	-	-
	Alnus rhombifolia (White Alder)	10	48" box	High
	Arbutus 'Marina' (Marina Arbutus)	13	48" box	Low
	Magnolia grandiflora (Southern Magnolia)	21	48" box	Medium
	Pinus canariensis (Canary Island Pine)	33	48" box	Low
	Pistacia chinensis (Chinese Pistache)	2	48" box	Low
	Platanus x *acerifolia* 'Morton Circle' (Exclamation London Plane Tree)	118	48" box	Medium
	Platanus racemosa (California Sycamore)	53	48" box	Medium
	Ulmus parvifolia cv. (Chinese Elm)	38	48" box	Low
	Zelkova serrata cv. (Zelkova)	68	60" box	Medium
	Total Proposed Tree	356		

Note: Structural soil to be used under sidewalk and plaza adjoining street trees.

TREE VALUATION

QUANTITY	UNIT SIZE	UNIT VALUE	VALUE
0	#5	$ 100	$ -
55	#5	$ 200	$ 11,000
369	24" box	$ 400	$ 147,000
103	36" box	$ 1,200	$ 123,000
670	48" box	$ 5,000	$ 3,350,000
110	60" box	$ 7,000	$ 770,000
294	72" box	$ 10,000	$ 2,940,000
12	84" box	$ 12,000	$ 144,000
34	96" box	$ 15,000	$ 510,000
2	108" box	$ 17,000	$ 34,000
2	120" box	$ 20,000	$ 40,000
1,651			$ 8,070,000

Note: Current valuation includes all proposed trees within Willow Village, and excludes the publicly accessible park. Pending park design.

White Alder
Alnus rhombifolia

Marina Arbutus
Arbutus 'Marina'

Southern Magnolia
Magnolia grandiflora

Canary Island Pine
Pinus canariensis

Chinese Pistache
Pistacia chinensis

Exclamation London Plane Tree
Platanus x acerifolia 'Morton Circle'

California Sycamore
Platanus racemosa

Chinese Evergreen Elm
Ulmus parvifolia cv.

Zelkova
Zelkova serrata cv.

WATER USE ESTIMATION & IRRIGATION SCHEDULE - PUBLIC REALM

WATER TYPE	Recycled
CITY	Palo Alto
ETO	43.1
DATE	

Nearest City to project with published ET data

REGULAR LANDSCAPE AREAS

STATION/HYDROZONE	GPM	AREA (sq.ft) (HA)	WATER USE TYPE (LW=LOW, MW=MOD, HW=HIGH)	PLANT TYPE	IRRIGATION TYPE	PLANT FACTOR (PF)	IRRIGATION EFFICIENCY (IE)	PRECIP. RATE/ APPLICATION RATE (IN/HR)	ETAF (PF/IE)	CYCLES PER DAY	DAYS PER WEEK	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	ETWU (GALLONS PER YEAR)	PERCENTAGE OF LANDSCAPE
												MONTHLY ETO													
												1.5	1.8	2.8	3.8	5.2	5.3	6.2	5.6	5.0	3.2	1.7	1.0		
												TOTAL RUN TIME IN MINUTES PER DAY													
Trees - Low	0	21737	LW	SHRUB DC LW	DRIP LINE 12"	0.3	0.81	0.9	0.4	2	2	0.0	0.0	8.0	11.0	15.0	15.0	18.0	16.0	14.0	9.0	5.0	0.0	215,132	18%
Trees - Med	0	48086	MW	SHRUB DC LW	DRIP LINE 12"	0.5	0.81	0.9	0.6	2	2	0.0	0.0	14.0	18.0	25.0	25.0	29.0	27.0	24.0	15.0	8.0	0.0	793,182	41%
Trees - High	0	1000	HW	SHRUB DC HW	DRIP LINE 12"	0.8	0.81	0.9	1.0	2	3	0.0	0.0	14.0	19.0	25.0	27.0	31.0	29.0	25.0	15.0	9.0	0.0	26,392	1%
Shrubs	0	53909	LW	SHRUB DC LW	DRIP LINE 12"	0.3	0.81	0.9	0.4	2	2	0.0	0.0	8.0	11.0	15.0	15.0	18.0	16.0	14.0	9.0	5.0	0.0	324,712	28%
BTA	0	14936	LW	SHRUB DC LW	SPRAY	0.3	0.75	1.6	0.4	2	2	0.0	0.0	5.0	7.0	9.0	9.0	11.0	10.0	9.0	6.0	3.0	0.0	159,680	13%
	TOTAL	118,571																					TOTAL	1,554,706	66%

SPECIAL LANDSCAPE AREAS

HYDROZONE #	HYDROZONE NAME	AREA (sq.ft) (HA)	Percentage of Landscape
ALL		118,571	
		118,571	100%

MAWA	GALLONS/YR	3,188,454
	ACRE FEET/YR	9.72
	HCF/YR	4,235.90
ETWU	GALLONS/YR	1,554,706
	ACRE FEET/YR	3.18
	HCF/YR	1,383.30

SITE IRRIGATION EFFICIENCY	SITE PLANT FACTOR	MAWA COMPLIANT
65.4%	0.26	YES

ETAF Calculations

REGULAR LANDSCAPE AREAS	
TOTAL ETAF x AREA	38,721
TOTAL AREA	118,571
AVG. ETAF	32.66%

THE IRRIGATION VALVE SCHEDULE SHOWN ABOVE IS INTENDED TO BE USED AS A GUIDELINE ONLY AND INDICATES THE APPROXIMATE RUN TIMES IN MINUTES FOR EACH VALVE BASED ON ESTIMATED WEEKLY WATER REQUIREMENTS FOR ESTABLISHED PLANT MATERIAL. THE TIMES SHOWN ARE APPROXIMATE AND HAVE BEEN DEVELOPED FROM LOCAL AND CURRENT AVERAGES FOR EVAPOTRANSPIRATION, AND REFLECTIVE WATER REQUIREMENTS OF THE PLANT MATERIAL BASED ON PLANT TYPE AND THE APPROXIMATE PRECIPITATION OR APPLICATION RATES OF THE IRRIGATION SYSTEM TYPE. ACTUAL RUN TIMES MAY BE DIFFERENT DEPENDING ON A VARIETY OF FACTORS INCLUDING TOPOGRAPHY, SOIL STRUCTURE, SUN AND WIND EXPOSURE, WEATHER, ACTUAL PLANT WATER REQUIREMENTS, OVERALL PRECIPITATION RATE OF ZONE, ETC.

MAWA FORMULA
MAXIMUM APPLIED WATER ALLOWANCE (MAWA) GALLONS PER YEAR
MAWA = (ETo)(0.62)(LA x 0.45) + (0.55 x SLA)]

ETo = REFERENCE EVAPOTRANSPIRATION

0.45= ET ADJUSTMENT FACTOR

LA=LANDSCAPED AREA (SQUARE FEET)
0.62 = CONVERSION FACTOR (GALLONS/SQ.FT/YR)

ETWU FORMULA
ESTIMATED TOTAL WATER USE (ETWU) GALLONS PER YEAR
ETWU= (ETO)(.62)(ETAF x LA))

ETo = REFERENCE EVAPOTRANSPIRATION

PF = PLANT FACTOR FOR HYDROZONES

HA = HYDROZONE AREA (SQ.FT)
0.62 = CONVERSION FACTOR (GALLONS/SQ.FT/YR)

IE = IRRIGATION EFFICIENCY (0.81)-BUBBLER/DRIP

IE = IRRIGATION EFFICIENCY (0.75)-ROTORS/SPRAY

California Sycamore
Platanus racemosa

Chinese Evergreen Elm
Ulmus parvifolia cv.

Zelkova
Zelkova serrata cv.

Agave
Agave spp.

Berkeley Sedge
Carex divulsa

Dietes
Dietes spp.

New Zealand Flax
Phormium cv.

Aloe
Aloe spp.

California Wild Lilac
Ceanothus spp.

Grevillea
Grevillea 'Noelii'

Rosemary
Rosmarinus officinalis cv.

Kangaroo Paw
Anigozanthos cv.

Small Cape Rush
Chondropetalum tectorum

Pine Muhly
Muhlenburgia dubia

Sage
Salvia spp.

Appendix C. Résumés

Robin J. Carle, MS

Wildlife Ecology

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H. T. HARVEY & ASSOCIATES
Ecological Consultants
50 years of field notes, exploration, and excellence

HIGHLIGHTS

- 14 years of experience
- Avian ecology
- Environmental impact assessment
- Endangered Species Act consultation and compliance
- Nesting bird and burrowing owl surveys and monitoring
- Other special-status wildlife surveys and habitat assessments
- Bird-safe design

EDUCATION

MS, Fish and Wildlife Management, Montana State University

BS, Ecology, Behavior, and Evolution, University of California, San Diego

PERMITS AND LICENSES

Listed under CDFW letter permits to assist with research on bats, California tiger salamanders, California Ridgway's rails, and California black rails

USFWS 10(a)(1)(A) for California tiger salamander

PROFESSIONAL EXPERIENCE

Associate ecologist, H. T. Harvey & Associates, 2007–present

Volunteer bird bander, San Francisco Bay Bird Observatory, 2010–20

Avian field technician, West Virginia University, 2006

Graduate teaching assistant, Montana State University, 2003–06

Avian field technician, Point Blue Conservation Science (formerly PRBO Conservation Science), 2004

PROFESSIONAL PROFILE

Robin Carle is an associate wildlife ecologist and ornithologist at H. T. Harvey & Associates, with more than 14 years of experience working in the greater San Francisco Bay Area. Her expertise is in the nesting ecology of passerine birds, and her graduate research focused on how local habitat features and larger landscape-level human effects combine to influence the nesting productivity of passerine birds in the Greater Yellowstone region. She also banded, sexed, and aged resident and migrant passerine birds with the San Francisco Bay Bird Observatory for 10 years.

With an in-depth knowledge of regulatory requirements for special-status species, Robin has contributed to all aspects of client projects including NEPA/CEQA documentation, bird-safe design assessments, biological constraints analyses, special-status species surveys, nesting bird and raptor surveys and monitoring, construction implementation/permit compliance, Santa Clara Valley Habitat Plan/Natural Community Conservation Plan applications and compliance support, and natural resource management plans. Her strong understanding of CEQA, FESA, and CESA allows her to prepare environmental documents that fully satisfy the regulatory requirements of the agencies that issue discretionary permits. She manages field surveys, site assessments, report preparation, agency and client coordination, and large projects.

BIRD-SAFE DESIGN EXPERIENCE

Provides bird-safe design support for **development projects for major technology companies in Sunnyvale and Mountain View** including the preparation of avian collision risk assessments, sections of CEQA documents, assessments of project compliance with City requirements, design recommendations, avian collision monitoring plans, and calculations of qualification for LEED Pilot Credit 55.

Provided bird-safe design support for a **development project in Berkeley** including the preparation of an avian collision risk assessment and development of bird-safe design features.

Served as project manager for the preparation of an **avian collision risk assessment for the CityView Plaza project** in San José, and prepared recommendations to minimize the potential for bird nesting and perching on the building following construction.

Served as project manager for the preparation of **avian collision risk assessments for the Menlo Uptown and Menlo Portal** projects in Menlo Park, which included assessments of the potential for avian collisions to occur with the proposed buildings and the potential significance (e.g., under CEQA) of such an impact.

Provided bird-safe design support for **development at Oyster Point in South San Francisco** including the preparation of an avian collision risk assessment and providing project-specific bird-safe design measures to ensure project compliance with CEQA requirements.

Stephen C. Rottenborn, PhD
Principal, Wildlife Ecology

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408.458.3205

H. T. HARVEY & ASSOCIATES
Ecological Consultants
50 years of field notes, exploration, and excellence

HIGHLIGHTS

- 28 years of experience
- Avian ecology
- Wetlands and riparian systems ecology
- Endangered Species Act consultation
- Environmental impact assessment
- Management of complex projects

EDUCATION

PhD, Biological Sciences, Stanford University

BS, Biology, College of William and Mary

PROFESSIONAL EXPERIENCE

Principal, H. T. Harvey & Associates, 1997–2000, 2004–present

Ecology section chief/environmental scientist, Wetland Studies and Solutions, Inc., 2000–04

Independent consultant, 1989–97

MEMBERSHIPS AND AFFILIATIONS

Chair, California Bird Records Committee, 2016–19

Member, Board of Directors, Western Field Ornithologists, 2014–20

Scientific associate/advisory board, San Francisco Bay Bird Observatory, 1999–2004, 2009–18

Member, Board of Directors, Virginia Society of Ornithology, 2000–04

PUBLICATIONS

Erickson, R. A., Garrett, K. L., Palacios, E., Rottenborn, S. C., and Unitt, P. 2018. Joseph Grinnell meets eBird: Climate change and 100 years of latitudinal movement in the avifauna of the Californias, in Trends and traditions: Avifaunal change in western North America (W. D. Shuford, R. E. Gill Jr., and C. M. Handel, eds.), pp. 12–49. Studies of Western Birds 3. Western Field Ornithologists, Camarillo, CA.

Rottenborn, S. C. 2000. Nest-site selection and reproductive success of red-shouldered hawks in central California. Journal of Raptor Research 34:18-25.

Rottenborn, S. C. 1999. Predicting the impacts of urbanization on riparian bird communities. Biological Conservation 88:289-299.

Rottenborn, S. C. and E. S. Brinkley. 2007. Virginia's Birdlife. Virginia Society of Ornithology, Virginia Avifauna No. 7.

PROFESSIONAL PROFILE

Dr. Steve Rottenborn is a principal in the wildlife ecology group in H. T. Harvey & Associates' Los Gatos office. He specializes in resolving issues related to special-status wildlife species and in meeting the wildlife-related requirements of federal and state environmental laws and regulations. Combining his research and training as a wildlife biologist and avian ecologist, Steve has built an impressive professional career that is highlighted by a particular interest in wetland and riparian communities, as well as the effects of human activities on bird populations and communities. Steve's experience extends to numerous additional special-status animal species. The breadth of his ecological training and project experience enables him to expertly manage multidisciplinary projects involving a broad array of biological issues.

He has contributed to more than 800 projects involving wildlife impact assessment, NEPA/CEQA documentation, biological constraints analysis, endangered species issues (including California and Federal Endangered Species Act consultations), permitting, and restoration. Steve has conducted surveys for a variety of wildlife taxa, including a number of threatened and endangered species, and contributes to the design of habitat restoration and monitoring plans. In his role as project manager and principal-in-charge for numerous projects, he has supervised data collection and analysis, report preparation, and agency and client coordination.

PROJECT EXAMPLES

Principal-in-charge for **bird-safe design support for more than 40 development projects** in more than 10 cities throughout the San Francisco Bay area. This work has entailed preparation of avian collision risk assessments, sections of CEQA documents, assessments of project compliance with requirements of the lead agency, design recommendations (e.g., related to the selection of bird-safe glazing), and avian collision monitoring plans.

Senior wildlife ecology expert on the South Bay Salt Pond restoration project — the largest (~15,000-acre) restoration project of its kind in the western United States.

Served on the **Technical Advisory Committees/Expert Panels for the Santa Clara Valley Water District's Upper Penitencia Creek, One Water, Science Advisory Hub, San Tomas/Calabazas/Pond A8 Restoration, and Coyote Creek Native Ecosystem Enhancement Tool** efforts; selected to serve on these panels for his expertise in South Bay wildlife, restoration, and riparian ecology.

Led H. T. Harvey's work on the biological CEQA assessment and permitting for extensive/regional **facilities and habitat management programs for the Santa Clara Valley Water District, San Jose Water Company, County of San Mateo, and Midpeninsula Regional Open Space District**.

Contract manager/principal-in-charge for **Santa Clara Valley Water District's Biological Resources On-Call contract** (four successive contracts, with over 120 task orders, since 2009).