Appendix A
Notice of Preparation

CITY OF BURLINGAME

City Hall – 501 Primrose Road
Burlingame, California 94010-3997

COMMUNITY DEVELOPMENT DEPARTMENT

Planning Division
PH: (650) 558-7250
FAX: (650) 696-3790

NOTICE OF PREPARATION (NOP) OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE 1200-1340 BAYSHORE HIGHWAY PROJECT (PENINSULA CROSSING)

The City of Burlingame ("City") is the lead agency preparing a Draft Environmental Impact Report (EIR) for the 1200-1340 Bayshore Highway Project in Burlingame, California ("Project"). The EIR for the Proposed Project is being prepared in compliance with the California Environmental Quality Act (CEQA) (California Public Resources Code §§21000 et. seq.) and the State CEQA Guidelines (Guidelines) (California Code of Regulations, Title 14, Division 6, Chapter 3, §§15000 et. seq.). The Project description and probable environmental effects that will be analyzed in the Draft EIR for the proposed Project are described below. The City has not prepared an Initial Study (CEQA Guidelines §15063(a)).

PURPOSE AND DISTRIBUTION: Upon deciding to prepare an EIR, the City as lead agency must issue a Notice of Preparation (NOP) to inform the Governor's Office of Planning and Research (OPR), trustee and responsible agencies, and the public of that decision (CEQA Guidelines §15082(a)). Therefore, this NOP is being sent to responsible or trustee agencies and other interested parties. The City is requesting comments regarding the scope and content of the environmental information that is relevant to your area of interest or to your agency's statutory responsibilities regarding the proposed Project. Public agencies may use this EIR when considering subsequent approvals related to the proposed Project. Once the Draft EIR is published, it will be sent to all responsible or trustee agencies and to others who respond to this NOP or who otherwise indicate that they would like to receive a copy. The Draft EIR will also be available for review at the City of Burlingame at the address identified below.

SUBMITTING COMMENTS IN RESPONSE TO THIS NOP: The City encourages comments be submitted electronically via the following link to the City's website: www.burlingame.org/1200-1340bayshore. Comments may also be directed in writing by letter or email to:

> Catherine Keylon, Senior Planner
> City of Burlingame
> Planning Division 501 Primrose Road
> Burlingame, CA. 94010
> Email: ckeylon@burlingame.org

The NOP comment period will begin on August 12, 2022 and end on September 12, 2022, at 5:00 p.m. Due to the time limit mandated by State law, your response must be sent at the earliest possible date, but no later than **5:00 p.m. on Monday, September 12, 2022**.

Commenters should focus comments on potential impacts of the proposed Project on the physical environment. Commenters are encouraged to identify ways that potential adverse effects resulting from the Proposed Project might be minimized and to identify reasonable alternatives and mitigation measures for consideration. Please include your name, contact information, and the Project name in your response. Please also include the Project address, 1200 -1340 Bayshore Highway in the subject line of your email.

EIR PUBLIC SCOPING MEETING: The City of Burlingame Planning Commission will conduct a public scoping meeting for the EIR for the proposed Project on **Monday, August 22, 2022 at 7:00 p.m**. Pursuant to Resolution 087-2022 and AB 361, the Planning Commission meeting will be held virtually only, via Zoom. Directions for how the public can access the meeting and provide public comments can be found using this link and information:

https://www.zoom.us/join

Meeting ID: 816 1801 2426

Passcode: 082306

Phone: 1-346-248-7799

The agenda for the Planning Commission meeting, dated Friday, August 12, 2022 can be found here as well with a link to the staff report which will be available on Friday August 19, 2022.

PROJECT TITLE: 1200-1340 Bayshore Highway Project

PROJECT SPONSOR / PROPERTY OWNER: DivcoWest

PROJECT LOCATION: The Project site is located along the San Francisco Bay shoreline in northeastern Burlingame, approximately 1.2 miles south of the San Francisco International Airport (SFO) and one and a half miles east of the Millbrae Multimodal Transit Center. U.S. Highway 101 (US-101) exists approximately 200 feet west of the site.[1] See **Exhibit 1**. The property is approximately 12 acres and consists of 13 parcels (Assessor's Parcel Numbers [APNs] 026113470, 026113330, 026113480, 026113450, 026142110, 026142140, 026142070, 026142150, 026142160, 026142170, 026142020, 026142030 and 026142180). See **Exhibit 2**.

EXISTING CONDITIONS Existing buildings in the project vicinity consist primarily of commercial office, light industrial, and airport-supporting warehouses and surface parking. Unpaved segments of the San Francisco Bay Trail (Bay Trail) approach and terminate at the north and south ends of the Project site. The property includes eight existing 1- to 3-story commercial buildings surrounded by asphalt parking lots. Operation of existing uses on the site involve approximately 83 employees. Easton Creek, tidal salt marsh areas, and an unnamed remnant tidal channel run west to east through the Project site to the Bay. The site is within the Bayfront Commercial General Plan land use designation and within the Bayfront Commercial (BFC) zoning district. The project site is not included on the Cortese List pursuant to Government Code Section 65962.5.

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1 Consistent with the City of Burlingame's protocol and for purposes of describing the Project site and its geographic setting, the San Francisco Bay shoreline, Bayshore Highway, and U.S. 101 are assumed to run in a north-south direction.

PROJECT DESCRIPTION: Conceptual plans for the proposed Project are shown in **Exhibit 3** and **Exhibit 4**. The proposed Project would include demolition of the site's existing structures and surface parking lots and construction of three (3) life science/ office buildings totaling approximately 1.46 million gross square feet and two parking structures containing a total of 3,525 parking spaces. Each life science/office building would be 11 stories above grade and approximately 213 feet in height to parapets (229 feet to top of mechanical penthouse). Parking structures would be 10- to 10.5-stories above grade and two stories below grade, and a maximum of approximately 115 feet in height to parapets.

The Project provides for flexibility in the end use, ranging from an overall building program of 100 percent life science use to a 100 percent professional office use or a combination thereof. The Project also includes various amenities, as well as a total of 5,000 square-foot of café/restaurant space that would be in two different locations on the site in two of the proposed buildings. The Project is estimated to generate between 4,088 and 5,226 net new jobs onsite.

Exhibit 3 illustrates the Project's conceptual site plan, which shows the proposed life science / office buildings and parking structures sited within open landscaped spaces with a variety of public amenities and gathering spaces throughout the property. A new 1,475-foot segment of Bay Trail is proposed to connect the current trail gap along the Project site, and a total of 215,000 square feet (approximately 41 percent) of the Project site would be landscaped and publicly-accessible open space. Open spaces include areas surrounding Easton Creek, the unnamed remnant tidal channel, and the shoreline frontage. The proposed buildings are sited to provide view corridors through the Project to the Bay. A public plaza and seating area is proposed at the intersection of Bayshore Highway and Airport Boulevard/Broadway. The Project proposes sea level rise protection measures in compliance with the requirements of the City of Burlingame Municipal Code.

Proposed off-site improvements include new and enhanced roadway, bicycle and pedestrian facilities along Bayshore Highway. These include lane restriping, new medians, and signal modifications at the California Department of Transportation (Caltrans) intersection of US-101 northbound and southbound off-ramps (at Bayshore Highway and Broadway, respectively). Additional improvements to street lighting and landscaping would be made along Bayshore Highway in the vicinity of the Project site.

The Project is expected to be constructed in three overlapping phases, for a total duration of slightly more than three years.

ANTICIPATED ENTITLEMENTS AND APPROVALS: Discretionary approvals required for development of the proposed Project are anticipated to include, but may not be limited to, the following:

- CEQA Environmental Review
- Commercial Design Review
- Tentative Map
- Special Permits for Height above 65 feet and Tier 3 Intensity (per BFC Zone)
- Master Sign Program
- Off-site Improvements
- Development Agreement

Additional approvals and/or permits required for development of the proposed Project may be obtained from the following Responsible or Trustee agencies, including but not necessarily limited to, Caltrans, San Francisco Bay Conservation and Development Commission (BCDC), California Department of Fish and Wildlife (CDFW), San Francisco Regional Water Quality Control Board (RWQCB), and U.S. Army Corps of Engineers.

PROBABLE ENVIRONMENTAL EFFECTS AND PROPOSED SCOPE OF THE EIR: The EIR will analyze and disclose the direct and indirect potentially significant impacts that would result from construction and operation of the proposed Project under Existing Plus Project conditions and under Cumulative conditions with the combined effects of past, present, and reasonably foreseeable projects (CEQA Guidelines §§15126.2, 15130). The EIR will evaluate the full range of environmental issues considered under the CEQA Guidelines and discretion of the lead agency, including the following:

- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural / Tribal Cultural Resources
- Greenhouse Gas Emissions
- Energy
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services and Recreation
- Transportation
- Utilities and Service Systems
- Wildfire

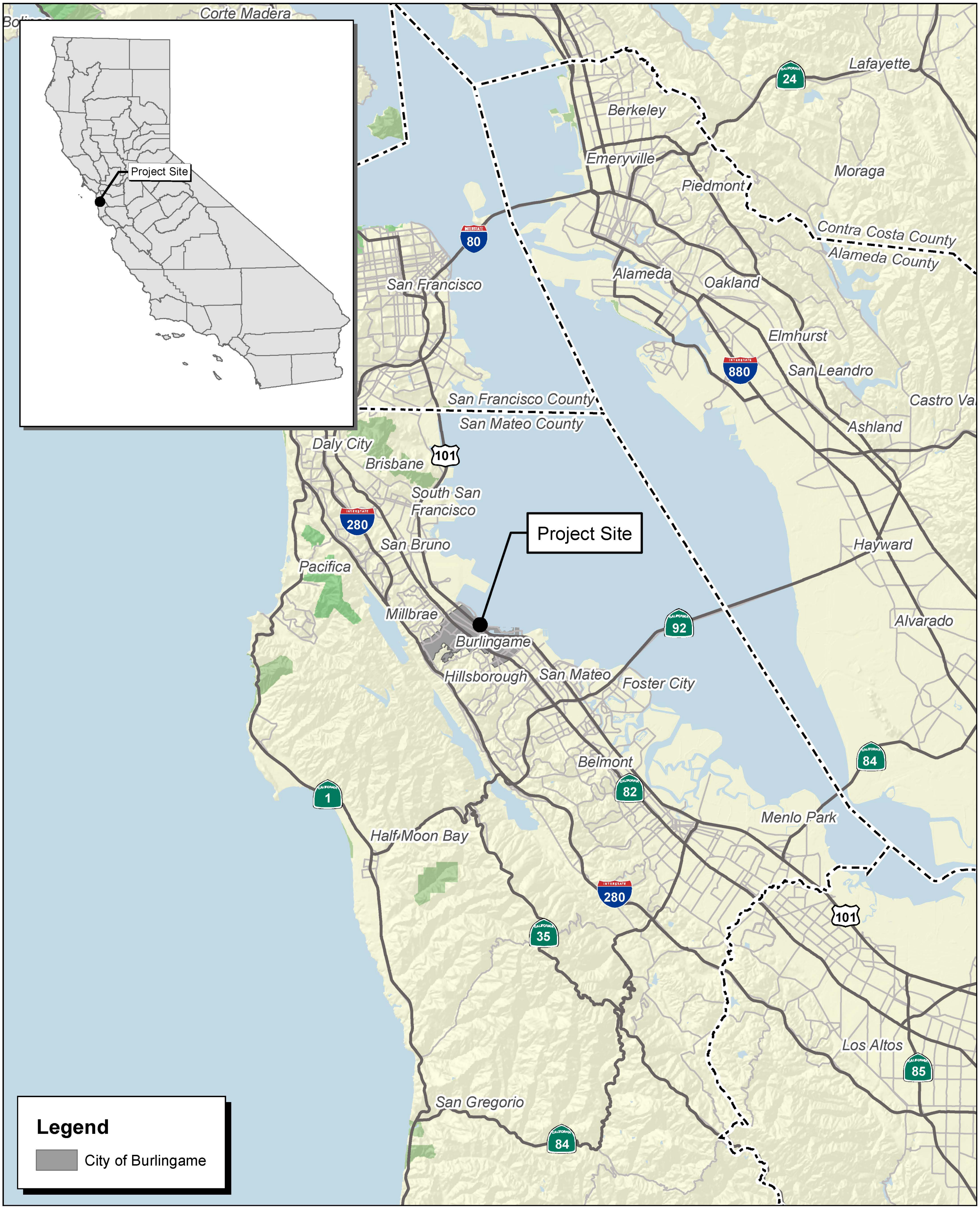
Where significant impacts are identified, the EIR will describe feasible measures that could minimize the impact (CEQA Guidelines §15126.4). The EIR will also identify and examine a range of reasonable alternatives to the proposed Project, including, but not limited to, a CEQA- mandated No Project Alternative and other potential alternatives that may be capable of reducing or avoiding potential environmental effects (Guidelines §15126.6).

Kevin Gardiner

Kevin Gardiner AICP, Community Development Director
Environmental Review Officer
City of Burlingame Community Development Department

8/12/2022
Date:

Exhibit 1 - Project Location and Context
Exhibit 2 – Existing Project Site
Exhibit 3 – Conceptual Site and Landscape Plan
Exhibit 4 – Conceptual Site Elevation



Source: Census 2000 Data, The California Spatial Information Library (CaSIL). San Mateo County.

FIRSTCARBON SOLUTIONS™

5 2.5 0 5 Miles

Exhibit 1
Regional Location Map

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1200-1340 OLD BAYSHORE HIGHWAY PROJECT

Source: Bing Aerial Imagery. San Mateo County GIS Data.

FIRSTCARBON SOLUTIONS™

160 80 0 160
Feet

Exhibit 2
Project Parcels

Source: WRNS Studio, 03/04/2022.

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Exhibit 3
Conceptual Site and Landscape Plan

AERIAL VIEW LOOKING WEST TOWARDS BURLINGAME

Source: WRNS Studio, 03/04/2022.

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Exhibit 4
Concept Plan

Appendix B
Responses to the Notice of Preparation

Written Responses to the NOP

U.S. Department
of Transportation
Federal Aviation Administration

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Blvd., Suite 115
Brisbane, CA 94005-1835

September 1, 2022

Catherine Keylon, Senior Planner
City of Burlingame
Planning Division
501 Primrose Road
Burlingame, CA. 94010

Subject: City of Burlingame, Notice of Preparation for the 1200-1340 Bayshore Highway Project (Peninsula Crossing) - Draft Environmental Impact Report (EIR).

Dear Ms. Keylon:

On August 18, 2022, the Federal Aviation Administration (FAA) received the City of Burlingame's Notice of Preparation for the 1200-1300 Bayshore Highway Project - Draft Environmental Impact Report (EIR). The notice indicated that the City will be conducting a public scoping meeting for DivcoWest's proposed project which includes demolition of existing buildings and parking areas followed by construction of three planned life science/office buildings (1.46 million gross square feet; up to 229 feet in height; 11 stories) and 3,525 parking spaces and their associated parking structures (up to 115 feet in height; 10 to 10.5 stories). The project proposal also includes a new 1,475-foot segment of Bay Trail and 215,000 square feet of landscaped and publicly-accessible open space. The open spaces include areas surrounding Easton Creek, the unnamed remnant tidal channel, and the shoreline frontage.

The proposed project area boundary is located, approximately, 1.2 miles southwest of the end of Runway 28L and, approximately, 1.2 miles south of Runway 1R at San Francisco International Airport (SFO).

San Francisco International Airport (SF0), is an active Commercial Service (Primary), Large Hub airport within the National Plan of Integrated Airport System (NPIAS). The airport is owned and operated by City and County of San Francisco (CCSF).

The FAA advises that the City of Burlingame coordinate its project proposal including the Draft EIR with the Airport Director, Mr. Ivar Satero, who may be contacted as follows:

Ivar Satero, Airport Director
City and County of San Francisco
P.O. Box 8097
San Francisco, CA 94128
Email: ivar.satero@flysfo.com
Phone: (650) 821-3355

Noise: Due to the proximity of the project area to SFO, the City of Burlingame should anticipate that airport and aircraft noise will continue to be experienced in the project area. It is advisable to incorporate an early notification process to inform future occupants and users of the project area about the presence of the airport and the potential to hear noise from airport and aircraft operations. If any of the proposed office developments would have noise sensitive uses, there should be coordination with the Airport Director at SFO. The FAA recommends that the City of Burlingame consider the Yearly Day-Night Average Sound Levels (DNL) guidance provided in Advisory Circular (AC) 150/5020-1, *Noise Control and Compatibility Planning for Airports*, to ensure land use compatibility with aircraft noise levels. For the City's reference, the CCSF has conducted a 14 CFR Part 150 study for SFO which is available to the public at the following webpage: https://www.faa.gov/airports/environmental/airport_noise/noise_exposure_maps.

Wildlife Attractants: The FAA also recommends that the City of Burlingame utilize the guidance provided in Advisory Circular (AC) 150/5200-33C, *Hazardous Wildlife Attractants On or Near Airports,* enclosed, to ensure that the proposed project does not introduce wildlife hazards to the aviation operations in the area. As explained in the AC, certain land use practices have the potential to attract wildlife that can be a threat to aviation safety. The land uses for typical office building complexes with potential to attract hazardous wildlife include constructed water features, taxi cab and rental car pickup areas, and landscaped areas with vegetation types that provide forage.

The FAA notes that the proposal includes a proposed bridge over a wetland, extension of a pedestrian trail, and landscaping of open space along the San Francisco Bay shoreline that would be within, approximately, 1.2 miles of SFO operations. The FAA also notes that the proposal mentions the requirement of permits from the U.S. Army Corps of Engineers (USACE) and Bay Conservation and Development Commission (BCDC), and that the project area contains tidal salt marsh/wetlands. Given the relatively close proximity to airport runways and flight paths, the FAA advises that the City coordinate wetland and/or water feature enhancements with SFO to avoid and/or minimize the introduction of any potential wildlife attractants (i.e., constructed water features or restoration/mitigation of wetlands/tidal marsh within the planned open space). The FAA emphasizes that any compensatory wetland mitigation efforts, associated with USACE or BCDC permitting, should conform to the on-site and off-site mitigation guidance provided in AC 150/5200-33C, Sections 1.4, 2.4.3.2, and 2.4.3.3.

The FAA would also like to emphasize the USACE's Compensatory Mitigation for Loss of Aquatic Resources Final Rule which provides the following regulation relevant to this project: *Compensatory mitigation projects should not be located where they will increase risks to aviation by attracting wildlife to areas where aircraft-wildlife strikes may occur (e.g., near airports)* [33 CFR Part 332.3 (3)(b)].

Navigable Airspace: The FAA notes that the proposed alternatives include the construction of multi-storied buildings and multi-storied parking facilities. Projects that have the potential to affect navigable airspace as defined in 14 Code of Federal Regulations Part 77.9 must file a Notice of Proposed Construction or Alteration, Form 7460-1 with the FAA. Due to the location and the proposed building heights it is strongly recommend that a preliminary review be requested prior to design to ensure compatibility of the proposal. Information about the Obstruction Evaluation/Airport Airspace Analysis and Form 7460-1 are available at https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

Your attention to these comments is appreciated. If you have any questions, I am available via cell phone at (307) 461-2884.

Sincerely,

Christopher D. Jones

Christopher D. Jones, Ph.D.
Environmental Protection Specialist

Enclosures:
Advisory Circular (AC) 150/5020-1
Advisory Circular (AC) 150/5200-33C

cc:
Ivar Satero, Airport Director, City and County of San Francisco

U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

AC 150/5020-1

NOISE CONTROL AND COMPATIBILITY PLANNING FOR AIRPORTS

AUGUST 5, 1983

U.S. Department of Transportation

Federal Aviation Administration

Advisory Circular

Subject: NOISE CONTROL AND COMPATIBILITY PLANNING FOR AIRPORTS

Date: 8/5/83
Initiated by:

AC No: 150/5020-1
Change:

1. PURPOSE. This advisory circular provides guidance for Noise Control and Compatibility Planning for airports under Federal Aviation Regulation (FAR) Part 150 and the Aviation Safety and Noise Abatement Act of 1979 (ASNA) (P.L. 96-193). It is intended for use by airport operators, state/local planners and other officials, and interested citizens who may engage in noise control planning. Airport noise compatibility planning has the goals of reducing existing noncompatible land uses around airports and of preventing the introduction of additional noncompatible land uses through the cooperative efforts of all those involved. The Part 150 program is voluntary and airport operators are encouraged to participate.

2. BACKGROUND. FAR Part 150 implements portions of Title I of the Aviation Safety and Noise Abatement Act of 1979. It establishes a single system for the measurement of airport (and background) noise, a single system for determining the exposure of individuals to airport noise, and a standardized airport noise compatibility planning program. The planning program includes (1) provision for the development and submission to the FAA of Noise Exposure Maps and Noise Compatibility Programs by airport operators; (2) standard noise units, methods and analytical techniques for use in airport assessments; (3) identification of land uses which are normally considered compatible (or noncompatible) with various levels of noise around airports; and (4) procedures and criteria for FAA approval or disapproval of noise compatibility programs by the Administrator. The program includes consideration of alternative noise control that might be employed as well as appropriate land use

planning strategies. The goal of the overall program is for the airport proprietor, in consultation with state/local planners, local aviation groups and interested citizens, to develop a balanced and cost-effective program to minimize and/or mitigate the airport's noise impact on local communities.

JOHN E. WESLER
Director of Environment and Energy, AEE-1

CONTENTS

CHAPTER 1. GENERAL

SECTION 1. INTRODUCTION

1. PURPOSE. This advisory circular provides guidance for Noise Control and Compatibility Planning for airports under Federal Aviation Regulation (FAR). Part 150 and the Aviation Safety and Noise Abatement Act of 1979 (ASNA)as amended. It is intended for use by airport operators, state/local planners and other officials, and interested citizens who may engage in noise control planning. Airport noise compatibility planning has the goals of reducing existing noncompatible land uses around airports and of preventing the introduction of additional noncompatible land uses through the cooperative efforts of all those involved. The Part 150 program is voluntary and airport operators are encouraged to participate.

2. BACKGROUND. There are existing airport noise/land use compatibility problems at many airports in the United States. In addition, there is a potential for exacerbation of these noise problems and the possibility of problems arising at other airports as urban areas and use of air travel continue to grow. Through cooperative efforts on both the local and national levels, much has already been accomplished in limiting the growth and spread of noise compatibility problems. Actions have included limits upon noise emissions by new aircraft, provisions for the retirement or retrofit with quieter engines of the noisiest transport aircraft, and an environmental review process for airport development projects. Some of the major remaining obstacles for implementing successful noise compatibilty programs around airports have been the need for a single system for measuring airport noise, a single system for determining the exposure of individuals to airport noise, the identification of land uses that are normally compatible with the various levels of noise around airports, and a process for safety and economic evaluations of proposed actions. These remaining major obstacles have been addressed by recent regulatory actions detailed below.

a. Federal Aviation Regulation (FAR) Part 150 implements portions of Title I of the Aviation Safety and Noise Abatement Act. It specifically establishes a single system for the measurement of airport (and background) noise, a single system for determining the exposure of individuals to airport noise, and a standardized airport noise compatibility planning program. The planning program includes (1) provision for the development and submission to the FAA of Noise Exposure Maps and Noise Compatibility Programs by airport operators; (2) standard noise units, methods and analytical techniques for use in airport assessments; (3) identification of land uses that are normally compatible (or noncompatible) with various levels of noise around airports; and (4) procedures and criteria for FAA approval or disapproval of noise compatibility programs by the Administrator.

b. The Airport Noise Compatibility Planning Program includes land use planning and implementation programs necessary to carry out the ASNA Act. The Act does not in any way, however, interfere with established prerogatives of State and local governments concerning land use and related noise compatibility actions and responsibilities. Accordingly, approvals and disapprovals of programs submitted to the FAA under Part 150 do not constitute a Federal determination that the use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses remains with the local authorities.

3. BENEFITS OF NOISE COMPATIBILITY PLANNING - PROGRAMMING UNDER PART 150.

a. Noise is one of the greatest threats to aviation today. Projected growth in demand for air travel means that we will have larger aircraft and more operations in the future. The increase in air carrier traffic at large airports will generate more air carrier traffic at feeder airports and more traffic by sophisticated general aviation aircraft at these and many general aviation airports.

b. The costs of most forms of noise mitigation are rapidly increasing. These include soundproofing, land purchases, relocations, land use changes, by-passing of impacted land, and construction of alternative aviation facilities. People's perceptions of what is an acceptable level of urban noise is becoming more critical while their opportunity to voluntarily move away from such noise is becoming more limited. All of these are resulting in strong pressures upon airport operators to impose operational constraints, curfews, growth limitations, and other severe constraints upon their airports as easy, "one-shot" solutions to the noise problem.

c. Relief of these pressures on the airport operators and the preservation of a national system of airports requires that aviation become as compatible as possible with its neighbors. This requires that the airport operators work much more closely with local jurisdictions than has been generally feasible in the past, since they control most of the viable non aviation-constraining noise mitigation measures.

d. The Part 150 Airport Noise Compatibility Planning Program offers an ideal vehicle for noise planning and implementation in this contemporary context. It includes:

(1) A balanced approach producing realistic and practical solutions fair to both aviation and non aviation interests.

(2) Positive FAA technical guidance through regional and airports district offices.

(3) Federally identified land uses which are normally compatible with various exposures of individuals to noise.

(4) Consultations and interactions between the airport operator, airport users, airport neighbors, local land use control jurisdictions, and the FAA designed to achieve broad-based confidence in and acceptance of the program and the support essential for its implementation over the long term.

(5) Recognition of factors beyond the control of the airport operator which strongly influence local land use decisions.

(6) A viable framework for conducting efficient and constructive compatibility programs which achieve large benefits in noise reduction for the costs in aviation.

(7) Community and airport operator decisions that are made from a fully informed position in order to weigh the full costs and benefits of the alternatives.

(8) Federal financial assistance available to the airport operator under the Airport Improvement Program for noise compatibility planning and for implementation of that planning.

(9) Federal financial assistance also available to units of local government in the area surrounding the airport to carry out projects in accordance with FAA approved noise compatibility programs.

(10) Certain sanctions are available under Section 107 of the ASNA Act to protect the airport operator from land owner noise suits.

e. No two airport situations are alike, and each will likely require a unique combination of mitigation measures to achieve an acceptable solution. At a given airport, a full range of possible solutions is explored, then the best composition of solutions is chosen and carefully weighed before settling upon a final plan. The objective being to reduce the noise by the most efficient way and then balance this against the possible non-aviation solutions. A balance is sought between realistic environmental goals and the costs to the aviation system. When the proposed aviation constraints are significant, then the local needs and benefits are weighed and balanced against the needs and concerns of the rest of the nation.

4. FAA INFORMATION SOURCES. Users of this circular are strongly encouraged to contact their FAA Airports District Office or the Airports Division of their FAA regional office for additional information, guidance, and consultation prior to starting an Airport Noise Exposure Map or Airport Noise Compatibility Program. These offices are also prime sources for reference materials, such as other advisory circulars and citizen participation manuals.

5. DEFINITIONS. All terms used in this circular which are also used in Part 150 have the same meaning in this circular as they do in that Part.

a. A-Weighted Sound Level (L_A). The A-Weighted Sound Level is sound pressure level which has been filtered or weighted to reduce the influence of the low and high frequency noise (formerly dBA). It was designed to approximate the response of the human ear to sound. (See paragraph 203)

b. Average Day-Night Sound Level (L_{dn}). See Yearly Day-Night Average Sound Level.

c. Land Use. The present or planned utilization of a given parcel of land. Such land uses are normally indicated or delineated on a land use map. Land use maps may indicate usages for any given time period past, present, or future, and such period should always be indicated. (See paragraph 237)

d. Zoning. An exercise of the police powers of the State, as delegated to local governments, designating the uses permitted on each parcel of land within the zoning jurisdiction. (See paragraph 331)

e. Standard Land Use Coding Manual (SLUCM). A Standard System for identifying and coding land use activities. Published jointly in 1965 by Urban Renewal Administration, Housing and Home Finance Agency (both now Parts of HUD) and the Bureau of Public Roads (now the Federal Highway Administration). (See paragraph 237)

f. Noise Level Reduction (NLR). The amount of noise level reduction achieved through incorporation of noise attenuation (between outdoor and indoor levels) in the design and construction of a structure. (See paragraph 237)

g. Noise Exposure Map. A scaled, geographic, depiction of an airport, its noise contours, and surrounding area developed in accordance with Section A150.101 of Appendix A of FAR Part 150, including the accompanying documentation setting forth the required descriptions of projected aircraft operations at that airport during 1985 and if submitted after 1982, during the fifth calendar year beginning after submission of the map, together with the ways, if any those operations for each of those years will affect the map (including noise contours and the forecast land uses). See FAR Part 150 for legal definition.

h. Noise Contour. A continuous line on a map of the airport vicinity connecting all points of the same noise exposure level; for the purposes of this program usually the L_{dn} 65, 70, and 75 levels.

i. Airport Noise Compatibility Program. That program reflected in documents (and revised documents) developed in accordance with Appendix B of Part 150, including the measures proposed or taken by the airport operator to reduce existing noncompatible land uses and to prevent the introduction of additional noncompatible land uses within the area. See FAA Part 150 for legal definition.

j. NEPA. Acronym for the National Environmental Policy Act of 1969. (See paragraph 26)

k. Curfew. A restriction placed upon all or certain classes of aircraft by time of day for the purposes of reducing or controlling airport noise. (See paragraph 326)

l. Easement. The legal right of one party to use a portion of the total rights in real estate owned by another party. This may include the right of passage over, on, or below the property; certain air rights above the property, including view rights; and the rights to any specified form of development or activity, as well as any other legal rights in the property that may be specified in the easement document. (See paragraph 332)

m. Office of Management and Budget Circular No. A-95. A regulation requiring coordination of Federal and federally assisted programs and projects with each other and with State, areawide, and local plans and programs, utilizing a series of state and regional clearinghouses. (See paragraph 25)

n. Federal Aviation Regulation (FAR) Part 36. A regulation establishing noise certification standards for aircraft. (See paragraph 24)

o. Aviation Noise Abatement Policy (ANAP). Policy adopted jointly by the Secretary of Transportation and the FAA, on November 18, 1976, delineating the responsibilities of FAA, air carriers, airport operators, and local communities in achieving reductions in airport noise.

p. Airport Noise Control and Land Use Compatibility (ANCLUC) Program. A pilot program for airport noise compatibility planning established by the ANAP and funded under Section 13 of the Airport and Airway Development Act of 1970 as amended. It was a voluntary planning process initiated and led by airport proprietors with Federal funding and technical assistance. (See paragraph 21)

q. Yearly Day-Night Average Sound Levels (L_{dn}) or (DNL). The 24-hour average sound level, in decibels, for the period from midnight to midnight, obtained after the addition of ten decibels to sound levels for the periods between midnight and 7 a.m. and between 10 p.m. and midnight, local time, as averaged over a span of one year. It is the FAA standard metric for determining the cumulative exposure of individuals to noise. (See paragraph 221)

r. Equivalent Sound Level (L_{eq}). L_{eq} is the steady A-weighted sound level over any specified period (not necessarily 24 hours) that has the same acoustic energy as the fluctuating noise during that period (with no consideration of a nighttime weighting.) It is a measure of cumulative acoustical energy. Because the time interval may vary, it should always be specified by a subscript (such as L_{eq} 8) for an 8-hr exposure to workplace noise) or be clearly understood.

6.-19. RESERVED.

SECTION 2. RELATIONSHIP TO OTHER AIRPORT AND NOISE PLANNING ACTIONS

20. AIRPORT MASTER PLANS. An Airport Noise Exposure Map or an Airport Noise Compatiblity Program for an airport supplements but does not replace the Airport Master Plan (AMP) developed for that airport. The AMP may provide the base data for the noise exposure map. However, operational data for use in the Integrated Noise Model (INM) (or an FAA approved equivalent) and the land use and jurisdictional data for the map should be certifiable by the airport operator as current data. Similarly, the AMP may offer inputs to development of the noise compatibility program. Again, all of the alternatives, analyses, consultations, and public involvement required by Part 150 for the program should be certifiable by the airport operator as up-to-date and based upon current data. See also, Section A150.101(f) of Part 150.

21. AIRPORT NOISE CONTROL AND LAND USE COMPATIBILITY (ANCLUC) PLANNING STUDIES. A number of ANCLUC planning studies have been undertaken and/or completed. Although this was an interim program, much valuable noise and land use information was produced and much viable compatibility planning accomplished. Where these studies meet the requirements of Part 150, or an FAA approved equivalent under Part 150, and are otherwise appropriate, airport operators are encouraged to incorporate that work into Noise Compatibility Programs; see Section A150.101(f) of Part 150.

22. AIR INSTALLATION COMPATIBLE USE ZONES. Complimentary to ANCLUC, the U.S. Department of Defense developed the Air Installation Compatible Use Zones (AICUZ) Program for achieving noise/land use compatibility at military air installations. AICUZ studies have also been prepared for a number of joint civil-military use airports where there are a significant number of military operations. As in the case of ANCLUC's, information developed for an AICUZ study which is appropriate and certifiable as current by the airport operator may be used in developing an Airport Noise Exposure Map or Airport Noise Compatibility Program.

23. ENVIRONMENTAL ASSESSMENTS. Environmental Assessments (EA) are prepared for many types of airport development projects and/or airport operational changes under the requirements of the National Environmental Policy Act (NEPA), Regulations of the Council on Environmental Quality (CEQ), Department of Transportation Order 5610.1C (Procedures for Considering Environmental Impacts), FAA Order 1050.1C (Policies and Procedures for Considering Environmental Impacts), and FAA Order 5050.4 (Airport Environmental Handbook). Many EA's contain analyses of airport noise, compatible land use, social impacts, and induced socioeconomic impacts. An Airport Noise Compatibility Program may supplement, but is not intended to replace an EA in meeting required environmental analyses. Similarly, an EA may contain information that, provided it is current, can be valuable inputs to developing airport noise exposure maps and airport noise compatibility programs. To the extent the information in the EA is appropriate, such use of existing sources is encouraged. See also, paragraph 26 for applicability of NEPA to Part 150.

24. FEDERAL AVIATION REGULATIONS, PART 36. Federal Aviation Regulations, Part 36 contains noise certification standards for most airplane types, generally requiring newly designed and manufactured aircraft to be significantly quieter than older aircraft. However, as a certification standard, Part 36 has no provisions to control either the operations or numbers of operations at an airport in order to stabilize or reduce noise impacts. Part 150 works as a compliment to Part 36 by integrating the gains in reduced aircraft noise emissions into an overall noise compatibility program with controls on both aviation noise and land uses to assure full implementation and long term protection to both the airport and its environs.

25. OMB A-95 NOTIFICATION AND REVIEW. Office of Management and Budget (OMB) Circular No. A-95 established a process whereby state and local clearinghouses are notified of proposed Federal Grant-in-Aid projects and other assistance actions. Interested parties are provided the opportunity to review and evaluate the proposals in advance in terms of their potential impact on or conflict with statewide or areawide comprehensive planning or upon the plans and programs of local governments. The A-95 process (or its Federal or state successor) must (or should) be used to give notification and opportunity for comment when Federal assistance is involved. It does not, however, substitute for the consultative process as required by the ASNA Act. Note also that A-95 will be revised or replaced upon implementation of Executive Order 12372. See paragraphs 350-359 for guidance on Consultations.

26. NATIONAL ENVIRONMENTAL POLICY ACT. FAA compliance with the NEPA is controlled by FAA Order 1050.1C, Policies and Procedures for Considering Environmental Impacts. The FAA has determined that approval or disapproval of airport noise compatibility programs are "categorical exclusions" to the requirements for environmental assessment under Order 1050.1C. The ASNA Act requires an airport noise compatibility program to be either approved or disapproved within 180 days of receipt or it will be automatically approved. Development of a noise exposure map or noise compatibility program does not replace an environmental assessment but can be used in the preparation of such an assessment. Environmental assessment leading to a finding of no significant impact or to an environmental impact statement must still be conducted, where required by applicable procedures, prior to taking any Federal implementing action such as grant approvals or covered air traffic actions. Although the 180 day time constraint does not permit the normal federal Environmental Impact Assessment process, consideration of the potential impacts remains an integral part of the planning process. Airport operators should fully consider environmental as well as noise and land use consequences in developing an airport noise compatibility program.

27.-29. RESERVED.

SECTION 3. OVERVIEW

30. NOISE - ITS MEASUREMENT AND ASSESSMENT. It is assumed that users of this circular have a general technical background, but are not proficient in noise measurement, particularly aviation noise. Chapter 2 is devoted to a basic discussion of aviation noise and its measurement and assessment. Care has been taken to avoid technical language and the emphasis has been placed upon practical understanding. This should enable the typical user to understand what is involved; to estimate the size of the effort required; how to gather data for the Integrated Noise Model (or an FAA approved equivalent); how to interpret the noise contours; how to validate noise contours using noise measurements; and how to prepare an airport noise exposure map. FAA personnel are available to assist as necessary.

31. SENSITIVITY OF LAND USES TO NOISE. Different uses of land by people exhibit different sensitivities to noise. Schools, residences, churches, public health facilities, and concert halls often appear quite sensitive to noise. By contrast, factories, warehouses, storage yards, and open farmland are relatively insensitive to noise. Other uses, such as offices, shopping centers, recreation areas, or hotels, have intermediate levels of noise sensitivity. In order to assist the users in assessing noise compatibility/noncompatibility in the vicinity of their airports, a table of land uses and their compatibility/noncompatibility with various levels of noise is provided in Appendix 1. However, the designations in this table do not constitute a Federal determination that any use of land covered by this program is acceptable or unacceptable under Federal, state, or local law. The responsibility for determining the acceptable and permissible land uses remains with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

32. NOISE EXPOSURE MAPS. FAR Part 150, in accordance with the ASNA Act, provides an opportunity for airport proprietors to submit Noise Exposure Maps to the FAA. Each such map is a scaled geographic depiction of an airport, its noise contours, and surrounding areas. Specifically, Part 150 requires that each noise exposure map shall depict continuous L_{dn} contours for levels of 65, 70, and 75. Within the 65 L_{dn} contour, the airport proprietor is required to identify land uses and to determine land use compatibility in accordance with the standards and procedures of Appendix A of FAR Part 150. Sections 150.21 and A150.101 contain other specific requirements on the form and contents of such maps.

33. NOISE COMPATIBILITY PROGRAMS. FAR Part 150 provides for the preparation and submission of Noise Compatibility Programs in addition to Noise Exposure Maps. The purpose of such a program is to seek optimal accommodation of both airport operations and community activities within acceptable safety, economic and environmental parameters. That may be accomplished by reducing existing noncompatible land uses in the vicinity of the airport and preventing the introduction of new noncompatible land uses in the future. To that end, the airport proprietor and other responsible officials should consider a wide range of feasible alternatives of noise control actions and land use patterns. A checklist for preparing Noise Compatibility Programs is contained in Appendix 2.

34. SUBMISSION TO THE FAA. Completed Airport Noise Exposure Maps and Airport Noise Compatibility Programs are submitted by the airport operator to the appropriate FAA Regional Director. They will be given Preliminary Review for acceptance for evaluation and then be given a full evaluation. Details of this procedure and of airport operator obligations following any change in the operation of the airport which might create any substantial incompatible land uses are described in Sections 150.23 through 150.35 of FAR Part 150.

35. WITHDRAWAL OR REVISION. At any time before approval or disapproval of a program, it may be withdrawn or revised. Such a termination stops the 180-day approval period. A new evaluation is begun upon receipt of a revised program and, unless the FAA finds that the revisions can be integrated without exceeding the original approval period, a new 180-day approval period is begun.

36. PERIODIC REVIEW AND UPDATING. Growth and transition in urban locations create pressures for changes to zoning and other controls established to achieve and protect compatibility. These stimuli are also likely to generate greater aviation activity and airport requirements with consequent changes in airport noise impacts. For these reasons, Part 150 requires the inclusion of a schedule for periodic review and updating of airport noise compatibility programs. Updating is also necessary to reflect increased operations and, with the map, continue the sanctions under Section 107 of the ASNA Act.

a. After the plan is adopted there is a need for the airport operator and the local planning agencies to continually evaluate its effectiveness and to identify those aspects of the plan which may need improvement. This includes evaluation to determine if proposed implementing actions are being carried out as scheduled. For instance, it should include review of land acquisition or soundproofing projects and ascertain whether they are effective, on schedule, or whether modifications are necessary. Also, operational procedures adopted as part of the noise control plan must be monitored to assure that they are being adhered to. The responsible organization, either the airport operator, the local planning authority, or both, should monitor all requests for changes in zoning, variances, or subdivision actions within the study area.

b. Periodic or formal reviews, at intervals of three to five years or when the noise exposure map or airport master plan is updated, should be scheduled and budgeted by the airport operator as an integral part of the program. Included within the formalized review should be consideration of those problems or deficiencies identified during the monitoring process and most notably those pertaining to the performance of the plan. The review will normally not be as extensive as the original effort but should establish whether the plan remains viable or what actions are necessary to correct existing or forecast deficiencies. The types of activities included in the review should be:

(1) A comparison of the current compatibility of the airport and its environs to that outlined in the program's goals and objectives.

(2) Appraisal of the rate of growth of both the community and airport to determine the current and future adequacy of the compatibility plan.

(3) Review of the airport noise exposure map in light of both current and forecast operations and the noise performance levels of aircraft.

(4) Review of the adequacy of current operational controls in maintaining aircraft noise within the designated noise impact areas.

(5) Review of the adequacy of the adopted development controls in protecting the designated noise impact areas from encroachment by noise sensitive uses.

(6) Review of the effectiveness of the corrective actions employed in resolving existing unprotected noise sensitive uses within the noise impact areas.

c. Revised Programs. Revised programs should be submitted to the Regional Director in the same manner as the original submission.

37.-199. RESERVED.

CHAPTER 2. NOISE MEASUREMENT AND ASSESSMENT

SECTION 1. NOISE FUNDAMENTALS

200. SOUND. This section provides a conceptual description of the acoustical metrics which comprise the FAA approved "system" for aircraft noise measurement. The sound experienced in our everyday lives is the result of objects or bodies being set into vibration. This vibration causes a motion in the surrounding air resulting in a minute variation in atmospheric pressure called "sound pressure." This sound pressure forms the basis to measure sound and is usually expressed as a sound pressure level in decibels which are dimensionless units expressing logarithmically the ratio of two values (i.e., a measured quantity and a referenced value). Another important characteristic of sound is its "frequency." The human ear is sensitive to frequencies ranging from 20 to 20,000 hertz (cycles per second). The simplest of all sounds are those composed of a single frequency. These sounds are called pure tones. However, the sounds to which people are usually exposed are much more complex, since they are composed of many frequencies, each occurring simultaneously at its own sound pressure level.

201. DECIBELS. Sound pressure level is a measure of the amplitude of the sound, while frequency relates to the sound's pitch. The range of sound pressures of interest is represented on the low end by the threshold of hearing of normal young people and on the upper end by the noise of gunfire at close range. Stated in physical terms, this sound pressure range is approximately from 0.00002 to 2,000 pascals. It is clear that this is a tremendous range of sound pressures. An analogous problem would be that of measuring lengths ranging from one inch to 1575 miles. Because acoustics deals with the effects of small changes near the threshold of hearing as well as the effects of small changes near the upper end of the scale, a proportional scale is more appropriate than a linear scale to handle this wide variation in sound pressure. The simplest mathematical scale available for this purpose is the logarithmic or decibel scale. A decibel (dB) is defined as ten times the logarithm (to the base 10) of a power or intensity ratio.

202. SOUND PRESSURE LEVELS. Sound pressure level is expressed as 10 log (P^2/Po^2), where P_o is the reference pressure and P is the differential pressure of a sound over that of ambient pressure. This is equivalent to twenty times the logarithm of the ratio of the pressures. It is also important to note that the reference pressure has been internationally standardized as 0.00002 pascals, which is approximately the threshold of human hearing. Because of the logarithmic nature of the decibel scale, a sound pressure level of 60 dB corresponds to a pressure, not 60 times the reference pressure, but 1000 times the reference pressure. Thus, 20 log (1000) = 20(3) = 60.

203. A-WEIGHTED SOUND PRESSURE LEVELS (L_A). Sound is a physical phenomenon that affects many things besides people. However, when sound is measured in order to relate to the reactions of people, it is necessary to use a measure which relates to the way human beings hear sound. It has been found that people are more sensitive to higher frequencies (treble) than lower frequencies (bass). That is, the human ear discriminates against lower frequencies. Naturally if we want to measure sound in a way which corresponds to the way people hear sound we want to duplicate the ear's discrimination. This is accomplished electrically using a device called a "weighting network." Because unweighted sound pressure level did not correlate well with human assessment of the loudness of sounds, weighting networks were added to sound level meters to attenuate low and high frequency noise to approximate the response of the human ear to sound. One of these weighting networks was designated "A" and was originally employed for sounds less than 55 dB in level. Now it is used for all levels. It is measured in decibels which are usually designated L_A (formerly dBA). A-Weighted Sound Level has been found to correlate well with people's subjective judgment. Its simplicity and superiority over unweighted sound pressure level in predicting people's response to noise have made it the most widely used metric for assessing the impact of aircraft noise and for comparing that noise with other community noise sources.

204. MEASUREMENT SYSTEM RESPONSE TIME. While the A-weighted sound level (L_A) is the basic unit for most Federal, State, and local noise standards, variations do exist in its method of measurement. Sound level meters and other noise measuring systems are capable of operating in several characteristic modes, such as "slow," "fast," "impulse," and "peak." Basically, these modes differ in the way in which the output value (indicated sound level reading) follows rapid changes in the input sound level. The higher speed responses are often useful in architectural, industrial and research acoustics. However, for most community and transportation noise sources the "slow" response is preferred since experience has shown that it provides the most repeatable data. Thus, in response to the ASNA Act requirements, the FAA uses a family of related noise units based on the slow response, A-weighted sound level (L_{AS}). FAR Part 150 incorporated by reference International Electrotechnical Commission Publication No. 179, entitled "Precision Sound Level Meters," dated 1973. This document specifies technical standards for both the system response and the A-weighting network.

205.-219. RESERVED.

SECTION 2. NOISE MEASUREMENTS

220. MEASURING SINGLE AIRCRAFT EVENTS. Part 150 specifies use of the slow response A-weighted sound level L_{AS} in decibels for measuring single events. Measurements of aircraft noise made in this unit can be directly related to sound levels of surface transportation noise sources since standards for the measurement of noise from these other sources also use L_{AS}. Many communities throughout the U.S. have local noise ordinances which use this unit. L_{AS} is also the metric used in FAA Advisory Circular 36-3B, Estimated Airplane Noise Levels in A-Weighted Decibels. Most U.S. and foreign airports with noise monitoring systems provide L_{AS} information. There is also a single event integrated A-weighted sound

level (L_{AE}) which is different from the maximum A-weighted sound level (L_{AS}) described in paragraphs 204 and 220. L_{AE} (sometimes also known as the Sound Exposure Level) is the level of an equivalent one-second duration reference signal. This metric quantifies the effect of both duration and magnitude for a single event measured above a specified threshold. The L_{AE} is sometimes best understood as the dose of noise associated with a single event. A survey program at an airport which provides average L_{AE} data for specific aircraft type categories can be used to compute L_{dn} values, one method of validating computer generated noise contours.

221. AIRPORT CUMULATIVE NOISE EXPOSURES. While people certainly respond to the noise of single events (particularly to the loudest single event in a series), the long-range effects of prolonged exposure to noise appear to best correlate with cumulative metrics. Such a unit provides a single number which is equivalent to the total noise exposure over a specified time period. Thus, cumulative noise units are based on both time and level. The day-night average sound level (L_{dn}) specified as the noise metric for cumulative exposure under Part 150 is such a unit. Specifically, the L_{dn} is the yearly average of the A-weighted sound level integrated over a 24-hour period. It also incorporates a 10 dB step function weighting to aircraft events between 10:00 p.m. and 7:00 a.m. to account for the increased annoyance to noise during the night hours.

222. BASIC RECOMMENDED NOISE MEASUREMENT SYSTEM. A recommended basic noise measurement system and suggestions regarding its use and maintenance is included in Appendix 3.

223. VALIDATION OF NOISE CONTOURS. One of the primary objectives of many noise measurement programs is to validate computer generated noise contours. The understanding of a few important concepts (listed below) provides the basis for cumulative noise exposure estimation techniques.

a. Yearly average airport noise exposure contours are estimates of actual average airport noise exposure.

b. Actual airport noise exposure at any point on the ground may be approximated by the energy average (over a year's time) of the daily L_{dn} values for that point.

c. The actual daily L_{dn} value for any given location will vary from day to day. A large set of data acquired at Washington National Airport and Dulles International Airport (24 locations over 500 days) indicates that standard deviations in L_{dn} are generally 2 dB or less.

d. For daily L_{dn} standard deviations of 2 dB, it can be shown from simple statistical theory that a sample of 10 days (L_{dn}) will provide an estimate of the actual yearly L_{dn} accurate within 1 dB with 90 percent confidence. This "sample of 10" requirement involves the assumption that measurements are conducted on days when no bias exists in the airport operation. In order to assure "average" conditions over the 10 days, it is recommended that data be acquired for each direction of airport operation in proportion to the proper (annual) percent.

e. Thus one way to estimate the yearly L_{dn} value is to conduct 10 random (representative) 24 hour measurement surveys. Measurement equipment is available which, left unattended, can measure three consecutive daily L_{dn} values.

f. In lieu of conducting 24 hour continuous measurements in order to acquire a days L_{dn} data, it is possible to conduct a shorter sample and then estimate the L_{dn}. The method of extrapolation must be carefully documented and must demonstrate that the short sample is "representative" of the average operation during the day. The requirement of 10 representative days remains a requirement for estimating the yearly average L_{dn}. Two "shorter than 24 hour" sampling techniques are available. One involves measuring the noise during a period in which the mix of aircraft and the number of aircraft are representative of daily average values. Calculations are then needed for the nighttime weighting and to account for the present nighttime operations and curfew restrictions (if applicable) to arrive at an estimate of L_{dn} for the day. The second technique involves quantifying average single event L_{AE} values by aircraft type. The average L_{AE} data must reflect yearly average variability for the particular aircraft type. The yearly average L_{dn} is then computed from the mean L_{AE} data along with a knowledge of the airport mix and the daily operations schedule. This technique however, involves certain difficult to answer questions:

(1) How many measurements are needed for each aircraft type?

(2) How many measurements on any one day?

(3) How many total days of sampling?

Because of difficulty in identifying a statistical rationale, one may choose to use the first technique described in this subparagraph.

224. VALIDATION NOISE MEASUREMENTS VERSUS MICRO-SAMPLE SURVEY MEASUREMENTS. In any measurement program there is the tradeoff to be considered between the statistical confidence interval for the meaasured data and the available manpower and time. In survey work, the usual objective is to achieve a practical level of accuracy at many locations rather than highly accurate data at a few. When conducting a short survey which includes numerous measurement locations and a single measurement system, one implicitly

accepts the medium accuracy confidence level associated with the survey. These survey-measured levels accurately represent the acoustical environment at the time of the measurement. Short samples or surveys remain the most effective means (given limited time or resources) for quantifying the magnitude or environmental noise problems which affect large areas of a metropolis. If survey type measurements are utilized, it is important to identify them as such. In presenting single event survey data one should indicate means, standard deviations, and sample sizes. Care should be taken to avoid assigning statistical confidence limits to estimated daily L_{dn} values based on survey data unless the analytical and computational process is clearly set forth. This presentation is even more important when establishing an estimate of yearly average L_{dn} based on survey data alone.

225. AIRCRAFT NOISE EXPOSURE PREDICTION REFINEMENT PROCEDURE. The flow diagram shown in Figure 1 sets out the process by which FAA approved noise contours can be refined. Detailed modeling requirements are provided in Section 3 along with FAA approved procedures and standards. The key feature of this process is the "feedback loop" provided by L_{dn} data acquired either from continuous airport noise monitoring systems or from limited field measurement programs. This prediction refinement process (Figure 1) allows the contour analyst a chance to reevaluate the input assumptions and seek a reasonable explanation for differences (if any) between measured and predicted values. If suitable justifications can be provided, the analyst reruns the noise prediction model with new or modified inputs. Theoretically, several iterations could be run if justified on the basis of better input assumptions.

226. CONTINUOUS AIRPORT NOISE MONITORING SYSTEMS. There are several optional measures which may be undertaken as part of an airport noise compatibility program and which can enhance its effectiveness. Continuous airport noise monitoring systems fall into this category. Such systems can provide important input to the process of refining airport noise contours. (Contact AEE-120 for specific details). In brief, any FAA approved noise monitoring system would have the following minimum capabilities:

a. Provides continuous measurement of dBA at each site.

b. Provides hourly L_{eq} data.

c. Provides daily L_{dn} data.

d. Provides single event maximum A-weighted sound level data. Desirable but nonessential capabilities include:

AIRCRAFT NOISE EXPOSURE PREDICTION

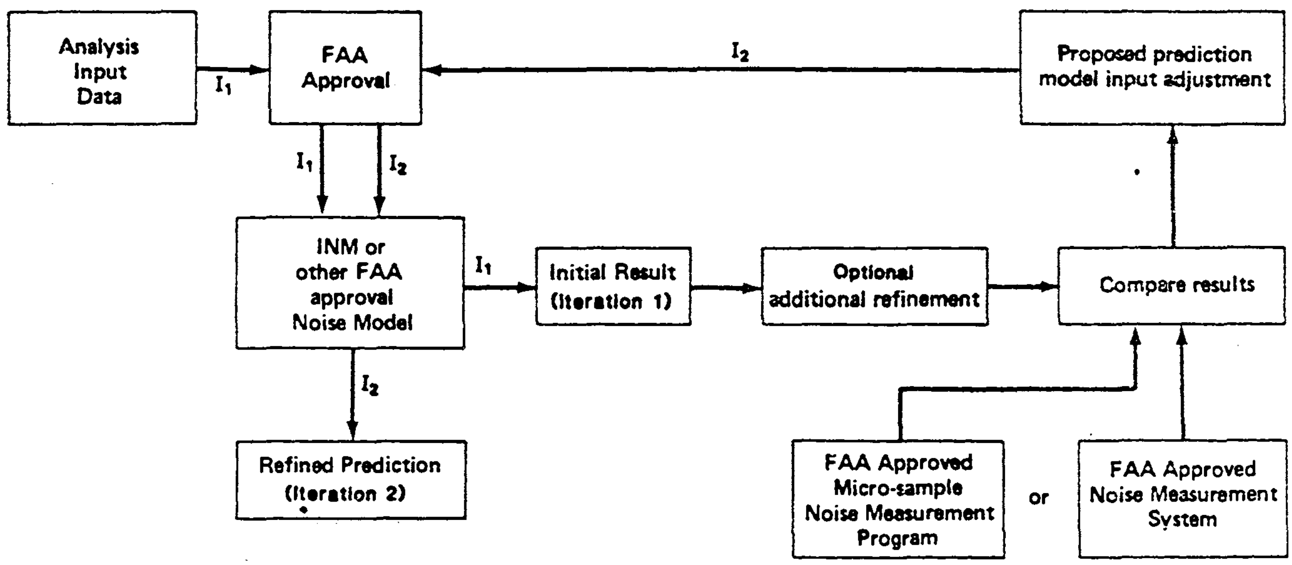

FIGURE 1

(1) Aircraft event discrimination ability.

(2) Single event L_{AE} data for each aircraft event.

(3) Differentiation between ambient and aircraft contributions to hourly Leq and L_{dn}.

(4) Monitoring data can be used to develop a statistical data base of noise levels for each aircraft type category.

227.-229. <u>RESERVED</u>.

SECTION 3. NOISE EXPOSURE PREDICTION

230. PREDICTION ANALYSIS TOOL. Only a computer-based mathematical model is capable of predicting the noise impact associated with the operation of a complex airport and projecting that impact to some future period. FAA approval of a model is conditional on the capability of that model to produce the required output and the public availability of the model to provide interested parties the opportunity to substantiate the results. Accuracy of a noise prediction model is measured by the statistical comparison of the noise exposure calculations derived from the data base and observations of the noise emitted during operations of similar aircraft types. Statistically adequate samples of observations are obtained over periods of a year or more.

231. INTEGRATED NOISE MODEL (INM). The FAA's Integrated Noise Model is the standard prediction analysis tool to which all computer-based airport noise exposure models are compared. The INM calculates the total impact of aircraft noise at or around airports. Although this noise exposure level can be presented in contours of equal noise exposure for any one of the following noise measures; Noise Exposure Forecast (NEF), Equivalent Sound Level (Leq), Day-Night Average Sound Level (L_{dn}), and Community Noise Equivalent Level (CNEL); only the L_{dn} is approved for use with Part 150. In January 1978, the FAA released Version 1 of INM to provide an analytical tool for the preparation of environmental impact studies. In September 1979, the FAA released Version 2, an improvement to the first version, with an expanded data base and additional input options. Version 3 reflects further enhancements in the method of determining noise impacts and in the data base of individual aircraft noise and performance. FAA has shipped magnetic tapes of the INM to government offices, consultants and various foreign countries. Tapes are also already in the possession of several commercial computer time-share vendors, thus offering broad accessibility on national and even international levels. Wider distribution is envisioned for later versions which will be more readily adaptable to a variety of large computers. In addition, the FAA has conducted an INM validation project to determine the accuracy of both the computational methods and data base of the model by comparing the model's noise exposure calculations with measured levels. The first phase of validation was an analysis of air carrier flights over the monitoring system at Washington National and Dulles International Airport. Information on the continuing validation project, availability of INM documents and tapes can be obtained through the Office of Environment and Energy (AEE-120).

232. INPUT REQUIREMENTS. The first step in running an airport case study is to gather the necessary data and organize it in the way which is recognized by the computer program. While the INM and similar models are accompanied with sets of aircraft noise and performance information, information on airport geometry and aircraft movements is also necessary.

The gathering of information is a time consuming process. Care must be taken in defining program input, especially in those situations in which a clearcut choice does not exist among similar items. There is also the problem of conflicting estimates of the airport operations from the airport manager, tower chief, airline operators and others. The following information needs to be obtained for input to INM computer program:

a. A map of the airport and its environs at an adequately detailed scale not less than 1 inch to 8,000 feet. It should indicate runway length, alignments, landing thresholds, takeoff start-of-roll points, and flight tracks out to at least 30,000 feet from the end of each runway. The locations of the nominal flight tracks are important. Exposure to aircraft noise is highest directly underneath the flight profile.

b. Airport activity levels and operational data which will indicate, on an annual average-daily-basis, the number of aircraft, by type, which utilize each flight track, in both the day time (7:00 a.m. to 10:00 p.m.) and nighttime (10 p.m. to 7 a.m.) periods for both landings and takeoffs. The INM offers a wide selection of aircraft types from which to choose. However, the model does not contain every combination of aircraft and engine types. Decisions on equivalent types must be carefully thought out with respect to possible ramifications to the calculation of exposure.

c. Landing glide slopes, glide slope intercept altitudes, and other pertinent information needed to establish approach profiles, along with the engine power setting for each aircraft type to fly that approach profile.

d. Takeoff flight profiles (the relationship of altitude to distance from start-of-roll and associated engine power settings for each aircraft type to fly that takeoff profile); these data must reflect the use of noise abatement departure procedures and, if applicable, the takeoff weight of the aircraft or some proxy for weight such as stage length. The INM data base contains a set of representative profiles for each aircraft type. The INM profiles conform to a widely used procedure. However, local conditions may preclude the use of these profiles in favor of a local standard procedure.

e. Any topographical or airspace restrictions which preclude the use of alternative flight tracks.

f. Government furnished data depicting aircraft noise characteristics. The standard data can be refined with on-site measurements by the procedure described in Section 234.

g. Airport elevation, wind conditions and average temperature.

233. ACCURACY. As is the case with any computer program or with any prediction method, the accuracy of the output of the Integrated Noise Model is directly dependent upon the appropriateness, completeness, and accuracy of the input data. Use as input of average flight tracks, flight procedures, aircraft types and mix, and the schedule of operations can

degrade the accuracy of the predicted contours. Further, the effects of local topography, weather, buildings, etc., cause variations from point to point along a contour. Accordingly, the accuracy of the INM computer noise prediction model in estimating the yearly average L_{dn} value at any specific geographical point has been estimated to be L_{dn} 75 contours $\pm$ 3 dB and L_{dn} 65 contours $\pm$ 5 dB with the average error over all points along the contour tending towards zero.

234. USE OF MEASUREMENTS IN REFINING/VALIDATING PREDICTIONS. On completion of a noise exposure map, one may find that the noise contours vary somewhat from measured conditions due to external influences that are not accounted for in the INM. This problem is not unexpected for a sophisticated model such as INM, since it is very difficult to compensate and model for all the variables that influence the noise environment. If a permanent and continuous noise monitoring system is in place, the airport operator may be able to calibrate the model specifically for that airport. The data acquisition will assist the airport operator in identifying specific problem areas based upon on-site measurements. A noise monitoring system may also allow the operator to fine tune or calibrate the output of the INM for specific conditions that cannot otherwise be accounted for. Thus the operator may be able to improve the noise compatibility program and the noise exposure map.

235. NOISE COMPATIBILITY PREDICTION. Different uses of the land have different sensitivities to noise. Individuals may each have different perceptions of what is an acceptable or an intruding level of noise. The background or residual noise against which a specific noise is perceived varies both by location and by time of day. Even the specific situation of the receiver, such as outdoor, indoor with windows open or closed, as well as one's activity of the moment affect the perception of a noise as intruding or not intruding. Regardless of the human activity, however, the associated noise sensitivity must be translated into a land use category for planning and regulatory purposes. The ASNA Act requires the FAA to identify land uses that are "normally compatible" or "noncompatible" with various levels of noise exposure by individuals. This was done in Part 150 and is used in developing and reviewing airport noise exposure maps and airport noise compatibility programs. It is important to recognize, however, that land use guidelines (even those adopted by regulation) are a planning tool and as such provide general indications as to whether particular land uses are appropriate for certain measured or calculated noise exposure levels.

236. BASIS FOR NOISE COMPATIBILITY. The adverse effects of noise exposure on people can be grouped into three general categories: degradation of health, attitudinal reactions, and activity interference. The first category, which includes hearing loss, is not normally encountered from aircraft sources at any point outside the airport boundary. However, the noise levels defining the thresholds of interference with noise-sensitive human activities, such as sleep and speech thresholds, are lower and airport noise can affect compatibility or noncompatibility.

a. Interference with human activity. These may generally be grouped as sleep interference; speech interference; interference with study, concentration, or critical tasks; interference with the performing arts; interference with outdoor activities; and interference with warning sounds.

The gathering of information is a time consuming process. Care must be taken in defining program input, especially in those situations in which a clearcut choice does not exist among similar items. There is also the problem of conflicting estimates of the airport operations from the airport manager, tower chief, airline operators and others. The following information needs to be obtained for input to INM computer program:

a. A map of the airport and its environs at an adequately detailed scale not less than 1 inch to 8,000 feet. It should indicate runway length, alignments, landing thresholds, takeoff start-of-roll points, and flight tracks out to at least 30,000 feet from the end of each runway. The locations of the nominal flight tracks are important. Exposure to aircraft noise is highest directly underneath the flight profile.

b. Airport activity levels and operational data which will indicate, on an annual average-daily-basis, the number of aircraft, by type, which utilize each flight track, in both the day time (7:00 a.m. to 10:00 p.m.) and nighttime (10 p.m. to 7 a.m.) periods for both landings and takeoffs. The INM offers a wide selection of aircraft types from which to choose. However, the model does not contain every combination of aircraft and engine types. Decisions on equivalent types must be carefully thought out with respect to possible ramifications to the calculation of exposure.

c. Landing glide slopes, glide slope intercept altitudes, and other pertinent information needed to establish approach profiles, along with the engine power setting for each aircraft type to fly that approach profile.

d. Takeoff flight profiles (the relationship of altitude to distance from start-of-roll and associated engine power settings for each aircraft type to fly that takeoff profile); these data must reflect the use of noise abatement departure procedures and, if applicable, the takeoff weight of the aircraft or some proxy for weight such as stage length. The INM data base contains a set of representative profiles for each aircraft type. The INM profiles conform to a widely used procedure. However, local conditions may preclude the use of these profiles in favor of a local standard procedure.

e. Any topographical or airspace restrictions which preclude the use of alternative flight tracks.

f. Government furnished data depicting aircraft noise characteristics. The standard data can be refined with on-site measurements by the procedure described in Section 234.

g. Airport elevation, wind conditions and average temperature.

233. ACCURACY. As is the case with any computer program or with any prediction method, the accuracy of the output of the Integrated Noise Model is directly dependent upon the appropriateness, completeness, and accuracy of the input data. Use as input of average flight tracks, flight procedures, aircraft types and mix, and the schedule of operations can

degrade the accuracy of the predicted contours. Further, the effects of local topography, weather, buildings, etc., cause variations from point to point along a contour. Accordingly, the accuracy of the INM computer noise prediction model in estimating the yearly average L_{dn} value at any specific geographical point has been estimated to be L_{dn} 75 contours ± 3 dB and L_{dn} 65 contours ± 5 dB with the average error over all points along the contour tending towards zero.

234. USE OF MEASUREMENTS IN REFINING/VALIDATING PREDICTIONS. On completion of a noise exposure map, one may find that the noise contours vary somewhat from measured conditions due to external influences that are not accounted for in the INM. This problem is not unexpected for a sophisticated model such as INM, since it is very difficult to compensate and model for all the variables that influence the noise environment. If a permanent and continuous noise monitoring system is in place, the airport operator may be able to calibrate the model specifically for that airport. The data acquisition will assist the airport operator in identifying specific problem areas based upon on-site measurements. A noise monitoring system may also allow the operator to fine tune or calibrate the output of the INM for specific conditions that cannot otherwise be accounted for. Thus the operator may be able to improve the noise compatibility program and the noise exposure map.

235. NOISE COMPATIBILITY PREDICTION. Different uses of the land have different sensitivities to noise. Individuals may each have different perceptions of what is an acceptable or an intruding level of noise. The background or residual noise against which a specific noise is perceived varies both by location and by time of day. Even the specific situation of the receiver, such as outdoor, indoor with windows open or closed, as well as one's activity of the moment affect the perception of a noise as intruding or not intruding. Regardless of the human activity, however, the associated noise sensitivity must be translated into a land use category for planning and regulatory purposes. The ASNA Act requires the FAA to identify land uses that are "normally compatible" or "noncompatible" with various levels of noise exposure by individuals. This was done in Part 150 and is used in developing and reviewing airport noise exposure maps and airport noise compatibility programs. It is important to recognize, however, that land use guidelines (even those adopted by regulation) are a planning tool and as such provide general indications as to whether particular land uses are appropriate for certain measured or calculated noise exposure levels.

236. BASIS FOR NOISE COMPATIBILITY. The adverse effects of noise exposure on people can be grouped into three general categories: degradation of health, attitudinal reactions, and activity interference. The first category, which includes hearing loss, is not normally encountered from aircraft sources at any point outside the airport boundary. However, the noise levels defining the thresholds of interference with noise-sensitive human activities, such as sleep and speech thresholds, are lower and airport noise can affect compatibility or noncompatibility.

a. Interference with human activity. These may generally be grouped as sleep interference; speech interference; interference with study, concentration, or critical tasks; interference with the performing arts; interference with outdoor activities; and interference with warning sounds.

(1) Sleep Interference. Interference with sleep activity is critical in hospitals, nursing homes, and certain other health facilities, and is important in individual homes. The zero interference threshold inside such health facilities is 40 dBA (Report No. DOT-FAA-AEQ-77-9, Study of Soundproofing Public Buildings Near Airports, April 1977). Tests have shown that about 10 percent of people sleeping in a laboratory environment who were exposed to a noise level of 50 dBA were awakened. Most residences have ambient noise levels that are higher than might be expected in a laboratory. Due to this higher background noise level, fewer than 10 percent of those exposed to 50-55 dBA of interior noise from aircraft would be expected to be awakened (Metropolitan Washington Airport Policy, Supplement to the August 1980 Environmental Impact Statement, Final, September 1981).

(2) Speech Interference. Interference with speech is most critical in learning environments such as classrooms. It has been determined to be somewhat less critical in other activities where speech communications are important. At sound levels greater than 45 dBA speech interference can begin to occur (at distances of about 25 to 30 feet) in a classroom. (Study of Soundproofing Public Buildings, et. al).

(3) Study, Concentration, and Critical Tasks. These thresholds are more difficult to identify than are those for sleep or speech interference and are even more subjective. To a considerable degree, these thresholds are dependent upon the individual recipient, the task at hand, the background noise through which the specific noise intrudes, and the impulse characteristics of the noise. The absence of recognized standards should not, however, prevent adequate consideration being given to these sensitive tasks whenever it is appropriate.

b. Relationship to Self-Generated Noise. Part 150 directs that no use or activity should be considered to be noncompatible as a result of airport noise if its own self-generated noise equals or exceeds the airport noise.

c. Relationship to Background Noise. Steady state background (ambient) noise which equals or exceeds the maximum noise resulting from individual aircraft events effectively masks uses in the immediate locale from aircraft noise impact. Hence, Part 150 directs that no uses in such an area should be considered to be incompatible. However, such cases can be determined only by analyzing the average 24 hour pattern of ambient noise and comparing it with the time of day distribution of aircraft events.

d. Noise Attenuation. Attenuation of noise, or outdoor to indoor Noise Level Reduction (NLR) through blocking of noise paths or soundproofing measures can reduce the intrusive impacts of noise. Where appropriate, NLR may be taken into account in determining the compatibility of indoor uses or activities. Inasmuch as this implies that windows and doors must be closed and that air conditioning or artificial ventilation must be used, due consideration should be given to the living environment and quality of life before using NLR to place individual residences or schools into a "compatible" designation. Consideration should also be given to the possible impacts upon outdoor and indoor-outdoor living and activities.

237. LAND USE COMPATIBILITY TABLE. FAR Part 150 contains a table, Land Use Compatibility With Yearly Day-night Average Sound Levels, identifying land uses that are "normally compatible" or "noncompatible" with various levels of noise exposure. Appendix 1 contains that table, but expands the list of uses under most categories in order to be more useful. The expanded land use descriptions are based upon the Standard Land Use Coding Manual (SLUCM) published by the Federal Highway Administration and the Department of Housing and Urban Development in 1965. The levels of noise exposure, in yearly day-night average sound levels (L_{dn}) correspond to the contours required to be shown on Airport Noise Exposure Maps. The table indicates compatibility of the land uses with the outdoor noise environment. By comparing the predicted or measured yearly L_{dn} level at a particular site with the values given in the table the range of compatible uses may be determined. In using the land use compatibility table, the following cautions should be observed:

a. L_{dn} contours indicate the boundaries lines between areas of acceptable or unacceptable noise exposures for the various land uses in Appendix I. The contours do indicate the trend in relative noise levels. However, vegetation, land contours, and the position of buildings or walls may often affect the impact of noise on the human users at a specific site.

b. L_{dn} levels may vary somewhat above or below the predicted levels for a particular location, depending upon local topography and vegetation, and upon final aircraft loadings and operations.

c. Although all land uses may be considered as normally compatible with noise levels less than 65 L_{dn}, local needs and values may dictate further delineation based on specific local requirements or determinations as well as low ambient levels.

d. When appropriate, noise level reduction may be achieved through incorporation of sound attenuation into the design and construction of a structure to achieve compatibility. However, more specific noise measurement and analysis is generally advisable prior to incurring the expense of such sound treatment. The cautions mentioned in paragraph 236d should be observed when applying Noise Level Reduction (NLR) to residential uses or other uses where indoor-outdoor activities are important.

e. Other local noise sources may often contribute as much as or more than aircraft to the total noise exposure at a specific location.

f. Compatibility designations in the table generally refer to the major use of the site. If other uses with greater sensitivity to noise are permitted at a site, the compatibility determination is based upon the use which is most adversely affected by noise.

g. Designations contained in the table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptability and permissible land uses remains with the local authorities.

h. Although Table 2 of FAR Part 150 defines the compatibility or noncompatibility of various land uses for the purposes of Federal aid, programs, or sanctions under the ASNA Act, adjustments or modifications of the descriptions of the land use categories may be desirable after consideration of specific local conditions.

238. INTERPRETATION OF NOISE EXPOSURE MAPS. Note that it is possible that the process of plotting noise contours onto locally generated land use maps may introduce a degree of charting imprecision, especially relative to property lines on the land use map. For the purpose of Section 107 of the ASNA Act, as amended, questions may arise concerning the precise relationship of specific properties to noise exposure contours depicted on a noise exposure map submitted under Section 103 of that Act. The FAA is not involved in any way in determining the relative locations of specific properties with regard to the depicted noise contours, or in interpreting the noise exposure map to resolve questions concerning which properties should be covered by the provisions of Section 107. These functions are inseparable from the ultimate land use control and planning responsibilities of local government. Therefore, the responsibility for the detailed overlaying of noise exposure contours onto the map of subjacent properties on the surface rests exclusively with the airport operator which submitted those maps, and/or with those public agencies and planning agencies with which consultation is required under Section 103 of the Act. In its decisions to accept noise exposure maps, the FAA relies on the certifications, by the airport operator that this statutorily required consultation has been accomplished.

239.-299. RESERVED.

CHAPTER 3. AIRPORT NOISE COMPATIBILITY PLANNING

SECTION 1. ELEMENTS OF AIRPORT NOISE PLANNING

300. GENERAL. This chapter discusses the airport noise compatibility planning process and forms the primary background for preparing airport noise compatibility programs under FAR Part 150. In addition, noise control and noise impact abatement actions available to both airport operator and neighboring communities are discussed. Equal emphasis is placed upon urban planning and airport operational solutions. Throughout the chapter, emphasis will be placed upon reduction of airport noise (present and future) to the practical minimum; long-term protection of the agreed-upon noise impact areas from development with noncompatible uses; and actions to reduce the noncompatibilities remaining within those noise impact areas to acceptable levels.

301. NOISE COMPATIBILITY PLANNING. Airport Noise Compatibility Planning is a joint planning effort which examines and weighs both aviation and urban planning strategies in seeking long-term solutions to existing and or future noise conflicts around an airport. Local consultation and citizen participation are key elements of the process. This includes the participation of airport users, affected local governments and airport neighbors, as well as the airport's operator. Section 103 of the ASNA Act requires that noise exposure maps be prepared in consultation with public agencies and planning agencies in areas surrounding the airport. FAR Part 150 requires consultation with the users and the agencies with land use control jurisdiction or planning responsibilities lying within the airport's 65 L_{dn} contour. Citizen participation in the planning and decisionmaking processes which affect their lives and property is now recognized as a cornerstone of planning and should be integrated into that process. See FAA Advisory Circular 150/5050-4, Citizen Participation in Airport Planning, and Report No. FAA-EE-79-06, Community Involvement Manual, for more detail on this subject.

302. SCOPE OF THE PLANNING EFFORT. The scope of the planning effort will, of course, vary considerably, depending upon the extent and complexity of the noise problems at a given airport. However, the planning effort should be sufficient to identify the most viable alternative of those which might be proposed, to demonstrate that it is equitable to those affected, and that is fully implementable. This planning should be integrated into the existing or ongoing comprehensive planning for the region involved and should be realistic in its regard for monetary costs and its ability to generate the local planning and land use control actions necessary for its implementation and longevity. FAA does not regulate or direct the consultative process of local governments, but will rely on the certification by the airport operator, under Section 150.21 of Part 150, concerning such consultation.

303. THE CONTEXT OF AIRPORT NOISE PLANS. The Airport Noise Compatibility Planning Program should be viewed as a more detailed segment of the overall comprehensive planning for the area. It should first determine the extent of existing problems (if any) and the effects of airport and air traffic growth trends, and then determine the needs and values of both the airport users and those impacted by the airport. The planning program must explore with equal vigor both aviation and urban planning solutions to the problems. Each viable solution or combination of solutions is then tested against the realities of the social, economic, and environmental needs of the community(s) served and of the State and the Nation. It should also be recalled that aviation growth is not only a function of community growth but also the per capita usage of aviation.

304. THE OBJECTIVES OF PART 150 PLANNING. The objective of the planning effort is to find reasonable solutions to the noise problems and to present solutions that can be implemented. Although FAA environmental assessment of the compatibility program is not required prior to FAA approval or disapproval within the 180 day review period, each element or combination of elements going into the program should be capable of passing such a test prior to implementation. Failure to do so may seriously delay FAA funding of projects to carry out approved programs if, through the sponsor's failure to adequately assess those impacts, the FAA is forced to deal with these impacts without adequate environmental data at the funding stage. FAR Part 150 also requires that adequate provision be included for periodic review and updating of the compatibility program to account for changes in airport operations.

305. USE OF LOCAL OR STATE STANDARDS. The land use compatibility chart (Appendix 1) is derived from FAR Part 150 and contains land uses that have been identified as "normally compatible" with various levels of noise. The values for residential uses are based upon studies of noise-induced annoyance. For other land uses, the values are based primarily upon noise-induced interference with speech communication or upon interference with the critical activity associated with the use. However, in applying the table, it should be kept in mind that no two communities are likely to have situations or value systems that are identical. Adjustments to the land-use categories and noise levels may be necessary in considering specific local conditions. These decisions should be made early in the compatibility planning process. Citizen participation in this key element of the planning is advisable.

306. DEVELOPMENT OF ALTERNATIVES AND IMPLEMENTATION STRATEGIES. Development of reasonable alternatives is the nucleus of the compatibility planning process. The objective is to explore a wide range of feasible options and alternative compostions of land use patterns, noise control actions, and noise impact patterns, seeking optimum accommodation of both airport users and airport neighbors within acceptable safety, economic, and environmental parameters. Consideration of alternatives should address both physical planning and the implementation aspects of proposed solutions. It is, however, unlikely that any single option, by itself, will be capable of totally solving the problem(s) without having objectional impacts of its own. Some of the options may have little or no value in the situation,

especially if used alone. Realistic alternatives, then, will normally consist of combinations of the various options in ways which offer more complete solutions with more acceptable impacts or costs. Each alternative considered should: have the potential of resolving the problem(s); be implementable within acceptable economic, environmental, and social costs; and be legally implementable within existing State/Federal legislation and/or regulation. Brief summations or estimates indicating how these criteria are to be met should be prepared for each alternative. A sufficiently wide range of alternatives should be developed to assure that all reasonable routes to the ultimate solution have been explored and that there is a sufficiently broad range of choices available to give credibility to the studies. The matrix of noise control actions shown in Figure 2 on the following page, while not necessarily exhaustive, illustrates an array of options or possible solutions to a cross section of noise compatibility problems.

307.-319. RESERVED.

SECTION 2. AIRPORT PROPRIETOR OPTIONS

320. DENIAL OF USE TO AIRCRAFT NOT MEETING FEDERAL NOISE STANDARDS. This strategy may be implemented by limiting access to the airport to aircraft that conform with certain FAR Part 36 standards. Most turbojets and other large aircraft produced after 1974 already meet those standards; so do most propeller-driven light airplanes. In addition, older turbojets over 75,000 lbs. maximum gross weight must (under FAR Part 91) be either retrofitted with quiet engines or be replaced by certain specific dates. The ASNA Act also directs that certain classes of aircraft be exempt from compliance with FAA noise standards until certain dates. Denial of the use of an airport to such aircraft prior to the Part 91 or ASNA Act prescribed retirement dates might force some owners to retrofit or replace the aircraft to meet Part 36 standards in order to continue to operate at the airport during the interim period. To this extent, such local rules are in conflict with the Federal scheme and should be avoided.

321. CAPACITY LIMITS BASED ON NOISE. Airport use restrictions are sometimes based upon noise limits. However, such restrictions often have uneven economic consequences and should be employed only after careful consideration of other alternatives and after thorough consultation with the affected parties. Some of the forms that such restrictions might take are as follows:

a. Restrictions based on cumulative impact. Under this strategy, a maximum cumulative impact (such as the total area within the L_{dn} 75 contour) is established and then the airport's operations are adjusted or limited so as to not exceed that maximum. This is done through "capacity limitations," e.g., limiting either the aircraft types based upon their noisiness, or the numbers and mix of aircraft so as to respect the established cumulative noise exposure restriction.

FIGURE 2

MATRIX OF NOISE CONTROL ACTIONS

CONSIDER THESE ACTIONS			IF YOU HAVE THIS PROBLEM: NOISE FROM: TAXIING	DEPARTURE	APPROACH	LANDING ROLL	TRAINING FLIGHTS	MAINTENANCE	GROUND EQUIPMENT
AIRPORT PLAN	Changes in Runway Location, Length or Strength	1	●	●	●	●	●		
	Displaced Thresholds	2			●		●		
	High–Speed Exit Taxiways	3	●			●			
	Relocated Terminals	4	●					●	●
	Isolating Maintenance Runups or Use of Test Stand Noise Suppressors and Barriers	5	●					●	●
AIRPORT AND AIRSPACE USE	Preferential or Rotational Runway Use *	6	●	●	●	●	●		
	Preferential Flight Track Use or Modification to Approach and Departure Procedures *	7		●	●		●		
	Restrictions on Ground Movement of Aircraft *	8	●						
	Restrictions on Engine Runups or Use of Ground Equipment	9						●	●
	Limitations on Number or Types of Operations or Types of Aircraft	10	●	●	●	●	●	●	●
	Use Restrictions Rescheduling Move Flights to Another Airport	11	●	●	●	●	●	●	●
	Raise Glide Slope Angle or Intercept *	12			●		●		
AIRCRAFT OPERATION	Power and Flap Management *	13		●	●		●		
	Limited Use of Reverse Thrust *	14				●			
LAND USE	Land or Easement Acquisition	15	●	●	●	●	●	●	●
	Joint Development of Airport Property	16	●	●	●	●	●	●	●
	Compatible Use Zoning	17	●	●	●	●	●	●	●
	Building Code Provisions and Sound Insulation of Buildings	18	●	●	●	●	●	●	●
	Real Property Noise Notices	19		●	●	●	●	●	●
	Purchase Assurance	20		●	●	●	●	●	●
NOISE PROGRAM MANAGEMENT	Noise–Related Landing Fees	21	●	●	●	●	●		
	Noise Monitoring	22		●	●		●	●	
	Establish Citizen Complaint Mechanism Establish Community Participation Program	23	●	●	●	●	●	●	●

* These are examples of restrictions that involve FAA's responsibility for safe implementation. They should not be accomplished unilaterly by the airport operator.

b. Restrictions based upon certificated noise levels. Most aircraft types in general service today have been certificated for noise by the FAA. Consequently, it possible to devise limitations based upon those certificated data. Such limitations might take the form of threshold noise levels for the airport or different levels for day and night at the airport.

c. Restrictions based upon estimated single event noise levels. Since aircraft noise levels vary widely with changes in operational procedures, it may be possible to set limits on estimated single event noise levels. However, it should be noted that this does not mean that the airport operator or community can set up a microphone and a noise level limit and challenge the pilots to "beat the box." The FAA considers this to be unsafe and has never approved such a scheme. Instead, a target noise level limit or threshold is discussed in advance with the FAA and the aircraft operators and an appropriate level is selected, balancing the needs of aviation and the noise impacts on the community. FAA Advisory Circular 36-3B, Estimated Airplane Noise Levels in A-Weighted Decibels is useful with this option.

322. NOISE ABATEMENT TAKEOFF OR APPROACH PROCEDURES. A basic noise mitigation strategy is the use of noise abatement takeoff and landing procedures. There are a number of alternatives within this strategy, including runway selection, takeoff and landing profiles and power settings, and approach or departure paths. Runway selection has an obvious relationship with wind vectors, runway lengths, aircraft peformance and tolerance for crosswinds, and safety. Within these parameters, however, there is often a significant range of acceptable options. Some of these options may well offer significant relief to the airport's noise impact problems, especially when linked with appropriate landing and takeoff profiles and approach-departure paths. Takeoff and landing profiles and their attendent power and flap settings can be adjusted so as to offer relief to either close-in or more distant noise sensitive areas. These options are covered in more detail in other FAA documents such as Advisory Circular 91-53. Similarly, there are also often a number of viable choices for approach and departure paths. Some of these options may only be available during visual flight reference conditions, while others may be unavailable to certain aircraft. The objective is to achieve the greatest noise relief within the parameters of safety and economics and in coordination with the compatible land use strategies being developed for the airport's noise compatibility programs. Since FAA approval of these procedures is required, there should be discussion with the FAA region early in program development.

323. LANDING FEES BASED ON NOISE. This strategy bases all or a portion of the landing fee upon the noisiness of the individual aircraft, thus apportioning the fees to the relative noise "cost" of the operation to the airport's proprietor. The strategy encourages the use of quieter aircraft while producing additional revenue to offset noise induced expenses. For maximum benefit, noise fees should be used in concert with other noise abateement strategies. A steeply sloped-noise fee curve would offer additional disincentive to continued use of the noisiest aircraft. Noise fees could also be used differentially to help shift noisier aircraft from a close-in, urban impacted airport to an outlying airport with greater noise capacity. To avoid discrimination the noise fee for each aircraft should be based upon standard single event noise ratings for the aircraft, such as those published by the FAA in Advisory Circular 36-3B (subject to the limitations contained in its preamble). The reverse strategy can also be applied. Instead of assessing a fee, an airport operator can reward air carriers who go to extra lengths to reduce noise generated by their aircraft by providing a discount or a reduction in landing fees. This might also act as an incentive for air carriers to use one airport over another in special circumstances.

324. NOISE BARRIERS (SHIELDING). Ground-level noise sources on an airport include run-up and maintenance areas, taxiways and freight warehouse areas. Because the noise is generated on the ground, the impact is usually confined to those areas immediately adjacent to the source. An effective method of mitigating this type of noise impact is through use of sound barriers or berms. "Hush houses" may be appropriate in engine maintenance areas. Strategic placement of new hangar or terminal structures on the airport may also be used. These wil shield adjacent neighborhoods by absorbing and third method is the movement of run-up and maintenance operations to an area of the airport away from the community. One common misconception is that trees or bushes will provide substantial attenuation of sound. This is not true except when bands several hundred feet wide are used and when they are planted thickly with both trees and underbrush.

325. ACQUISITION OF LAND AND INTEREST THEREIN. Purchase of sufficient land area to totally contain the significant noise impacts of an airport is usually impractical. Not only is it very costly, but it removes too much potentially valuable land from local tax rolls. However, certain land areas are often much more critical to achieving or maintaining an airport's noise compatibility than are others. Purchase of full or partial interest in such lands may be the only way the airport can be assured of long-term protection. Acquisition by the airport of development rights for all but noise tolerant development via easement in these critical areas may often be accomplished at much less cost than purchase in fee-simple. Compatible development under such restrictions should enhance the airport as well as the local tax rolls.

326. COMPLETE OR PARTIAL CURFEWS. Curfews are an effective though costly method of controlling noise intrusion into areas adjacent or in proximity to an airport. They should be reserved as a strategy of last resort, however, when all other options have been shown to be clearly inadequate, because of their drastic negative impacts upon both aviation and the community's benefit from aviation. They can take various forms, from restrictions upon some or all flights during certain periods of the day through restrictions based upon noise threshold and certificated aircraft noise levels (see AC 36-3B). Since unwanted noise intrusions are most pronounced in the late evening or early morning hours, curfews are usually implemented to restrict operations that occur during those periods. The period of 2200 hours to 0700 hours is when most people are resting and are most sensitive to noise intrusions. However, it should be pointed out that curfews have economic impacts upon airport users, upon those providing airport-related services, and upon the community as a whole. Other communities may also be impacted through curtailment of service. Thus undue burden on interstate or foreign commerce is a specific concern of the ASNA Act. Therefore, curfews should only be considered after careful consideration of other alternatives and after thorough consultation with the affected parties.

327.-329. RESERVED.

SECTION 3. STATE/LOCAL GOVERNMENT OPTIONS (STRATEGIES TO PREVENT NEW NONCOMPATIBLE DEVELOPMENT)

330. DEVELOPMENT CONTROL. Land use and development controls based upon a well worked out compatible land use plan is among the most potent and affordable of all the compatibility strategies. This is particularly so in still developing areas. The exercise of these land use and development controls is usually within the authority of local or county governments rather than in the airport operator. Even when the airport is operated by the same governmental body which exercises these controls there is often little recognition or action based on the needs in these critical areas. This emphasizes the need for a comprehensive approach to developing an airport noise compatibility program. A number of different controls are normally available to local governments and/or to airport operators to prevent intrusion of noncompatible development. The controls which are generally most useful for mitigating noise intrusions or achieving compatible land use within proximity to the airport are: zoning, easements, transfer of development rights, land purchase (for compatible public use), and capital improvements. In addition, local governments can consider establishing minimum acoustical insulation standards, expressed as Sound Transmission Coefficients (STC) for new residential dwellings within high noise impact contours. Approrpiate expertise should be consulted in developing such a code.

331. ZONING. The most common land use control is zoning. Zoning is an exercise of the police powers of a state or local government which enables that government to designate the uses that are permitted for each parcel of land. It normally consists of a zoning ordinance which specifies land development and use constraints. One of the primary advantages of zoning is that it may be used to promote land use compatibility while leaving the land in private ownership, on the tax rolls, and economically productive. Although most cities and larger towns have zoning authority, it should be remembered that rural areas often are not subject to this remedy, since in many states counties have only limited (or no) zoning authority.

a. Use of Zoning. In order for zoning to work effectively it should be based upon a comprehensive plan. This plan must consider the total needs of the community along with the specific needs of the airport. A comprehensive plan defines the goals and objectives of a community and zoning is one of the tools available to the community for implementing that plan. Zoning can and should be used constructively to increase the value and productivity of the affected land. For zoning to be viable, there should be a reasonable present or future need for each designated use. Within its limitations, zoning is a preferred method of controlling land use in noise impacted areas.

b. Limitations of Zoning. Zoning has a number of limitations which must be considered when using it as a compatibility implementation tool:

(1) Zoning is not necessarily permanent. In most jurisdictions, the current legislative body is not bound by prior zoning actions and it may change that zoning. Consequently, zoning which achieves compatibility is subject to continual pressure for change from both urban expansion and those

who might profit from such changes. Also, from time to time the entire zoning ordinance for a jurisdiction will be updated to accommodate increased growth or incorporate new land use concepts.

(2) Cumulative zoning can permit noncompatible development. A number of communities still have "cumulative" type zoning districts which permit all "higher" uses (such as residential) in "lower" use districts (such as commercial or industrial), thus permitting development that may be incompatible. In these instances it would be necessary to prepare and adopt new or additional zoning use districts of the "exclusive" type which clearly specify the uses permitted and exclude all other uses.

(3) Zoning is usually not retroactive. Changing zoning primarily for the purpose of prohibiting a use which is already in existence is normally not possible. In some jurisdictions, any zoning or rezoning that affects current land uses may not pass state constitutional tests. However, if such zoning is permissable and is accomplished, the use may be permitted to remain as a "nonconforming" use until such time as it is changed voluntarily to a conforming use or until the owner has had ample opportunity to recoup his/her investment.

(4) Zoning controls are normally applicable to those areas within the boundaries of the zoning jurisdiction. Noise impacts with airport operation, however, often span more than one such jurisdiction. Therefore, effective zoning requires the coordinated efforts of all the involved jurisdictions. Zoning which implements a land use compatibility plan will often be a composition of existing and new zoning districts within each of the jurisdictions covered by the plan. Often, each jurisdiction will have a different zoning ordinance with districts having different applicability for implementing the compatibility plan.

332. EASEMENTS. An easement is a right held by one person to make use of the land of another for a limited purpose. In the context of airport noise compatibility planning, two general types of easements are possible: positive easements to allow someone to make noise over the land and negative easements to prevent the creation or continuation of unprotected noise sensitive uses on the property. Easements can be an effective strategy for assuring compatible development around airports. A major advantage of easements for controlling land use around airports is that they can be permanent, whereas zoning may be easily changed. Additionally, easements often may be acquired for a fraction of the total value of the land and thus be less expensive than outright purchase. Acquisition of easements does not reduce the noise impacts on people or by and of itself change noncompatible land uses to compatible uses. However, the purchase of price can and should be dedicated to the soundproofing and or use change necessary to achieve compatibility. The most important advantage of easements over full acquisition is that the land is left on the tax rolls and remains free for compatible development by its owner(s).

a. Obtaining Easements. Easements may be obtained in a number of ways including purchase, condemnation, and dedication. For each easement acquired, consideration may be given to including a legal description of the noise that may be created over the property, describing classes of uses which may be established or maintained with and without soundproofing, and, where applicable, granting an avigation easement.

b. Purchase. Easements may be purchased via negotiation with the price based upon the value to the owner of the rights surrendered. Timing can have a significant effect upon the price paid; once the subject land has gotten into the arena of speculation, prices tend to rise quickly.

c. Condemnation. Easements, may also be obtained by condemnation, in a manner similiar to full rights condemnation. The cost, while still likely to be less than that of outright acquisition (fee simple) of the land, is likely to be significantly higher than similar rights obtained via negotiation because of the time and court costs involved. Also, the cost of any ill will generated by a condemnation action, while difficult to measure, can be significant.

d. Dedication. Dedication is another way to obtain easements. Subdivision regulations governing the development of land for industrial or other purposes can include provision for dedicating private land or easements upon private land for public purposes. When easements for airport-environs compatibility are considered necessary and when they are determined to be compatible with the intended use of the land, the need for such easements may be required by local agencies in the approval of subdivision dedications.

333. TRANSFER OF DEVELOPMENT RIGHTS (TDR). TDR involves separate ownership and use of the various "rights" associated with a parcel of real estate. Under the TDR concept, some of the property's development rights are transferred to a remote location where they may be used to intensify allowable development. With TDR, for example, lands within an airport's noise impact area could be kept in open space or agricultural uses and their development rights for residential uses transferred to locations outside the area. Landowners could be compensated for the transferred rights by their sale at the new locations or the rights could be purchased by the airport. Depending upon market conditions and/or legal requirements, the airport could either hold or resell the rights. The TDR approach must be fully coordinated with the community's planning and zoning. It may be necessary for the zoning ordinance to be amended in order to permit TDR's. Also, such transfers must usually be contained within single zoning jurisdictions.

334. PURCHASE. There are often locations or circumstances within the noise impact areas which leave little choice other than direct acquisition of full or partial interest in the impacted land by either the airport sponsor or, perhaps, by state or local levels of government. Purchase of noise impacted land is the most direct (and usually the most expensive) of all forms of land use control. However, when combined with either resale for compatible

purposes can considerably enhance compatibility. Provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) are applicable whenever Federal or federally-assisted programs are involved in such purchases.

335.-339. RESERVED.

SECTION 4. STATE/LOCAL GOVERNMENT OPTIONS (ACTIONS TO REDUCE EXISTING NONCOMPATIBLE USES)

340. REMEDIAL ACTIONS. In cases where there are already existing conflicts between land-use and airport noise, remedial or corrective actions may be appropriate. The degree of remedial action will be dependent upon the degree of urbanization around the airport. Where the noise impacts fall on predominately rural land or, where a new airport is built in an undeveloped area, there may be only a few scattered noncompatible uses to be resolved. In urbanized areas, however, remedial actions are complex and may be difficult to implement. Change to noise compatible usages, soundproofing, and acquisition of full or partial interest in the land are examples of possible actions that can be used to mitigate noise impacts. Changes in the use of noise impacted land or changes in occupancy to uses or occupations less sensitive to noise are obvious and practical strategies for resolving conflicts.

341. ENCOURAGEMENT OF EXISTING FAVORABLE TRENDS. Land use in urban areas is in a continual state of change and transition. Many of these changes tend to favor a turnover in land use from noncompatible to compatible. A typical example would be the transition of older residential areas into retail, commercial, or office uses. Encouragement and promotion of these trends can be through the implementation of public policy and local planning processes.

342. CONSTRUCTIVE USE OF PLANNING AND ZONING. Detailed planning of land within noise impact areas by local authorities and constructive uses of zoning changes can often improve both compatibility and land values. Noise sensitive uses cannot normally be forced to move by simply changing their zoning to a use district that is compatible. The existing uses must be permitted to continue under the new zoning as "Legal Nonconforming Uses" as long as the use is continuous and unchanged or until the owner has had an opportunity to receive a fair value from the use. This strategy then finds productive and compatible uses for the land which will give the present land owner a fair return on his investment in addition to covering his relocation expenses. The land should then be rezoned accordingly.

343. CONSTRUCTIVE USE OF PUBLIC CAPITAL IMPROVEMENT PROJECTS. Locating and programming of public works projects can exert strong influences over land use trends and demands. These include road construction and widenings, transit service, schools, parks or recreation facilities, water and sewer lines, and flood control projects. Exercised judiciously as an implementation tool for promoting compatible land use such capital improvements can be a powerful tool.

344. PURCHASE ASSURANCE PROGRAMS. Purchase guarantees can be applied to residential properties within lightly or short-term noise impacted areas to help assure their saleability. Such sales should then be to individuals not as sensitive to the noise impacts or who have trade off values for residing in these particular areas. Sales agreements should assure that all future purchasers are cognizant of the noise levels and sign appropriate releases or easements. The advantages of this strategy are its relatively low costs and its retention of otherwise viable residential areas.

345. SOUNDPROOFING. Soundproofing consists of increasing the exterior to interior sound transmission losses of a building by identifying those structural elements providing transmission paths and applying appropriate modifications to improve noise attenuation.

a. Metrics. The airport cumulative noise metric (L_{dn}) is useful as an indicator that soundproofing may be required in a particular area. However, when considering any specific building site within a cumulative noise exposure contour (representing significant noise impact) it is recommended that additional analysis via single event maximum sound level and/or sound pressure level versus frequency data be used to determine the necessity (and/or eligibility) for soundproofing. While L_{AS} is utilized to assess eligibility, the sound pressure levels in each of the one-third octave bands are required to design and implement soundproofing measures. The A-weighted sound level is more utilitarian than other single event metrics in establishing the need for soundproofing as many of the sleep, speech and activity interference criteria have been developed using L_{AS} levels.

b. Sealing Existing Leaks. In soundproofing most structures, the first five decibels of additional sound insulation usually can be obtained by sealing existing leaks. A very small gap or imperfect seal in an otherwise massive wall can result in only moderate sound attenuation.

c. Retrofit of Existing Buildings. For rehabilitation of existing buildings, soundproofing modifications include: replacement of existing windows with windows of greater sound transmission coefficient (STC) rating, or adding a second layer of glass; upgrading doors and seals; acoustic baffling of vents; adding insulation to walls and attic spaces; adding another layer of wall material to existing walls, in effect creating a two-panel wall; eliminating windows and filling the space to match exterior walls (only recommended to achieve noise reduction commensurate with the potential capability of the wall). Some very effective soundproofing techniques, such as staggered studs or fiberboard under paneling are not suitable for retrofit because they would involve virtual demolition of the existing structure and construction of a new wall.

d. New Construction. For new sound-insulated construction, design considerations often include: using brick or concrete masonry walls, using staggered studs, insulation and fiberboard under interior and exterior finish materials; installing attic space insulation; properly baffling vents avoiding single joint roof constructions where interior and exterior materials are attached to the same rafters; avoiding exposed rafter ceilings with any roof material other than thick concrete and with no interior finish ceilings; installation of air conditioning; mortar should be free of pinholes; and all joints should be well sealed.

e. Energy Savings from Soundproofing. The soundproofing of buildings has two direct energy effects - increased energy consumption by air conditioning equipment due to the elimination of natural ventilation and reduction in heat loss due to the sealing of walls, windows and other openings. Energy savings realized by reduction of heat loss, will in the long run outstrip the increased energy consumption of air conditioning. One caution is in order however; a reduction in thermal energy transmission does not always accompany a reduction in sound transmission (e.g., concrete wall).

f. Cost/Benefit of Soundproofing. While soundproofing is both a feasible and practicable means of alleviating the impact of external noise, the analysis should be made on a case by case basis in concert with both acoustical and architectural expertise. The general condition, age and repair of a structure normally dictate the degree of soundproofing application. Also, the building's location and noise exposure levels must be quantified to identify the target "reduction in noise level." Before a soundproofing program is initiated, tradeoffs in costs and benefits should be carefully examined. If some form of cost sharing arrangement between the airport operator or a governmental agency and the property owner should be utilized, suitable agreements or easements for current and future aircraft noise should also be obtained.

346. ACQUISITION OF IMPACTED LAND. In some circumstances, there may be locations or circumstances within the noise impact areas which leave little choice other than direct acquisition of full or partial interest in the impacted land by either the airport sponsor or, perhaps, by state or local levels of government. As described in paragraph 343, constructive use of land purchases for other public purposes can also enhance compatibility.

Land or interest in land (easement) may be acquired by negotiation, through a voluntary program, or via condemnation. In any case, the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) are applicable whenever Federal or federally assisted programs are involved.

a. Land for Other Public Uses. Noise impacted land can be acquired by a public or semi-public agency either to implement the compatibility plan or in cooperation with the plan while fulfilling another public purpose. Typical uses may include sites for equipment maintenance or storage yards, water or sewer works, and floodways or reservoirs. Other possibilities include selected park, recreation, and open space uses which are noise tolerant (golf courses, skeet ranges, nature areas, etc.). All uses should respect the height and hazard requirements of the airport and be tolerant of future airport growth.

b. Land for Compatible Resale. Occasionally, state or local governments are willing to acquire land which is then resold with covenants or easements retained to assure long-term compatibility. In some cases, it may be feasible to change such land to compatible uses within existing or remodeled buildings. In other cases, it would be desirable to clear and redevelop the land before making it available for sale. In either case, the changes should be in compliance with the land use plan and be supported by appropriate zoning. Appropriate covenants or easements should be retained to assure long-term compatibility. Since this strategy approaches the complexity of urban renewal, appropriate expertise should be consulted.

347.-349. RESERVED.

SECTION 5. CONSULTATIONS

350. CONSULTATIONS UNDER PART 150. In developing a noise exposure map and identifying noncompatible land uses the airport proprietor should identify the geographic areas of jurisdiction of each public agency and planning agency which are either wholly or partially contained within the 65 L_{dn} contour and meet with the appropriate officials to discuss means of reducing the noise impact as required by Part 150. Methods for mitigating and/or reducing the effects of noise that are available to local authorities after consulting with the airport proprietor are discussed in sections 3 and 4 of this chapter. Part 150 requires that consultation must include any air carriers and to the extent practicable, other aircraft operators using the airport. Prior to submission of the noise exposure map or noise compatibility program, the airport operator is required by Part 150 to allow interested persons adequate opportunity to submit their views, data, and comments concerning the correctness and adequacy of the map or program and projection of aircraft operations. FAA will not inject itself into the essentially local responsibility for consultation imposed directly on the airport operator by the ASNA Act, but will rely upon the airport operator's certification under penalty of 18 U.S.C. § 1001, that such consultation has occurred (See § 150.21).

351. RESERVED.

352. <u>CONSULTATION WITH AVIATION GROUPS</u>. Part 150 requires consultation with aviation groups. For air carrier airports, this consultation includes all air carriers and, to the extent practicable, other aircraft operators using the airport. For other than air carrier airports, consultations should include those aircraft operators that do use the airport. Thus, "operators" may include some or all of the following groups: airlines; commuter airlines; air taxi; and commercial; flight training and instruction; based aircraft operators (business, private, public); and fixed; base operators. These consultations should take place as early as possible in the planning process in order that the view and perspectives obtained may be fully integrated into the study effort. Additional consultations, as may be appropriate, should be conducted throughout the progress of the study. If proposed aircraft operational changes are not coordinated with the appropriate parties until the end of the study, there is potential for real problems to develop.

353. <u>PUBLIC AND COMMUNITY INVOLVEMENT</u>.

a. <u>The airport and the community</u> have a number of important influences upon each other, including economic, social, and environmental considerations. The airport acts as an entry point for air traveling vacationers and business persons and freight movement. Since the airport can act as a major focal point for growth, it should be integrated in the comprehensive planning process for the community and region. Therefore, it is essential to receive public response to any new proposed actions for airport development that would influence the public.

b. <u>Community involvement and public participation</u> are often determining factors in successfully assessing the compatibility/noncompatibility of various land uses for individual communities. The goals, values and developmental needs of the communities should always be considered from the early (planning) stages of land use evaluation. See FAA Advisory Circular 150/5050-4, Citizen Participation in Airport Planning, for guidance in developing citizen participation and community involvement programs.

c. <u>When organizing a community involvement program</u>, it is first necessary to identify the issues and to determine:

(1) What information must be communicated to the public;
(2) Which groups must receive this information;
(3) What information must be received from the public;
(4) From which groups this information can be obtained.

d. <u>Specific community involvement techniques</u> can then be evaluated and a sequence of activities developed, including formulation of alternatives, analysis and evaluation of alternatives, and the final decisionmaking process. Additional guidance that may be useful on aviation issues may be found in Federal Aviation Administration's Community Involvement Manual. This may be obtained from the Office of Environment and Energy, Noise Abatement Division, AEE-100, Washington, D.C., 20591.

354. DOCUMENTATION. In accordance with Part 150, the airport operator is to provide documentation summarizing the public procedure and input to the program. In addition, the operator is to provide documentation of consultation with officials of public agencies, planning agencies, FAA required, and other Federal officials which may be affected by the proposed action. This documentation may consist of summaries of communications between the organizations indicating the issues and depth of review or it may consist of a summary of comments and replies to the plan or letters of approval adopting the proposed action.

355.-359. RESERVED.

SECTION 6. ANALYSIS OF COSTS AND BENEFITS AND SELECTION OF AN ALTERNATIVE

360. GENERAL. The costs and benefits of each reasonable alternative should be identified and assessed in order to form a logical basis for decisionmaking. Detailed alternatives most closely approaching an optimum solution to the noise compatibility problems of the particular airport should be identified. Costs may be generally grouped as possible constraints upon interstate or foreign commerce, or as environmental, economic, and social impacts. Obviously, solutions (alternatives) will not only differ in their costs and benefits; costs and benefits may also accrue to different groups, industries, geographical areas, or persons.

361. CONSTRAINTS UPON INTERSTATE AND FOREIGN COMMERCE. A stipulation of the ASNA Act and of FAR Part 150 is that an approved airport noise compatibility program not create an undue burden on interstate or foreign commerce. Such an undue burden is often difficult to identify and is based upon a number of trade-offs, which go beyond the responsibilities of the local airport operator. For example, a restriction upon the operations of aircraft exceeding a given noise level between 10 p.m. and 7 a.m. could create too small a "window" for connection with another airport 2,000 miles away. Full consultation with the FAA, the air carrier users of the airport, and with other users will identify constraints in this area and help generate mutually acceptable compromises.

362. ENVIRONMENTAL COSTS. Each action proposed by an airport noise compatibility program may have environmental costs and/or benefits to be traded off against its economic and social costs and benefits. The environmental impacts may also have to be assessed under Federal or state guidelines prior to implementing the action. The analysis at this preliminary stage should be sufficient to reasonably assure that future implementation will be both possible and within the constraints of economic and social costs. If a particular action is critical to the success of the alternative, then a more thorough analysis may be in order. FAA Orders 1050.1C, Policies and Procedures for Considering Environmental Impacts, and 5050.4, Airport Environmental Handbook, give detailed instructions for conducting environmental analyses when an environmental assessment is required for Federal approval of certain actions. Although FAA acceptance of noise exposure maps and approval of noise compatibility programs are both categorical exclusions, any application for Federal funding of any portion of noise compatibility program may involve the need for an environmental assessment before such funding decisions can be made.

363. ECONOMIC COSTS. The economic costs or benefits of a noise compatibility alternative may be both direct and indirect. It is the total of these costs which should be assessed and considered against social and environmental costs. The direct costs are usually obvious and easily quantifiable. They include such things as construction costs, acquisition costs, the cost of extra fuel used in noise abatement operations, and the costs of aircraft idled by noise curfews. Benefits may include the increase in value of noncompatible uses after the critical noise environment is removed. Indirect costs and benefits can be more difficult to identify and quantify. They can include induced development resulting from airport construction or from the introduction of noise tolerant industrial uses into the area. They may also include lost opportunities for development when there are more acres of noise impacted land than will be needed for noise compatible uses. Also, housing removed from noise impacted areas must be replaced with new housing in another location. Other costs and benefits may be more subtle but just as real as are these.

364. SOCIAL COSTS. Evaluation of the social costs and benefits of the alternatives is of equal importance with those of economics and the environment. Social costs can include such impacts as the disruption of established neighborhoods or school districts through removal of noise impacted housing, altered surface transporation patterns, disruption of orderly planned development, or the creation of appreciable changes in employment. The often improved sense of safety with the diminishment of aircraft noise may also be a significant benefit. If preparation of an environmental assessment becomes necessary prior to approval of Federal funding for a program element, social costs are one of the prime impacts which must be assessed.

365. SELECTION OF AN ALTERNATIVE. The selection of one or a combination of the alternatives explored is the focal point of the whole planning and evaluation process. It is also a common point of failure of the process, either immediately or later, during the implementation stages. Although the final decision must remain with the duly elected or appointed decisionmaker(s), an appropriate degree of involvement by those affected by that ultimate decision during the deliberations and eliminations leading up to a final recommendation is likely to produce more workable and satisfying results. It is suggested that prior to this point in the planning process a logical and fair decisionmaking process be agreed upon and established. Such a process might take the following form:

a. A decision tree indicating the decisions to be made, who is to make them, and their sequence and timing.

b. A matrix which displays the costs and benefits of each alternative and arrays them against the costs and benefits of the other alternatives.

c. An outline of the possible decision combinations (some decisions automatically preclude other decisions or combinations).

d. A draft of a logical and probable scenario of future events based upon each decision combination.

e. Review and discussion of the issues in each of the alternatives by the reviewers and/or decisionmakers, following the sequences and format noted above, to make the evaluations and trade-offs leading to recommendations or decisions. A two-step selection process may be appropriate for multiple or complex alternatives.

366. DEVELOPMENT OF THE SELECTED ALTERNATIVE INTO A DRAFT COMPATIBILITY PROGRAM. Once an alternative has been selected, it should be fully developed into a complete airport noise compatibility program. This consists, essentially, of treating the alternative as an accepted preliminary scheme, then making the more vigorous investigations into its viability and developing the details of the plan and its implementation. The recommended steps include:

a. Stringent investigation of the alternative's assets and liabilities to assure that it will stand the tests of reality.

b. Detailed development of the plan, giving particular attention to fully coordinating it with existing local planning, community growth trends and the local agencies which will be responsible for its implementation.

c. Development of the specific implementation actions necessary to fully implement the plan.

d. Assign to and get written agreement from the agencies (or officials) who will be responsible for each of the implementing actions.

e. Development of the implementation schedules and any documents required for adoption and full implementation. these could include resoltuions for adoption as well as new or revised zoning districts designed to be added to existing local zoning ordinances.

367.-399. RESERVED.

APPENDIX 1. TABLE OF LAND USES NORMALLY COMPATIBLE WITH VARIOUS NOISE LEVELS.

1. LAND USE COMPATIBILITY TABLE. FAR Part 150 contains a table, Land Use Compatibility With Yearly Day-night Average Sound Levels, identifying land uses that are "normally compatible" or "noncompatible" with various levels of noise exposure. This appendix contains that table, but expands the list of uses under most categories in order to be more useful. The expanded land use descriptions are based upon the Standard Land Use Coding Manual (SLUCM) published by the Federal Highway Administration and the Department of Housing and Urban Development in 1965. The levels of noise exposure, in yearly day-night average sound levels (L_{dn}) correspond to the contours required to be shown on Airport Noise Exposure Maps. The table indicates compatibility of the land uses with the outdoor noise environment. By comparing the predicted or measured yearly L_{dn} level at a particular site with the values given in the table the range of compatible uses may be determined. In using the land use compatibility table, the following cautions should be observed:

a. L_{dn} contours indicate the boundaries lines between areas of acceptable or unacceptable noise exposures for the various land uses in Appendix I. The contours do indicate the trend in relative noise levels. However, vegetation, land contours, and the position of buildings or walls may often affect the impact of noise on the human users at a specific site.

b. L_{dn} levels may vary somewhat above or below the predicted levels for a particular location, depending upon local topography and vegetation, and upon final aircraft loadings and operations.

c. Although all land uses may be considered as normally compatible with noise levels less than 65 L_{dn}, local needs and values may dictate further delineation based on specific local requirements or determinations as well as low ambient levels.

d. When appropriate, noise level reduction may be achieved through incorporation of sound attenuation into the design and construction of a structure to achieve compatibility. However, more specific noise measurement and analysis is generally advisable prior to incurring the expense of such sound treatment. The cautions mentioned in paragraph 236d should be observed when applying Noise Level Reduction (NLR) to residential uses or other uses where indoor-outdoor activities are important.

e. Other local noise sources may often contribute as much as or more than aircraft to the total noise exposure at a specific location.

f. Compatibility designations in the table generally refer to the major use of the site. If other uses with greater sensitivity to noise are permitted at a site, the compatibility determination is based upon the use which is most adversely affected by noise.

LAND USES NORMALLY COMPATIBLE WITH VARIOUS NOISE LEVELS

Land Uses	Yearly Day-Night Average Sound Level (L_{dn}) in Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
RESIDENTIAL:						
Residential, other than mobile homes and transient lodgings	Y	N^1	N^1	N	N	N
Household units. (11)						
Single units - detached (11.11)						
Single units - semidetached (11.12)						
Single units - attached row (11.13)						
Two units - side-by-side (11.21)						
Two units -one above the other (11.22)						
Apartments - walk up (11.31)						
Apartments - elevator (11.32)						
Group quarters (12)						
Residential hotels (13)						
Other residential (19)						
Mobile home parks (14)	Y	N	N	N	N	N
Transient lodgings (15)	Y	N^1	N^1	N^1	N	N
PUBLIC USE:						
Schools, hospitals, and nursing homes	Y	25	30	N	N	N
Educational services (68)						
Hospitals, nursing homes (65.13 .65.16)						
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Cultural activities (including churches) (71)						
Auditoriums, concert halls (72.1)						
Governmental services (67)	Y	Y	25	30	N	N
Transportation	Y	Y	Y^2	Y^3	Y^4	Y^4
Railroad, rapid rail transit and street railway transportation (41)						
Motor vehicle transportation (42)						
Aircraft transportation (43)						
Marine craft transport (44)						
Highway and street right-of-way (45)						
Parking (46)	Y	Y	Y^2	Y^3	Y^4	N
COMMERCIAL USE						
Offices, business, and professional	Y	Y	25	30	N	N
Finance, insurance and real estate services (61)						
Personal services (62)						
Business services (63)						
Professional services (65)						
Other medical facilities (65.1)						
Miscellaneous services (69)						
Wholesale and retail - building materials, hardware and farm equipment	Y	Y	Y^2	Y^3	Y^4	N
Wholesale trade (51)						
Retail trade - building materials, hardware and farm equipment (52)						
Repair services (64)						
Contract construction services (66)						
Retail Trade - general	Y	Y	25	30	N	N
Retail trade - general merchandise (53)						
Retail trade - food (54)						
Retail trade - automotive, marine craft, aircraft and accessories (55)						
Retail trade - apparel and accessories (56)						
Retail trade - furniture, home furnishings and equipment (57)						
Retail trade - eating and drinking establishments (58)						
Other retail trade (59)						
Utilities (48)	Y	Y	Y^2	Y^3	Y^4	N
Communication (47	Y	Y	25	30	N	N
MANUFACTURING AND PRODUCTION						
Manufacturing, general	Y	Y	Y^2	Y^3	Y^4	N
Food and kindred products - manufacturing (21)						
Textile mill products - manufacturing (22)						
Apparel and other finished products made from fabrics, leather, and similar materials - manufacturing (23)						
Lumber and wood products (except furniture) - manufacturing (24)						
Furniture and fixtures - manufacturing (25)						
Paper and allied products - manufacturing (26)						
Printing, publishing, and allied industries (27)						
Chemicals and allied products - manufacturing (28)						
Petroleum refining and related industries (29)						
Rubber and misc. plastic products - manufacturing (31)						
Stone, clay and glass products - manufacturing (32)						
Primary metal industries (33)						
Fabricated metal products - manufacturing (34)						
Miscellaneous manufacturing (39)						
Photographic and optical	Y	Y	25	30	N	N
Professional, scientific, and controlling instruments, photographic and optical goods; watches and clocks - manufacturing (35)						
Agriculture (except livestock) and forestry	Y	Y^6	Y^7	Y^8	Y^8	Y^8
Agriculture (except livestock) (81)						
Agricultural related activities (82)						
Forestry activities and related services (83)						
Livestock farming and breeding (81.5 to 81.7)	Y	Y^8	Y^7	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Fishing activities and related services (84)						
Mining activities and related services (85)						
Other resource production and extraction (89)						
RECREATIONAL						
Outdoor sports arenas and spectator sports (72.2)	Y	Y^5	Y^5	N	N	N
Outdoor music shells, amphitheaters (72.11)	Y	N	N	N	N	N
Nature exhibits and zoos (71.2)	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Amusements (73)						
Parks (76)						
Public assembly (72)						
Resorts and group camps (75)						
Other cultural, entertainment and recreation (79)						
Golf courses, riding stables and water recreation (74)	Y	Y	25	30	N	N

Numbers in parentheses refer to Standard Land Use Coding Manual (SLUCM)

*The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses remains with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

KEY TO TABLE

Number in ( )	Standard Land Use Coding Manual (SLUCM).
Y (Yes)	Land Use and related structures compatible without restrictions.
N (No)	Land Use and related structures are not compatible and should be prohibited.
25, 30, or 35	Land use and related structures generally compatible; measures to achieve Noise Level Reduction (NLR), outdoor to indoor, of 25, 30, or 35 must be incorporated into design and construction of structure.

NOTES FOR TABLE

1. Where the community determines that residential uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

2. Compatible where measures to achieve NLR of 25 are incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

3. Compatible where measures to achieve NLR of 30 are incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

4. Compatible where measures to achieve NLR of 35 are incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

5. Land use compatible provided special sound reinforcement systems are installed.

6. Prime use only, any residential buildings require an NLR of 25 to be compatible.

7. Prime use only any residential buildings require an NLR of 30 to be compatible.

8. Prime use only, NLR for residential buildings not normally feasible, and such uses should be prohibited.

g. Designations contained in the table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptability and permissible land uses remains with the local authorities.

h. Although Table 2 of FAR Part 150 defines the compatibility or noncompatibility of various land uses for the purposes of Federal aid, programs, or sanctions under the ASNA Act, adjustments or modifications of the descriptions of the land use categories may be desirable after consideration of specific local conditions.

2. INTERPRETATION OF NOISE EXPOSURE MAPS. Note that it is possible that the process of plotting noise contours onto locally generated land use maps may introduce a degree of charting imprecision, especially relative to property lines on the land use map. For the purpose of Section 107 of the ASNA Act, as amended, questions may arise concerning the precise relationship of specific properties to noise exposure contours depicted on a noise exposure map submitted under Section 103 of that Act. The FAA is not involved in any way in determining the relative locations of specific properties with regard to the depicted noise contours, or in interpreting the noise exposure map to resolve questions concerning which properties should be covered by the provisions of Section 107. These functions are inseparable from the ultimate land use control and planning responsibilities of local government. Therefore, the responsibility for the detailed overlaying of noise exposure contours onto the map of subjacent properties on the surface rests exclusively with the airport operator which submitted those maps, and/or with those public agencies and planning agencies with which consultation is required under Section 103 of the Act. In its decisions to accept noise exposure maps, the FAA relies on the certifications, by the airport operator that this statutorily required consultation has been accomplished.

APPENDIX 2. CHECKLISTS FOR NOISE EXPOSURE MAPS AND NOISE COMPATIBILITY PROGRAMS.

The two checklists included in this appendix are intended as an aid to both developing and reviewing noise exposure maps and noise compatibility programs. They should not, however, be considered as definitive or as replacing in any way the requirements of FAR Part 150. Responsibility for compliance with the provisions of Part 150 remains with the preparers and reviewers.

Airport: ______________

CHECKLIST FOR NOISE EXPOSURE MAPS

	REFERENCE	YES	NO
1. Base Map developed using INM or approved equivalent.	A150.103(a)	___	___
a. Land uses identified.	A150.101(a)	___	___
b. Scale not less than 1 inch = 8000 feet.	A150.103(b)(1)	___	___
c. Runway Locations and alignments.	A150.101(e) & A150.103(b)(1)	___	___
d. Airport boundaries.	A150.101(e)	___	___
e. Flight tracks.	A150.101(e)	___	___
2. Continuous noise for L_{dn} 65, 70, and 75.	A150.101(a&e)	___	___
a. Estimates of numbers of people residing within each contour.	A150.101(e)	___	___
b. Depicted on land use map of sufficient detail and quality to discern streets and other identifiable geographical features.	A150.101(e)	___	___
3. Depiction and identification of each public and/or planning agency having jurisdiction within the L_{dn} 65 contour.	A150.105(a)	___	___
4. Brief analysis of the types of land use controls available to the identified agencies.	A150.105(b)	___	___
5. Noncompatible land uses identified within the L_{dn} 65 contours using Table 2 of Part 150 and based on self generated noise (ambient)	A150.101(a&b)	___	___
6. Location of noise sensitive public buildings (schools, hospitals, etc.).	A150.101(e)	___	___
7. Locations of any noise monitoring sites.	A150.101(e)	___	___
8. Projected aircraft operations for submission date and for fifth calendar year after submission date.	150.21(a)	___	___
9. Consultations with public, users, and other agencies	150.21(b)	___	___
10. Certified as true and complete	150.21(e)	___	___

Airport ______________

CHECKLIST FOR NOISE COMPATIBILITY PROGRAMS

	REFERENCE	YES	NO
1. Current FAA accepted noise exposure map included.	150.23(e)(1)	___	___
2. Consultations with public and/or planning agencies within L_{dn} 65.	150.23(c)	___	___
3. Consultations with air carriers and other airport users.	150.23.(c)	___	___
4. Opportunity afforded public to submit views, data and comments.	150.23(d)	___	___
5. Description (summary) of the consultations conducted.	150.23(e)(1,4,&8)	___	___
6. Alternatives considered and presented according to these categories:			
a. Those within airport operator's implementation authority.	B150.7(a)(1)	___	___
b. Those within authority of another local agency or state/local governing body.	B150.7(a)(2)	___	___
c. Those under Federal authority.	B150.7(a)(3)	___	___
7. At a minimum have these alternatives been considered:			
a. Preferential runway system.	B150.7(b)(3)	___	___
b. Restrictions on use of airport based on noise:	B150.7(b)(5)	___	___
(1) Restrictions on aircraft not meeting FAA noise standard.	B150.7(b)(5)	___	___
(2) Capacity limitations based on relative noisiness.	B150.7(b)(5)	___	___
(3) Required use of noise abatement takeoff/approach procedures.	B150.7(b)(5)	___	___
(4) Landing fees based on noise or on time of arrival.	B150.7(b)(5)	___	___
(5) Other actions recommended for FAA analysis.	B150.7(b)(5)	___	___

	REFERENCE	YES	NO
c. Noise barriers and/or acoustical shielding.	B150.7(b)(2)	___	___
d. Soundproofing of public buildings.	B150.7(b)(2)	___	___
e. Modified flight procedures and/or flight tracks.	B150.7(b)(4)	___	___
f. Land purchases, air rights, easements and/or development rights.	B150.7(b)(1)	___	___
g. Other actions or combinations of actions having beneficial impact on noise.	B150.7(b)(6)	___	___
8. Description of alternatives considered and the reasons why any alternatives were rejected.	150.23(e)(2)	___	___
9. Specific alternative program measures (actions) proposed and the relative contribution of each to program effectiveness.	150.23(e)(3)	___	___
10. Statement of the actual or anticipated effect of the program on reducing noise to individuals and noncompatible uses.	150.23(e)(5)	___	___
11. Documentation of feasibility of each proposed measure, including:			
a. Essential governmental actions.	150.23(e)(8)	___	___
b. Anticipated funding sources.	150.23(e)(8)	___	___
12. Relationship of proposals to existing FAA approved airport layout plan, master plan, and system plan.	150.23(e)(6)	___	___
13. Summary of the comments and materials received via public comment and disposition.	150.23(e)(7)	___	___
14. Time period covered by the program.	150.23(e)(8)	___	___
15. Schedule for implementation of the program.	150.23(e)(8)	___	___
16. Persons responsible for implementation of each program measure.	150.23(e)(8) & B150.7(c)	___	___
17. Schedule for periodic review and updating.	150.23(e)(9)	___	___

APPENDIX 3

RECOMMENDED BASIC NOISE MEASUREMENT SYSTEM

Noise monitoring may be utilized by airport operators for data acquisition and data refinement, but is not required by Part 150, for the development of noise exposure maps or airport noise compatibility programs. This Appendix describes a basic noise measurement system. First a few words about the purchase and maintenance of noise measurement equipment. There are at least four or five companies in the U.S. which carry special product lines of noise measurement equipment. The FAA Office of Environment and Energy, Noise Abatement Division, Noise Technology Branch, (AEE-120) will furnish a list of vendors upon request. At the time of purchase, two very important related needs must be considered, (1) periodic maintenance and (2) periodic re-calibration of equipment traceable to the National Bureau of Standards. If possible, try to minimize future difficulties, by assuring that local service is available. One should also seriously consider the advantages of establishing a maintenance service contract. This is especially recommended if long delays and extensive paperwork are required for each individual maintenance purchase order. The following list details the principle components of a mobile noise measurement system. The word "system" is underlined to indicate that much more than a sound level meter is required to be able to conduct an efficient multi-purpose noise measurement survey.

ITEM	COMMENT
Microphone Windscreens	Purchase several for each microphone. Windscreens have a habit of disappearing, blowing away, becoming misplaced etc.
Microphones	Purchase at least 2 per system. Microphones are easily damaged making one spare per system essential.
"Dummy Microphone"	This device simulates the microphone impedence and is used to determine the system electrical noise floor and as an aid in troubleshooting. One "dummy mike" per system is recommended.
Calibrators	At least one calibrator per system is recommended. Multi-frequency calibrators are very useful for checking the "A-weighting" filter characteristic, as well as for demonstrating the variation in human hearing response with frequency.
Calibrator Inserts	It is often advantageous to use a single calibrator type on different types and sizes of microphones. Plastic inserts are recommended as their low thermal conductivity avoids thermally shocking the microphone in cold weather, a problem encountered with metal inserts. One set is needed for each calibrator.
Tripod(s)	One tripod per system is necessary to remove the microphone 50 to 100 feet from the observer and any vertical reflective surface.
Microphone extension cable	Purchase at least one per system. The extension cable permits the microphone to be separated from the meter, as mentioned above. Caution: When ordering extension cable be sure the meter (with built in preamp) has enough power to handle the cable length.

ITEM (Cont'd)	COMMENT
Precision Integrating Sound Level Meter (PISLM)	The PISLM is a highly versitile instrument, part sound level meter-part computer, capable of providing single event metrics L_{AS}, and L_{AE} as well as a cumulative metric. This meter can be used both for assessment of airport use restrictions as well as for noise contour validation. Some PISLMs can also provide octave band analysis capabilities. The PISLM "DC output" can be input to a graphic level recorder providing A-weighted time histories.
Sound Level Meter (SLM)	Most SLMs can provide maximum L_{AS} as well as a continuous readout. The "DC output" of most SLM's can also be input into graphic level recorders providing A-weighted time histories. The typical SLM can be used to assess airport use restrictions but is difficult to use in evaluating airport noise contours. Many SLM's also have the capability of assessing octave band sound pressure levels, useful in analyzing stationary noise source problems.
Graphic Level Recorder (GLR)	The GLR is a highly recommended system component. Many situations arise in which a grpahic time history "pictorial" is more understandable than tabulated decibels. Caution: The GLR must accept a DC signal within a voltage range corresponding to the SLM or PISLM output voltage. An AC signal GLR cannot be used in a manner which will provide an accurate dBA, slow response time history. The power supply of the GLR can be either AC or DC however a DC power option is highly recommended for field operational flexibility.

ITEM (Cont'd)	COMMENT
Portable Aviation Frequency Radio	The portable aviation frequency radio, preferably with rechargable batteries, is a vital system component. Monitoring the Advisory Terminal Information System (ATIS) frequengy provides airport wind and barometric pressure readings. Monitoring tower, approach and departure frequencies provides aircraft identification and most importantly warning that an aircraft overflight is imminent.
Walkie-Talkies	Communication between noise measurement teams is often a requirement both for aircraft identification as well as redeploying teams in response to a chage in airport operational runways. Walkie-talkies can also be useful in estimating aircraft speed between two observation points.
Camera	A camera is useful for photo-scaling aircraft altitudes. It is usually not necessary to acquire aircraft altitude data, however, special programs do arise in which altitude is required. The camera is also used to document the test site environs, equipment set ups, and microphone locations to resolve post test questions.
Portable sling psychrometer	The sling psychrometer provides dry-bulb and wet-bulb temperature for computing relative humidity. Sound attenuation varies significantly with temperature and relative humidity and the measurement of those parameters is often necessary.
100 Ft. Tape Measure	Useful in siting microphone position relative to landmarks as well as microphone height.
Four-foot long rope (1.2m)	Convenient way to verify microphone height when a tape measure is not available.

2. RECOMMENDED MEASUREMENT PRACTICES. The following list of recommended measurement practices are key elements in providing a traceable record of a noise monitoring program.

a. Conduct measurement with the microphone(s) at a height of 4 feet (1.2m) above the ground.

b. Orient the microphone properly, according to manufacturer's specifications.

c. Avoid measuring aircraft noise in close proximity to vertical reflective surfaces (at least 25 feet whenever possible).

d. Avoid overhead obstructions in the vicinity of the microphone. Ideally, a cone of free space, with a half angle of 75 degrees from vertical should exist above the microphone.

e. Avoid the use of two-way radios in the immediate vicinity of microphone cables and SLM's while recording data. The transmission of electromagnetic energy often can be picked up through the noise measurement system.

f. Calibrate all instrumentation at least once an hour as well as at the beginning and the end of each measurement period. Take special care with calibrators. If a calibrator is dropped it must be checked against another calibrator known to be accurate. For this reason it is a good idea to keep a "laboratory standard" calibrator in the office.

g. Use a windscreen at all times. Avoid measurements under windy conditions; if unavoidable, document the wind-induced sound level. If maximum sound levels of aircraft or other events exceed the wind noise by more than 10 dB, the sound level measurement error will be less than 0.5 dB.

h. Check battery energy levels at least once every thirty minutes. Instruments, using nickel-cadmium batteries may require more frequent checking.

i. Maintain accurate thorough data logs during a measurement program including: day, data, time(s), calibration levels, noise floor levels, battery checks and the selector and gain settings for every component in the measurement system. Noise event data sheets should also include aircraft type, carrier, elevation anagle above the horizon, time, aircraft operaltion (takeoff or landing), and a space for comments. All intrusive noise events during data recording should be noted. When the time comes to write a report on the measurement survey, all of the little details noted during the test will prove most valuable.

j. As further documentary record it is always good to draw a schematic diagram of the measurement setup showing equipment, orientation, priximity to obstructions, roadways, etc. Photos of each measurement site are also very useful in going back and addressing questions concerning field procedure or the neighborhood characteristics.

k. During data acquisition for any desired event avoid conversation in the vicinity of the microphone(s). Keep voice levels low at all times. This may seem obvious but is one of the most frequent errors in procedure made by inexperienced persons and observers.

l. The list shown below identifies certain essential items easily overlooked in preparing to go out and measure noise:

(1) properly sized calibration screwdriver(s);

(2) calibrated watch, clock, or other "time-piece";

(3) extra graphic level recorder pens and paper;

(4) spare batteries;

(5) maps;

(6) data sheets, and clipboard.

m. Two of the "easiest errors to make" in sound level measurement are:

(1) Meter Response Time set incorrectly on fast rather than SLOW.

(2) Meter weighting network on some other setting than A.

n. The single biggest category of problems encountered with noise measurement equipment involves connections and cables. Time spent in checking and caring for these items will minimize the chance of wasting a day in the field. Avoid pulling cords anywhere but at the connector, avoid kinks in wiring (especially in cold weather) and frequently test cables for continuity. If a cable becomes crimped or damaged in any way, remove it from service until repaired.

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U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: Hazardous Wildlife Attractants on or near Airports

Date: 02/21/2020

Initiated By: AAS-300

AC No: 150/5200-33C

Change:

1 Purpose.

This Advisory Circular (AC) provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. It also discusses airport development projects (including airport construction, expansion, and renovation) affecting aircraft movement near hazardous wildlife attractants. Appendix 1 provides definitions of terms used in this AC.

2 Cancellation.

This AC cancels AC 150/5200-33B, *Hazardous Wildlife Attractants on or near Airports,* dated August 28, 2007.

3 Application.

The Federal Aviation Administration recommends the guidance in this AC for land uses that have the potential to attract hazardous wildlife on or near public-use airports. This AC does not constitute a regulation, is not mandatory, and is not legally binding in its own right. It will not be relied upon as a separate basis by the FAA for affirmative enforcement action or other administrative penalty. Conformity with this AC is voluntary, and nonconformity will not affect rights and obligations under existing statutes and regulations, except as follows:

1. Airports that hold Airport Operating Certificates issued under Title 14, Code of Federal Regulations (CFR), Part 139, Certification of Airports, Subpart D, may use the standards, practices and recommendations contained in this AC as one, but not the only, acceptable means of compliance with the wildlife hazard management requirements of Part 139.
2. The FAA recommends the guidance in this AC for airports that receive funding under Federal grant assistance programs, including the Airport Improvement Program. See Grant Assurance #34.

3. The FAA recommends the guidance in this AC for projects funded by the Passenger Facility Charge program. See PFC Assurance #9.
4. The FAA recommends the guidance in this AC for land-use planners and developers of projects, facilities, and activities on or near airports.

4 **Principal Changes.**

Changes are marked with vertical bars in the margin. Change in this AC include:

1. Clarification by the FAA that non-certificated airports are recommended to conduct a Wildlife Hazard Assessment (Assessment) or a Wildlife Hazard Site Visit (Site Visit);
2. Table 1, Ranking of Hazardous Species, has been moved to Advisory Circular 150/5200-32, *Reporting Wildlife Aircraft Strikes* (5/31/2013);
3. Consolidation and reorganization of discussion on land uses of concern; and updated procedures for evaluation and mitigation. Discussion addresses off-airport hazardous wildlife attractants, followed by discussion of on-airport attractants. It also clarifies language regarding the applicability of the AC.

5 **Background.**

1. Information about the risks posed to aircraft by certain wildlife species has increased a great deal in recent years. Improved reporting, studies, documentation, and statistics clearly show that aircraft collisions with birds and other wildlife are a serious economic and public safety problem. While many species of wildlife can pose a risk[1] to aircraft safety, they are not equally hazardous[2]. These hazard rankings can help focus hazardous wildlife management efforts on those species or groups that represent the greatest risk to safe air and ground operations in the airport environment. Used in conjunction with a site-specific Assessment that will determine the relative abundance and use patterns of wildlife species, these rankings combined with a systematic risk analysis can help airport operators better understand the general threat level (and consequences) of certain wildlife species. Also, the rankings can assist with the creation of a "high risk" list of hazardous species that warrant immediate attention.
2. Most public-use airports have large tracts of open, undeveloped land that provide added margins of safety and noise mitigation. These areas can also present potential hazards to aviation if they encourage wildlife to enter an airport's approach or departure airspace or aircraft operations area. Constructed or natural areas— such as

[1] Risk is the relationship between the severity and probability of a threat. It is the product of hazard level and abundance in the critical airspace, and is thus defined as the probability of a damaging strike with a given species.

[2] Hazardous wildlife are species of wildlife (birds, mammals, reptiles), including feral and domesticated animals, not under control that may pose a direct hazard to aviation (i.e., strike risk to aircraft) or an indirect hazard such as an attractant to other wildlife that pose a strike hazard or are causing structural damage to airport facilities (e.g., burrowing, nesting, perching).

poorly drained locations, detention/retention ponds, roosting habitats on buildings, landscaping, odor-causing rotting organic matter (putrescible waste) disposal operations, wastewater treatment plants, agricultural or aquaculture activities, surface mining, wetlands, or some conservation-based land uses — can provide wildlife with ideal locations for feeding, loafing, reproduction, and escape. Even small facilities, such as fast food restaurants, taxicab staging areas, rental car facilities, aircraft viewing areas, and public parks, can produce substantial attractions for hazardous wildlife.

3. During the past century, wildlife-aircraft strikes have resulted in the loss of hundreds of lives worldwide, as well as billions of dollars in aircraft damage. Hazardous wildlife attractants on and near airports can jeopardize future airport expansion, making proper community land-use planning essential. This AC provides airport operators and those parties with whom they cooperate with the guidance they need to assess and address potentially hazardous wildlife attractants when locating new facilities and implementing certain land-use practices on or near public-use airports.

6 Memorandum of Agreement Between Federal Resource Agencies.

The FAA, the U.S. Air Force, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and the U.S. Department of Agriculture - Wildlife Services signed a Memorandum of Agreement (MOA) to acknowledge their respective missions in protecting aviation from wildlife hazards. Through the MOA, the agencies established procedures necessary to coordinate their missions to address more effectively existing and future environmental conditions contributing to collisions between wildlife and aircraft (wildlife strikes) throughout the United States. These efforts are intended to minimize wildlife risks to aviation and human safety while protecting the Nation's valuable environmental resources.

7 Feedback on this AC.

If you have suggestions for improving this AC, you may use the Advisory Circular Feedback form at the end of this AC.

John R. Dermody
Director of Airport Safety and Standards

CONTENTS

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CHAPTER 1. GENERAL SEPARATION CRITERIA FOR HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS

1.1 Introduction.

1.1.1 Airport operators should maintain an appropriate environment for the safe and efficient operation of aircraft, which entails mitigating wildlife strike hazards by fencing, modifying the landscape in order to deter wildlife or by hazing or removing wildlife hazardous to aircraft from congregating on airports. When considering proposed land uses, operators and sponsors of airports certificated under Part 139, local planners, and developers must take into account whether the proposed land uses, including new development projects, will increase wildlife hazards. Land-use practices that attract or sustain hazardous wildlife populations on or near airports, specifically those listed in Chapter 2, can significantly increase the potential for wildlife strikes.

1.1.2 The FAA urges regulatory agencies and planning and zoning agencies to evaluate proposed new land uses within the separation criteria and prevent the creation of land uses that attract or sustain hazardous wildlife within the separation distances.

1.1.3 The FAA recommends the use of minimum separation criteria outlined below for land-use practices that attract hazardous wildlife to the vicinity of airports. Please note that FAA criteria include land uses that cause movement of hazardous wildlife onto, into, or across the airport's approach or departure airspace or aircraft operations area. (See the discussion of the synergistic effects of surrounding land uses in Paragraph 2.8 of this AC.). For the purpose of evaluating distance criteria, the delineation of the aircraft operations area may also consider future airport development plans depicted on the Airport Layout Plan (e.g., planned runway extension).

1.1.4 The separation distances are based on (1) flight patterns and performance criteria of piston-powered aircraft and turbine-powered aircraft, (2) the altitude at which most strikes happen (78 percent occur under 1,000 feet and 90 percent occur under 3,000 feet above ground level), and (3) National Transportation Safety Board recommendations.

1.2 Airports Serving Piston-Powered Aircraft.

Airports that do not sell Jet-A fuel normally serve piston-powered aircraft. Notwithstanding more stringent requirements for specific land uses, the FAA recommends a separation distance of 5,000 feet from these airports for any of the hazardous wildlife attractants discussed in Chapter 2 or for new airport development projects meant to accommodate aircraft movement. This distance is to be maintained between the closest point of the airport's aircraft operations area and the hazardous wildlife attractant. Figure 1 depicts an example of the 5,000-foot separation distance measured from the nearest aircraft operations area.

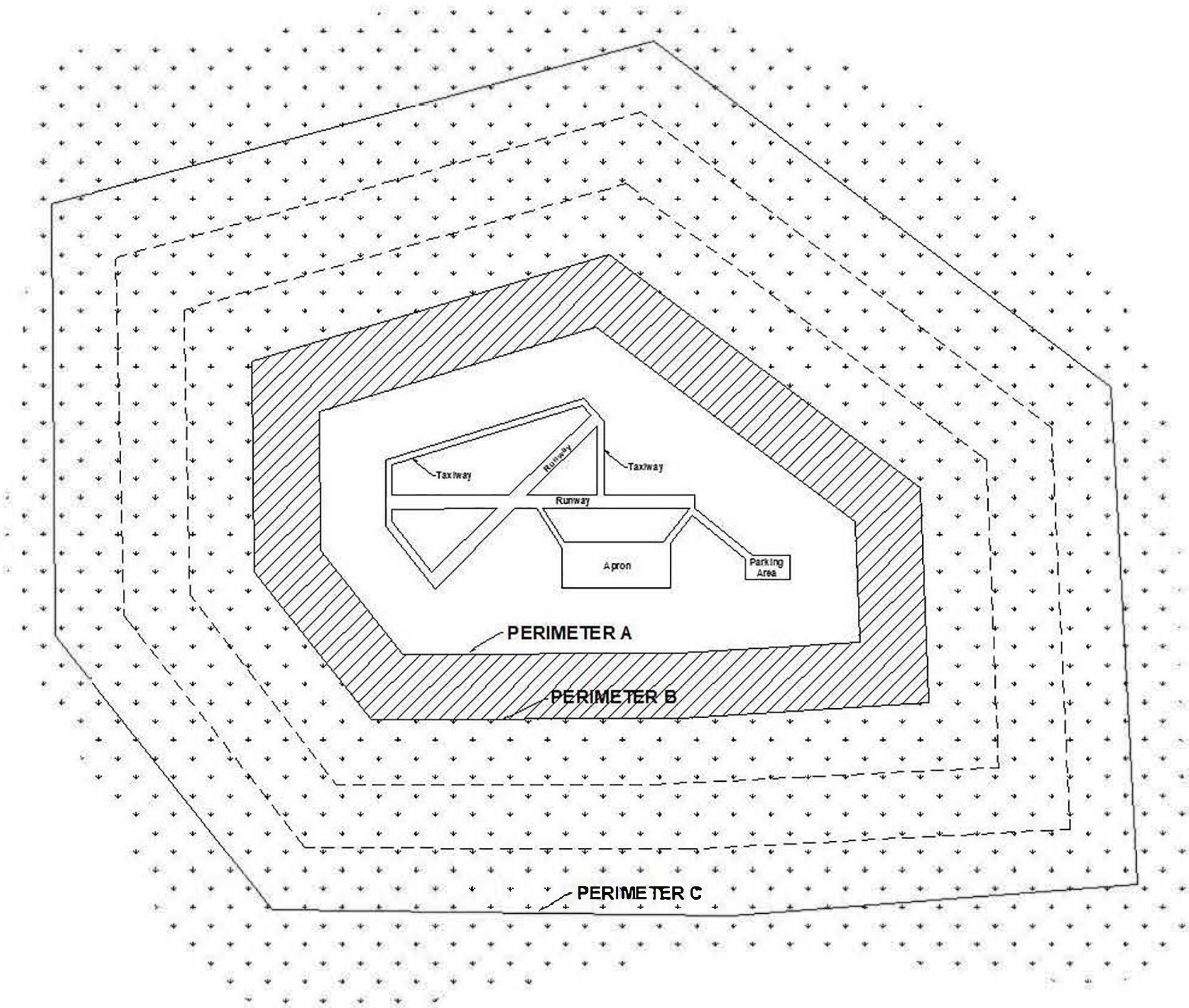
1.3 Airports Serving Turbine-Powered Aircraft.

For airports serving turbine-powered aircraft, the FAA recommends a separation distance of 10,000 feet from these airports for any of the hazardous wildlife attractants discussed in Chapter 2 or for new airport development projects meant to accommodate aircraft movement. This distance is to be maintained between the closest point of the airport's aircraft operations area and the hazardous wildlife attractant. Figure 1 depicts an example of the 10,000-foot separation distance from the nearest aircraft movement areas.

1.4 Protection of Approach, Departure, and Circling Airspace.

For all airports, the FAA recommends a distance of 5 miles between the closest point of the airport's aircraft operations area and the hazardous wildlife attractant. Special attention should be given to hazardous wildlife attractants that could cause hazardous wildlife movement into or across the approach or departure airspace. Figure 1 depicts an example of the 5-mile separation distance measured from the nearest aircraft operations area.

Figure 1. Example of recommended separation distances described in Chapter 1 within which hazardous wildlife attractants should be avoided, eliminated, or mitigated.



PERIMETER A: For airports serving piston-powered aircraft, it is recommended hazardous wildlife attractants be 5,000 feet from the nearest aircraft operations area.

PERIMETER B: For airports serving turbine-powered aircraft, it is recommended hazardous wildlife attractants be 10,000 feet from the nearest aircraft operations area.

PERIMETER C: Recommended for all airports, 5-mile range to protect approach, departure and circling airspace.

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CHAPTER 2. LAND-USE PRACTICES ON OR NEAR AIRPORTS THAT POTENTIALLY ATTRACT HAZARDOUS WILDLIFE

2.1 General.

2.1.1 Many types of vegetation, habitats and land use practices can provide an attractant to animals that pose a risk to aviation safety. Hazardous wildlife use the natural or artificial habitats on or near an airport for food, water or cover. The wildlife species and the size of the populations attracted to the airport environment vary considerably, depending on several factors, including land-use practices on or near the airport. In addition to the specific considerations outlined below, airport operators should refer to *Wildlife Hazard Management at Airports* manual, prepared by FAA and U.S. Department of Agriculture (USDA) staff. (This manual is available in English, Spanish, and French). This manual, as well as other helpful resources can be viewed and downloaded free of charge from the Wildlife Strike Resources section of the FAA's wildlife hazard mitigation web site: http://www.FAA.gov/airports/airport_safety/wildlife).

2.1.1.1 The USDA / Animal and Plant Health Inspection Service (APHIS) / Wildlife Services developed a new publication series on wildlife damage management and is available online. The Wildlife Damage Management Technical Series highlights wildlife species or groups of wildlife species that cause damage to agriculture, property and natural resources, and/or impact aviation and human health and safety. The publications can be found at: https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/sa_reports/ct_wildlife+damage+management+technical+series.

2.1.1.2 Additional resources have been provided by the USDA / APHIS / Wildlife Services National Wildlife Research Center (NWRC) at: https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/programs/nwrc/sa_publications/ct_research_gateway. The NWRC Research Gateway contains research articles, reports, factsheets, technical notes, data and other materials on wildlife hazard mitigation, risk reduction, animal ecology, habitats, and advanced technologies and methodologies.

2.1.2 This section discusses land-use practices having the potential to attract hazardous wildlife and threaten aviation safety. The FAA has determined that the land uses listed below are generally not compatible with safe airport operations when they are located within the separation distances provided in Paragraphs 1.2 through 1.4.

2.1.3 As a reminder, these types of land uses or facilities often require permits from the appropriate permitting agency. The FAA may work with the permitting agency to include conditions for monitoring and mitigation measures, if necessary. Ultimately, the permittee is responsible for compliance to these conditions and the permitting agency is responsible for tracking compliance.

2.2 Waste Disposal Operations.

Municipal solid waste landfills (municipal landfills) are known to attract large numbers of hazardous wildlife, particularly birds. Because of this, these operations, when located within the separations identified in the siting criteria in Paragraphs 1.2 through 1.4, are considered incompatible with safe airport operations.

2.2.1 Siting for New Municipal Solid Waste Landfills Subject to AIR 21.

2.2.1.1 Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (P. L. 106-181) (AIR 21), 49 U.S.C. § 44718(d), prohibits the construction or establishment of a new municipal landfill within 6 miles of certain public-use airports. Before these prohibitions apply, both the airport and the landfill must meet the very specific conditions described below. These restrictions do not apply to airports or landfills located within the state of Alaska.

2.2.1.2 The airport must (1) have received a Federal grant(s) under 49 U.S.C. § 47101, et. seq.; (2) be under control of a public agency; (3) serve some scheduled air carrier operations conducted in aircraft with less than 60 seats; and (4) have total annual enplanements consisting of at least 51 percent of scheduled air carrier enplanements conducted in aircraft with less than 60 passenger seats.

2.2.1.3 The proposed municipal landfill must (1) be within 6 miles of the airport, as measured from airport property line to the landfill property line, and (2) have started construction or establishment on or after April 5, 2001. Section 44718(d) only limits the construction or establishment of some new landfills. It does not limit the expansion, either vertical or horizontal, of existing landfills.

2.2.1.4 Regarding existing municipal landfills and lateral expansions of landfills, 40 CFR § 258.10 requires owners or operators of a landfill units located within the separation distances provided in Paragraphs 1.2 through 1.4 to demonstrate that the unit is designed and operated so that it does not pose a bird hazard to aircraft. To accomplish this, follow the instructions provided in Paragraphs 3.2 and 3.3, document the wildlife monitoring and mitigation procedures that are cooperatively developed, and place this documentation in the operating permit of the facility.

2.2.2 Siting for New Municipal Landfills Not Subject to AIR 21.

If an airport and a municipal landfill do not meet the criteria of § 44718(d), then FAA recommends against locating the landfill within the separation distances identified in Paragraphs 1.2 through 1.4. In determining this distance separation, measurements should be made from the closest point of the airport property boundary to the closest point of the landfill property boundary.

2.2.3 Considerations for Existing Waste Disposal Facilities Within the Limits of Separation Criteria.

The FAA recommends against airport development projects that would increase the number of aircraft operations or accommodate larger or faster aircraft near landfill operations located within the separations identified in Paragraphs 1.2 through 1.4. In addition, in accordance with 40 CFR § 258.10, owners or operators of existing landfill units that are located within the separations listed in Paragraphs 1.2 through 1.4 must demonstrate that the unit is designed and operated so it does not pose a bird hazard to aircraft. (See Paragraph 4.3.2 of this AC for a discussion of this demonstration requirement.)

2.2.4 Enclosed Trash Transfer Stations.

Enclosed waste-handling facilities that receive garbage behind closed doors; process it via compaction, incineration, or similar manner; and remove all residue by enclosed vehicles generally are compatible with safe airport operations, provided they are constructed and operated properly and are not located on airport property or within the Runway Protection Zone. These facilities should not handle or store putrescible waste outside or in a partially enclosed structure accessible to hazardous wildlife. Trash transfer facilities that are open on one or more sides; or store uncovered quantities of municipal solid waste outside, even if only for a short time; or use semi-trailers that leak or have trash clinging to the outside; or do not control odors by ventilation and filtration systems (odor masking is not acceptable) do not meet the FAA's definition of fully enclosed trash transfer stations. The FAA considers fully enclosed waste-handling facilities constructed or operated incorrectly incompatible with safe airport operations if they are located closer than the separation distances specified in Paragraphs 1.2 through 1.4.

2.2.5 Composting Operations on or near Airport Property.

Composting operations that accept only yard waste (e.g., leaves, lawn clippings, or branches) generally do not attract hazardous wildlife. Sewage sludge, woodchips, and similar material are not municipal solid wastes and may be used as compost bulking agents. The compost, however, must never include food or other municipal solid waste. Composting operations should not be located on airport property unless effective, risk-reducing mitigations are in place. Off-airport property composting operations should be located no closer than the greater of the following distances: 1,200 feet from any aircraft operations area or the distance called for by airport design requirements (see AC 150/5300-13, *Airport Design*). This spacing should prevent material, personnel, or equipment from penetrating any Object Free Area, Obstacle Free Zone, Threshold Siting Surface, or Clearway. Airport operators should monitor composting operations located in proximity to the airport to ensure that steam or thermal rise does not adversely affect air traffic.

2.2.6 Underwater Waste Discharges.

The FAA recommends against the underwater discharge of any food waste (e.g., fish processing offal) within the separations identified in Paragraphs 1.2 through 1.4 because it could attract scavenging hazardous wildlife.

2.2.7 Recycling Centers.

Recycling centers that accept previously sorted non-food items, such as glass, newspaper, cardboard, aluminum, electronic, and household wastes such as paint, batteries, and oil, are, in most cases, not attractive to hazardous wildlife and are acceptable.

2.2.8 Construction and Demolition Debris Facilities.

2.2.8.1 Construction and demolition landfills generally do not attract hazardous wildlife and are acceptable if maintained in an orderly manner, admit no putrescible waste, and are not co-located with other waste disposal operations. However, construction and demolition landfills have similar visual and operational characteristics to putrescible waste disposal sites. When co-located with putrescible waste disposal operations, construction and demolition landfills are more likely to attract hazardous wildlife because of the similarities between these disposal facilities.

2.2.8.2 Therefore, a construction and demolition landfill co-located with another waste disposal operation should be located outside of the separations identified in Paragraphs 1.2 through 1.4.

2.2.8.3 Airport operators should be aware that on-site storage of construction and maintenance debris, as well as out-of-service aircraft or aircraft components, may provide an attractant for hazardous species (e.g., nesting or perching locations). The FAA recommends these on-site areas be monitored and/or mitigated, if necessary.

2.2.9 Fly Ash Disposal.

2.2.9.1 The incinerated residue from resource recovery power/heat-generating facilities that are fired by municipal solid waste, coal, or wood is generally not a wildlife attractant because it no longer contains putrescible matter. Landfills accepting only fly ash are generally not considered to be wildlife attractants and are acceptable as long as they admit no putrescible waste of any kind, and are not co-located with other disposal operations that attract hazardous wildlife.

2.2.9.2 Since varying degrees of waste consumption are associated with general incineration (not resource recovery power/heat-generating facilities), the FAA considers the ash from general incinerators a regular waste disposal by-product and, therefore, a hazardous wildlife attractant if disposed of within the separation criteria outlined in Paragraphs 1.2 through 1.4.

2.3 Water Management Facilities.

Drinking water intake and treatment facilities, storm water and wastewater treatment facilities, associated retention and settling ponds, ponds built for recreational use, ponds and fountains for ornamental purposes, and ponds that result from mining activities often attract large numbers of potentially hazardous wildlife. Development of new open water facilities within the separation criteria identified in Paragraphs 1.2 through 1.4 should be avoided to prevent wildlife attractants. If necessary, land-use developers and airport operators may need to develop management plans, in compliance with local and state regulations, to support the operation of storm water management facilities on or near all public-use airports to ensure a safe airport environment. The FAA recommends these plans be developed in consultation with a Qualified Airport Wildlife Biologist[3], to minimize hazardous wildlife attractants.

2.3.1 Existing Stormwater Management Facilities.

2.3.1.1 On-airport stormwater management facilities allow the quick removal of surface water, including discharges related to aircraft deicing, from impervious surfaces, such as pavement and terminal/hangar building roofs. Existing on-airport detention ponds collect stormwater, protect water quality, and control runoff. Because they slowly release water after storms, they may create standing bodies of water that can attract hazardous wildlife. Where the airport has developed a Wildlife Hazard Management Plan, Part 139 regulations require the immediate correction of any wildlife hazards arising from existing stormwater facilities located on or near airports using appropriate wildlife hazard mitigation techniques. Airport operators should develop measures to minimize hazardous wildlife attraction in consultation with a Qualified Airport Wildlife Biologist.

2.3.1.2 Where possible, airport operators should modify stormwater detention ponds to allow a maximum 48-hour detention period for the design storm. The combination of open water and vegetation is particularly attractive to waterfowl and other hazardous wildlife. Water management facilities holding water longer than 48 hours should be maintained in a manner that keeps them free of both emergent and submergent vegetation. The FAA recommends that airport operators avoid or remove retention ponds and detention ponds featuring dead storage to eliminate standing water. Detention basins should remain totally dry between rainfalls. Where constant flow of water is anticipated through the basin, or where any portion of the basin bottom may remain wet, the detention facility should include a concrete or paved pad and/or ditch/swale in the bottom to prevent vegetation that may provide nesting habitat. Drainage basins with a concrete or paved pad should be maintained to prevent or remove any sediment build-up to prevent vegetation growth.

2.3.1.3 When it is not possible to drain a large detention pond completely, airport operators may use physical barriers, such as bird balls, wire grids, pillows,

[3] See Advisory Circular 150/5200-36, *Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculums for Airport Personnel Involved in Controlling Wildlife Hazards on Airports.*

or netting, to deter birds and other hazardous wildlife. When physical barriers are proposed, airport operators must evaluate their use, effectiveness and maintenance requirements. Airport operators must also ensure physical barriers will not adversely affect water rescue. Before installing any physical barriers over detention ponds on Part 139 airports, airport operators must get approval from the appropriate FAA Regional Airports Division Office.

2.3.1.4 The FAA recommends that airport operators encourage off-airport stormwater treatment facility operators to incorporate appropriate wildlife hazard mitigation techniques into stormwater treatment facility operating practices when their facility is located within the separation criteria specified in Paragraphs 1.2 through 1.4.

2.3.2 New Stormwater Management Facilities.

The FAA recommends that storm water management systems located within the separations identified in Paragraphs 1.2 through 1.4 be designed and operated so as not to create above-ground standing water. Stormwater detention ponds should be designed, engineered, constructed, and maintained for a maximum 48–hour detention period after the design storm and to remain completely dry between storms. To facilitate the control of hazardous wildlife, the FAA recommends the use of steep-sided, rip-rap or concrete lined, narrow, linear-shaped water detention basins. When it is not possible to place these ponds away from an airport's aircraft operations area (but still on airport property), airport operators may use physical barriers, such as bird balls, wire grids, floating covers, vegetation barriers (bottom liners), or netting, to prevent access of hazardous wildlife to open water and minimize aircraft-wildlife interactions. Caution is advised when nets or wire grids are used for deterring birds from attractants. Mesh size should be < 5 cm (2") to avoid entangling and killing birds and should not be made of a monofilament material. Grids installed above and across water to deter hazardous birds (e.g., waterfowl, cormorants, etc.) are different than using a small mesh covering but also provides an effective deterrent. Grid material, size, pattern and height above water may differ on a case-by-case basis. When physical barriers are used, airport operators must evaluate their use and ensure they will not adversely affect water rescue. Before installing any physical barriers over detention ponds on Part 139 airports, a review by a Qualified Airport Wildlife Biologist should be conducted, prior to approval from the appropriate FAA Regional Airports Division Office. All vegetation in or around detention basins that provide food or cover for hazardous wildlife should be eliminated. If soil conditions and other requirements allow, the FAA encourages the use of underground storm water infiltration systems because they are less attractive to wildlife.

2.3.3 Existing Wastewater Treatment Facilities.

2.3.3.1 The FAA recommends that airport operators immediately correct any wildlife hazards arising from existing wastewater treatment facilities located on or near the airport.

2.3.3.2 Where required, a wildlife management plan will outline appropriate wildlife hazard mitigation techniques. Accordingly, airport operators should encourage wastewater treatment facility operators to incorporate measures, developed in consultation with a Qualified Airport Wildlife Biologist, to minimize hazardous wildlife attractants. Airport operators should also encourage those wastewater treatment facility operators to incorporate these mitigation techniques into their standard operating practices. In addition, airport operators should consider the existence of wastewater treatment facilities when evaluating proposed sites for new airport development projects and avoid such sites when practicable.

2.3.4 New Wastewater Treatment Facilities.

The FAA recommends against the construction of new wastewater treatment facilities or associated settling ponds within the separations identified in Paragraphs 1.2 through 1.4. Appendix 1 defines wastewater treatment facility as "any devices and/or systems used to store, treat, recycle, or reclaim municipal sewage or liquid industrial wastes." The definition includes any pretreatment involving the reduction or elimination of pollutants prior to introducing such pollutants into a treatment facility. When a wastewater treatment facility is proposed within the separation criteria, the airport operator, project proponent, and local jurisdiction should discuss the proposed project location with regard to its location near the airport and the separation distances identified in Paragraphs 1.2 through 1.4. If possible, a more suitable location for the proposed facility should be identified. If no other suitable location exists, FAA recommends that the proposed facility plans be reviewed by a Qualified Airport Wildlife Biologist to identify measures to avoid or reduce the facility's potential to attract hazardous wildlife. If appropriate measures cannot be incorporated to reduce potential wildlife hazards, airport operators should document their opposition in a letter to the local jurisdiction.

2.3.5 Artificial Marshes.

In warmer climates, wastewater treatment facilities sometimes employ artificial marshes and use submergent and emergent aquatic vegetation as natural filters. These artificial marshes may be used by some species of flocking birds, such as blackbirds and waterfowl, for breeding or roosting activities. The FAA recommends against establishing artificial marshes within the separations identified in Paragraphs 1.2 through 1.4.

2.3.6 Wastewater Discharge and Sludge Disposal.

The FAA recommends careful consideration regarding the discharge of wastewater or biosolids (i.e., secondarily treated sewage sludge) on airport property. Such discharges might improve soil moisture and quality on unpaved areas and lead to improved turf growth. Depending on the airfield plant communities and habitats present, this can be an attractive food source for many species of animals or, conversely, could result in limited attractiveness to hazardous wildlife. Also, improved turf requires more frequent mowing and could attract geese. Airports should improve their turf with the goal of a monoculture of turf that is least attractive to wildlife. Wastewater or biosolids applications might assist in achieving this goal. Caution should be exercised when discharges saturate airfield areas adjacent to paved surfaces. The resultant soft, muddy conditions could restrict or prevent emergency vehicles from reaching accident sites in a timely manner.

2.4 Wetlands.

Wetlands provide a variety of functions and can be regulated by local, state, and Federal laws. Wetlands can be attractive to many types of wildlife, including many which rank high on the list of hazardous wildlife species (Table 1 - AC 150/5200-32). Some types of wetlands are not as attractive to wildlife as others and they should be reviewed on a case-by-case basis to determine the likelihood of proposed wetlands increasing the numbers of hazardous wildlife at the airport. Factors such as size, shape, location, canopy cover and vegetative composition among other things should be considered when determining compatibility.

Note: If questions exist as to whether an area qualifies as a wetland, contact the District Office of the U.S. Army Corps of Engineers, the Natural Resources Conservation Service, or a wetland consultant qualified to delineate wetlands.

2.4.1 Existing Wetlands on or near Airport Property.

If wetlands are located on or near airport property, airport operators should be alert to any wildlife use or habitat changes in these areas that could affect safe aircraft operations. At public-use airports, the FAA recommends immediately correcting, in cooperation with local, state, and Federal regulatory agencies, any wildlife hazards arising from existing wetlands located on or near airports within 5 miles of the aircraft operations area. Where required, a wildlife management plan will outline appropriate wildlife hazard mitigation techniques. Accordingly, airport operators should develop measures to minimize hazardous wildlife attraction in consultation with a FAA Qualified Airport Wildlife Biologist.

2.4.2 New Airport Development.

Whenever possible, the FAA recommends locating new airports using the separations from wetlands identified in Paragraphs 1.2 through 1.4. Where alternative sites are not practicable, or when airport operators are expanding an existing airport into or near wetlands, a Qualified Airport Wildlife Biologist, in coordination with the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and the state wildlife management agency should evaluate the wildlife hazards and prepare a wildlife management plan that indicates methods of minimizing the hazards.

2.4.3 Mitigation for Wetland Impacts from Airport Projects.

Wetland mitigation may be necessary when unavoidable wetland disturbances result from new airport development projects or projects required to correct wildlife hazards from wetlands. Wetland mitigation must be designed so it does not create a wildlife hazard. The FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in Paragraphs 1.2 through 1.4.

2.4.3.1 **Onsite Mitigation of Wetland Functions.**

Wetland mitigation/conservation easements must not inhibit the airport operator's ability to effectively control hazardous wildlife on or near the mitigation site or effectively maintain other aspects of safe airport operations. Enhancing such mitigation areas to attract hazardous wildlife must be avoided. The FAA will review any onsite mitigation proposals to determine compatibility with safe airport operations and grant assurance compliance. Early coordination with the FAA is encouraged for any proposal to use airport land for wetland mitigation. A Qualified Airport Wildlife Biologist should evaluate any wetland mitigation projects that are needed to protect unique wetland functions and that must be located in the separation criteria in Paragraphs 1.2 through 1.4 before the mitigation is implemented. A wildlife management plan should be developed to reduce the wildlife hazards.

2.4.3.2 **Offsite Mitigation of Wetland Functions.**

2.4.3.2.1 The FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in Paragraphs 1.2 through 1.4 unless they provide unique functions that must remain onsite (see 2.4.3.1). Agencies that regulate impacts to or around wetlands recognize that it may be necessary to split wetland functions in mitigation schemes. Therefore, regulatory agencies may, under certain circumstances, allow portions of mitigation to take place in different locations.

2.4.3.2.2 The FAA encourages landowners or communities supporting the restoration or enhancement of wetlands to do so only after critically analyzing how those activities would affect aviation safety. To do so, landowners or communities should contact the affected airport sponsor, FAA, and/or a Qualified Airport Wildlife Biologist.

2.4.3.2.3 Those parties should work cooperatively to develop restoration or enhancement plans that would not worsen existing wildlife hazards or create such hazards. See Paragraphs 4.1.1 – 4.1.3 for land-use modifications evaluation criteria.

2.4.3.2.4 If parties develop a mutually acceptable restoration or enhancement plan, the landowner or community proposing the restoration or enhancement must monitor the restored or enhanced site. This monitoring must verify that efforts have not worsened or created hazardous wildlife attraction or activity. If such attraction or activity occurs, the landowner or community should work with the airport sponsor, or a Qualified Airport Wildlife Biologist to reduce the hazard to aviation.

2.4.3.3 Mitigation Banking.

Wetland mitigation banking is the creation or restoration of wetlands in order to provide mitigation credits that can be used to offset permitted wetland losses. Mitigation banking benefits wetland resources by providing advance replacement for permitted wetland losses; consolidating small projects into larger, better-designed and managed units; and encouraging integration of wetland mitigation projects with watershed planning. This last benefit is most helpful for airport projects, as wetland impacts mitigated outside of the separations identified in Paragraphs 1.2 through 1.4 can still be located within the same watershed. Wetland mitigation banks meeting the separation criteria offer an ecologically sound approach to mitigation in these situations. Airport operators should work with local watershed management agencies or organizations to develop mitigation banking for wetland impacts on airport property.

2.5 Dredge Spoil Containment Areas.

The FAA recommends against locating dredge spoil containment areas (also known as Confined Disposal Facilities) within the separations identified in Paragraphs 1.2 through 1.4 if the containment area or the spoils contain material that would attract hazardous wildlife. Proposals for new dredge spoil containment areas located within the separation distances should be reviewed on a case-by-case basis to determine the likelihood of resulting in an increase in hazardous wildlife. The FAA recommends that airport sponsors work with a Qualified Airport Wildlife Biologist and/or the FAA to review proposals for dredge spoil containment areas located within separation criteria.

2.6 Agricultural Activities.

Many agricultural crops can attract hazardous wildlife and should not be planted within the separations identified in Paragraphs 1.2 through 1.4. Corn, wheat, and other small grains in particular should be avoided. If the airport has no financial alternative to agricultural crops to produce the income necessary to maintain the viability of the airport, then the airport should consider growing crops that hold little food value for hazardous wildlife, such as grass hay. Attractiveness to hazardous wildlife species during all phases of production, from planting through harvest and fallow periods, should be considered when contemplating the use of airport property for agricultural production. Where agriculture is present, crop residue (e.g., waste grain) should not be left in the field following harvest. Also, airports should consult AC 150/5300-13, *Airport Design,* to ensure that agricultural crops do not create airfield obstructions or other safety hazards. Before planning or initiating any agricultural practices on airport property, operators should get approval from the appropriate FAA regional Airports Division Office and demonstrate that the additional cost of wildlife control and potential accidents is offset by revenue generated by agricultural leases. Annual review of the Airport Certification Manual by the Certification Inspector does not constitute approval and is insufficient to meet this requirement.

2.6.1 Livestock Production.

Confined livestock operations (i.e., feedlots, dairy operations, hog or chicken production facilities, or egg laying operations) often attract flocking birds, such as blackbirds, starlings, or pigeons that pose a hazard to aviation. Therefore, the FAA recommends against such facilities within the separations identified in Paragraphs 1.2 through 1.4. The airport operator should be aware of any wildlife hazards that appear to be attracted to off-site livestock operations and consider working with a Qualified Airport Wildlife Biologist to identify reasonable and feasible measures that may be proposed to landowners to reduce the attractiveness of the site to the potentially hazardous wildlife species.

2.6.1.1 In exceptional circumstances, and following FAA review and approval, livestock may be grazed on airport property as long as they are off the airfield and separated behind fencing where they cannot pose a hazard to aircraft. The livestock should be fed and watered as far away from the airfield and approach/departure space as possible because the feed and water may attract birds. The wildlife management plan should include monitoring and wildlife mitigation for any areas where the livestock and their feed/water is located in case a wildlife hazard is detected. Airports without wildlife management plans should equally consider monitoring and mitigation protocols to identify and address any wildlife hazards associated with livestock and their feeding operations.

2.6.2 Alternative Uses of Agricultural Land.

2.6.2.1 Habitat modification both on and surrounding an airfield is one of the best and most economical long term mitigation strategies to decrease risk that wildlife pose to flight safety. Alternative land uses (e.g., solar and biofuel) at airports could help mitigate many of the challenges for the airport operator, developers, and conservationists. However, careful planning must first determine that proposed alternative energy production at airports does not create wildlife attractants or other hazards.

2.6.2.2 Some airports are surrounded by vast areas of farmed land within the distances specified in Paragraphs 1.2 through 1.4. Seasonal uses of agricultural land for activities such as hunting can create a hazardous wildlife situation. In some areas, farmers will rent their land for hunting purposes. Rice farmers, among others, flood their land to attract waterfowl or for conservation efforts. This is often done during waterfowl hunting season to obtain additional revenue by renting out duck blinds.

2.6.2.3 The waterfowl hunters then use decoys and call in hundreds, if not thousands, of birds, creating a threat to aircraft safety. It is recommended that a Qualified Airport Wildlife Biologist review, in coordination with local farmers and producers, these types of seasonal land uses and incorporate mitigating measures into the wildlife management plan, when possible.

2.7 Aquaculture.

Aquaculture is the breeding, rearing, and harvesting of fish, shellfish, and plants in all types of water environments including ponds, rivers, lakes, and the ocean. Aquaculture is used to produce food fish, sport fish, bait fish, ornamental fish, and to support restoration activities. Aquacultured species are grown in a range of facilities including tanks, cages, ponds, and raceways. When an aquaculture facility is proposed within the separation criteria, the airport operator, project proponent, and local jurisdiction should discuss the proposed project location with regard to its attraction to hazardous species, location near the airport and the separation distances identified in Paragraphs 1.2 through 1.4. If a facility is identified as a possible significant attraction, a more suitable location for the proposed facility should be identified. If no other suitable location exists, it is recommended that the proposed facility plans be reviewed by a Qualified Airport Wildlife Biologist to identify measures to avoid or reduce the facility's potential to attract hazardous wildlife.

2.7.1 Freshwater Aquaculture.

2.7.1.1 Freshwater aquaculture activities (e.g., catfish, tilapia, trout or bass production) are typically conducted outside of fully enclosed buildings in constructed ponds or tanks and are inherently attractive to a wide variety of birds and therefore pose a significant risk to airport safety when within the separation distances specified in Paragraphs 1.2 through 1.4. Freshwater aquaculture should only be considered if extensive mitigation measures have been incorporated to eliminate attraction to hazardous birds. Examples of such mitigation include:

1. Netting or other material to exclude hazardous birds (e.g., eagles, osprey, gulls, cormorants);
2. Acoustic hazing including pyrotechnics, propane cannons, directional sonic/hailing devices and other similar technologies;
3. Feeding procedure cleanliness, exclusion techniques prohibiting birds from perching or accessing food; efficiency of feeding operation procedures that reduce fish food attraction to hazardous birds;
4. Operation procedure efficiency transferring live fish to and from enclosures or removal of dead fish; maintenance and upkeep of facility;
5. Monitoring, mitigation and communication protocols with nearby airports as a proactive safety feature in response to specific hazardous species in the event they are identified at the facility in unacceptable numbers.

2.7.2 Marine Aquaculture.

Marine aquaculture (Mariculture) refers to the culturing of species that live in the ocean. When appropriately managed and mitigated as necessary, mariculture facilities do not pose a significant risk to airport safety.

2.7.2.1 **Finfish Mariculture.**

2.7.2.1.1 U.S. finfish mariculture primarily produces salmon and steelhead trout as well as lesser amounts of cod, moi, yellowtail, barramundi, seabass, and seabream. Maricultures use rigid and non-rigid enclosures (e.g., cages) at the surface or submerged in the water column. These enclosures may be fully enclosed, or be open at the top or covered with netted material to negate losses from depredation by birds or other predators. Different facilities employ different designs and operational protocols.

2.7.2.1.2 While mariculture operations typically do not pose a significant attractant to hazardous birds, design and operational features can be incorporated as permit conditions to mitigate attraction and effectively reduce this risk. Examples of such mitigation include:

1. Fully enclosed cages using netting or other material to exclude hazardous birds (e.g., gulls, cormorants, pelicans) and to insure retention of fish;
2. Submerged enclosures to reduce attraction to hazardous birds;
3. Feed barge cleanliness, exclusion techniques prohibiting birds from perching or accessing food; efficiency of feeding operation procedures that reduce fish food attraction to hazardous birds;
4. Operation procedure efficiency transferring live fish to and from enclosures or removal of dead fish; maintenance and upkeep of facility;
5. Monitoring, mitigation and communication protocols with nearby airports as a proactive safety feature in response to specific hazardous species in the event they are identified at the facility in unacceptable numbers.

2.7.2.2 **Shellfish Mariculture.**

U.S. shellfish mariculture primarily produces oysters, clams, mussels, lobster and shrimp. Shellfish may be grown directly on the bottom, in submerged cages or bags, or on suspended lines. These types of mariculture operations do not typically present a significant attractant to hazardous birds. For those operations that are found to pose a significant risk, design and operation features that diminish possible attraction to hazardous bird species (e.g., reducing areas for perching or feeding) can effectively reduce this risk.

2.7.2.3 **Plant Mariculture.**

2.7.2.3.1 Microalgae, also referred to as phytoplankton, microphytes, or planktonic algae constitute the majority of cultivated algae. Macroalgae, commonly known as seaweed, also have many commercial and industrial uses.

2.7.2.3.2 While few commercial seaweed farms exist, the sector is growing. These types of mariculture operations do not typically present an attractant to hazardous birds.

2.8 Golf Courses, Landscaping, Structures and Other Land-Use Considerations.

2.8.1 Golf Courses.

The large grassy areas and open water found on most golf courses are attractive to hazardous wildlife, particularly Canada geese and some species of gulls. These species can pose a threat to aviation safety. If golf courses are located on or near airport property, airport operators should be alert to any wildlife use or habitat changes in these areas that could affect safe aircraft operations. Accordingly, airport operators should develop, at a minimum, onsite measures to minimize hazardous wildlife attraction in consultation with a Qualified Airport Wildlife Biologist. Existing golf courses located within these separations that have been documented to attract hazardous wildlife are encouraged to develop a program to reduce the attractiveness of the sites to species that are hazardous to aviation safety. The FAA recommends against construction of new golf courses within the separations identified in Paragraphs 1.2 through 1.4 if determined that the new facility would create a significant wildlife hazard attractant by a Qualified Airport Wildlife Biologist. Airport operators should ensure these golf courses are monitored on a continuing basis for the presence of hazardous wildlife. If hazardous wildlife is detected, corrective actions should be immediately implemented.

2.8.2 Landscaping and Landscape Maintenance.

2.8.2.1 Depending on its geographic location, landscaping can attract hazardous wildlife. The FAA recommends that airport operators approach landscaping with caution and confine it to airport areas not associated with aircraft movements. Vegetation that produces seeds, fruits, or berries, or that provides dense roosting or nesting cover should not be used. Airports should develop a landscape plan to include approved and prohibited plants. The landscape plan should consider the watering needs of mature plants. A Qualified Airport Wildlife Biologist should review all landscaping plans. Airport operators should also monitor all landscaped areas on a continuing basis for the presence of hazardous wildlife. If hazardous wildlife is detected, corrective actions should be immediately implemented.

2.8.2.2 Turf grass areas on airports have the potential to be highly attractive to a variety of hazardous wildlife species. Research conducted by the USDA Wildlife Services' National Wildlife Research Center has shown that no one airfield vegetation management regimen will deter all species of hazardous wildlife in all situations. The composition and height of airfield grasslands should be properly managed to reduce their attractiveness to hazardous wildlife. In many situations, an intermediate height, monoculture turf grass might be most favorable. In cooperation with a

Qualified Airport Wildlife Biologist, airport operators should develop airport turf grass management plans on a prescription basis, including cultivar selection during reseeding efforts, that is specific to the airport's geographic location, climatic conditions, and the type of hazardous wildlife likely to frequent the airport.

2.8.2.3 Airport operators should ensure that plant varieties attractive to hazardous wildlife are not used on the airport. Disturbed areas or areas in need of re-vegetating should not be planted with seed mixtures containing millet or any other large-seed producing grass. For airport property already planted with seed mixtures containing millet, rye grass, or other large-seed producing grasses, the FAA recommends disking, plowing, or another suitable agricultural practice to prevent plant maturation and seed head production. Plantings should follow the specific recommendations for grass management and seed and plant selection made by the State University Cooperative Extension Service, the local office of Wildlife Services, or a Qualified Airport Wildlife Biologist. Airport operators should also consider developing and implementing a preferred/prohibited plant species list, reviewed by a Qualified Airport Wildlife Biologist, which has been designed for the geographic location to reduce the attractiveness to hazardous wildlife for landscaping airport property.

2.8.3 Structures.

2.8.3.1 Certain structures attract birds for loafing and nesting. Flat rooftops can be attractive to many species of gulls for nesting, hangars provide roosting / nesting opportunities for rock doves, towers, light posts and navigation aids can provide loafing / hunting perches for raptors and aircraft can provide loafing / nesting sites for European starlings, blackbirds and other species. These structures should be monitored and mitigated, if located on-site. Off-site structural attractions may require additional coordination to effectively mitigate their use by hazardous species.

2.8.3.2 Cellular communications towers are becoming increasingly more attractive to large birds (e.g., osprey, eagles, herons, vultures) for nesting and rearing their young. This problem is a growing concern because once the young fledge from nests built on manmade structures they are more likely to return to these kinds of sites to reproduce in future years.

2.8.4 Other Hazardous Wildlife Attractants.

Other land uses (e.g., conservation easements, parks, wildlife management areas) or activities not addressed in this AC may have the potential to attract hazardous wildlife. Regardless of the source of the attraction, when hazardous wildlife is noted on a public-use airport, each certificate holder must take prompt remedial action(s) to protect aviation safety and all non-certificated airports should take prompt remedial action(s) to protect aviation safety.

2.9 Habitat for State and Federally Listed Species on Airports.

An airport's air operations area is an artificial environment that has been created and maintained for aircraft operations. Because an aircraft operations area can be markedly different from the surrounding native landscapes, it may attract wildlife species that do not normally occur, or that occur only in low numbers in the area. Some of the grassland species attracted to an airport's aircraft operations area are at the edge of their natural ranges, but are attracted to habitat features found in the airport environment. Also, some wildlife species may occur on the airport in higher numbers than occur naturally in the region because the airport offers habitat features the species prefer. Some of these wildlife species are Federal or state-listed threatened and endangered species or have been designated by state resource agencies as species of special concern.

2.9.1 State-Listed Species Habitat Concerns.

2.9.1.1 Many state wildlife agencies have requested that airport operators facilitate and encourage habitat on airports for state-listed threatened and endangered species or species of special concern. Airport operators should exercise caution in adopting new management techniques because they may increase wildlife hazards and be inconsistent with safe airport operations. Managing the on-airport environment to facilitate or encourage the presence of hazardous wildlife species can create conditions that are incompatible with, or pose a threat to, aviation safety.

2.9.1.2 Not all state-listed threatened and endangered species or species of concern pose a direct threat to aviation safety. However, these species may pose an indirect threat and be hazardous because they attract other wildlife species or support prey species attractive to other species that are directly hazardous. Also, the habitat management practices that benefit these state-listed threatened and endangered species and species of special concern may attract other hazardous wildlife species. On-airport habitat and wildlife management practices designed to benefit wildlife that directly or indirectly create safety hazard where none existed before are incompatible with safe airport operations.

2.9.2 Federally Listed Species Habitat Concerns.

2.9.2.1 The FAA supports efforts to protect threatened and endangered species, as a matter of principle and consistent with the Endangered Species Act of 1973. The FAA must balance these requirements with our requirements and mission to maintain a safe and efficient airport system. Requests to enhance or create habitat for threatened and endangered species often conflict with the safety of the traveling public and may place the protected species at risk of mortality by aircraft collisions. The FAA does not support the creation, conservation or enhancement of habitat or refuges to attract endangered species on airports. If endangered species are present on an airport, specific obligations may apply under the Endangered

Species Act, 16 U.S.C. § 1531 et seq. and the airport operator should contact the Airports District Office Environmental Protection Specialist.

2.9.2.2 The designation of critical habitat for listed species under the Endangered Species Act on airport lands may be an incompatible land use in conflict with the intended and dedicated purpose of airport lands and may limit or preclude the ability of the airport to develop new infrastructure and growth capacity to meet future air carrier service demand. In addition, depending on the listed species (primarily but not limited to avian species), the designation of critical habitat within the separation distances provided in paragraphs 1.2 - 1.4 can represent a hazardous wildlife attractant in conflict with 14 CFR Part 139.337.

2.10 Synergistic Effects of Surrounding Land Uses.

There may be circumstances where two or more different land uses would not, by themselves, be considered hazardous wildlife attractants or are located outside of the separations identified in Paragraphs 1.2 through 1.4 but collectively may create a wildlife corridor directly through the airport and/or surrounding airspace. An example involves a lake located outside of the separation criteria on the east side of an airport and a large hayfield on the west side of an airport. These two land uses, taken together, could create a flyway for Canada geese directly across the airspace of the airport. Airport operators must consider the entire surrounding landscape and community when developing the wildlife management plan.

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CHAPTER 3. PROCEDURES FOR WILDLIFE HAZARD MANAGEMENT BY OPERATORS OF PUBLIC-USE AIRPORTS AND CONDITIONS FOR NON-CERTIFICATED AIRPORTS TO CONDUCT WILDLIFE HAZARD ASSESSMENTS AND WILDLIFE HAZARD SITE VISITS

3.1 Introduction.

In recognition of the increased risk of serious aircraft damage or the loss of human life that can result from a wildlife strike, the FAA recommends all airports conduct a Wildlife Hazard Site Visit or Wildlife Hazard Assessment unless otherwise mandated after an initial triggering events defined in Part 139 Section 139.337. After the airport has completed the site visit or assessment and implemented a wildlife management plan, investigations should be conducted following subsequent triggering events to determine if the original assessment and plan adequately address the situation or if conditions have changed that would warrant an update to the plan. In this section, airports that are certificated under 14 C.F.R. § 139.337 are referred to as "certificated airports" and all others are referred to as "non-certificated airports." When a statement refers to both certificated and non-certificated airports, "airport" or "all airports" is used.

3.2 Coordination with Qualified Airport Wildlife Biologists.

Hazardous wildlife management is a complex discipline and conditions vary widely across the United States. Therefore, only airport wildlife biologists meeting the qualification requirements in Advisory Circular 150/5200-36, *Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculums for Airport Personnel Involved in Controlling Wildlife Hazards on Airports,* can conduct Site Visits and Assessments. Airports must maintain documentation that the Qualified Airport Wildlife Biologist meets the qualification requirements in Advisory Circular 150/5200-36.

3.3 Wildlife Hazard Management at Airports: A Manual For Airport Personnel.

3.3.1 The Wildlife Hazard Management at Airports manual, prepared by FAA and USDA Wildlife Services staff, contains a compilation of information to assist airport personnel in the development, implementation, and evaluation of wildlife management plans at airports. The manual includes specific information on the nature of wildlife strikes, legal authority, regulations, wildlife management techniques, Assessments, Plans, and sources of help and information. The manual is available in three languages: English, Spanish, and French. It can be viewed and downloaded free of charge from the FAA's wildlife hazard mitigation web site: https://www.faa.gov/airports/airport_safety/wildlife. This manual only provides a starting point for addressing wildlife hazard issues at airports. FAA recommends that airports consult with a Qualified Airport Wildlife Biologists to assist with development of a wildlife management plan and the implementation of management actions by airport personnel.

3.3.2 There are many other resources complementary to this manual for use in developing and implementing wildlife management plans. Several are listed in the manual's bibliography or on the FAA Wildlife Mitigation website: https://www.faa.gov/airports/airport_safety/wildlife

3.4 Wildlife Hazard Site Visits and Wildlife Hazard Assessments.

3.4.1 Operators of certificated airports are encouraged to conduct an initial assessment regardless of whether the airport has experienced one of the triggering events. Doing so would allow the airport to take proactive action and mitigate the wildlife risk before experiencing an incident. All other airports are encouraged to conduct an assessment or site visit (as defined in FAA Advisory Circular 150/5200-38) conducted by a Qualified Airport Wildlife Biologist (as defined in FAA Advisory Circular 150/5200-36). Part 139 certificated airports are currently required to ensure that an assessment is conducted consistent with 14 C.F.R. § 139.337.

3.4.2 The intent of a site visit is to provide an abbreviated analysis of an airport's wildlife hazards and to provide timely information that allows the airport to expedite the mitigation of these hazards. The FAA also recommends that airports conduct an assessment or site visit as soon as practicable in order to identify any immediate wildlife hazards and/or mitigation measures.

3.4.3 Non-certificated airports should submit the results of the site visit or assessment to the FAA for review. The FAA will review the submitted site visit or assessment and make a recommendation regarding the development of a wildlife management plan. A wildlife management plan can be developed based on a site visit and will be required if the non-certificated airport is going to request federal grants for the purpose of mitigating wildlife hazards.

3.5 Wildlife Hazard Management Plan.

3.5.1 The FAA will consider the results of the assessment, along with the aeronautical activity at the airport and the views of the airport operator and airport users, in determining whether a wildlife management plan is needed for certificated airports, or recommended for non-certificated airports.

3.5.2 If the FAA determines that a wildlife management plan is needed for a certificated airport, the airport operator must formulate a plan, using the assessment as its basis and submit to the FAA for approval. If the FAA recommends that a non-certificated airport develop a plan, either an assessment or a site visit can be used as the basis for the wildlife management plan. Airports should consult AC 150/5200-38, *Protocol for the Conduct and Review of Wildlife Hazard Site Visits, Wildlife Hazard Assessments, and Wildlife Hazard Management Plans,* for further information on preparation and implementation requirements for their wildlife management plan.

3.5.3 The goal of an airport's wildlife management plan is to minimize the risk to aviation safety, airport structures or equipment, or human health posed by populations of hazardous wildlife on and around the airport. For wildlife management plans to effectively reduce wildlife hazards on and near airports, accurate and consistent wildlife strike reporting is essential. Airports should consult AC 150/5200-32, *Reporting Wildlife Aircraft Strikes,* for further information on responsibilities and recommendations concerning wildlife strikes.

3.5.4 The wildlife management plan must identify hazardous wildlife attractants on or near the airport and the appropriate wildlife management techniques to minimize the wildlife hazard. It must also prioritize the management measures.

3.6 Local Coordination.

The FAA recommends establishing a Wildlife Hazards Working Group to facilitate the communication, cooperation, and coordination of the airport and its surrounding community necessary to ensure the effectiveness of the wildlife management plan. The cooperation of the airport community is essential to prevent incompatible development in the airport vicinity. Whether on or off the airport, input from all involved parties must be considered when a potentially hazardous wildlife attractant is being proposed. Based on available resources, airport operators should undertake public education activities with the local planning agencies because some activities in the vicinity of an airport, while harmless under normal conditions, can attract wildlife and present a danger to aircraft (see Paragraphs 4.5 to 4.8). For example, if public trails are planned near wetlands or in parks adjoining airport property, the public should know that feeding birds and other wildlife in the area may pose a risk to aircraft.

3.7 Operational Notifications of Wildlife Hazards.

3.7.1 Operational notifications include active correspondence addressing wildlife issues on or near an airport, notifications and alerts. If an existing land-use practice creates a wildlife hazard and the land-use practice or wildlife hazard cannot be immediately eliminated, airport operators must issue a Notice to Airmen (NOTAM) and encourage the land owner or manager to take steps to control the wildlife hazard and minimize further attraction. Permanent attractions that cannot be eliminated or mitigated may be noted in the Airport/Facility Directory. NOTAMS and Airport/Facility Directory notifications are not appropriate for short-term or immediate advisories that can be relayed via Pilot Reports, direct air traffic control voice communications, or temporary Automated Terminal Advisory System alerts. Care should be given to avoid the continual broadcast of general warnings for extended periods of time. General warnings such as "birds in the vicinity of the aerodrome" offer little timely information to aid pilots and eventually may be ignored if not updated.

3.7.2 The Automated Terminal Advisory System (ATIS) is a continuous broadcast of recorded aeronautical information for aerodromes and their immediate surroundings. ATIS broadcasts contain essential information, such as current weather information, active runways, available approaches, wildlife hazards and any other information required by the pilots. They indicate significant (moderate or severe) wildlife activity, as reported by an approved agency that presents temporary hazards on the ATIS broadcast. Pilots take notice of available ATIS broadcasts before contacting the local control unit, which reduces the controllers' workload and relieves frequency congestion. The recording is updated in fixed intervals or when there is a significant change in the information. Although ATIS broadcasts involving wildlife should be timely and specific, pilots do not need to know species-specific information. General descriptive information detailing size and number of animals, locations and timing of occurrence provides useful, actionable information for pilots.

3.7.3 A pilot report (PIREP) is reported by a pilot to indicate encounters of hazardous weather (e.g., icing or turbulence) and hazardous wildlife. Pilot reports are short-lived warnings providing immediate information on pilot observations that are transmitted in real-time to air traffic control. Large animals near active surfaces, soaring vultures and raptors within approach/ departure corridors and waterfowl such as geese feeding in grassy areas next to runways are all examples of pilot reports generated by pilots.

3.8 Federal and State Depredation Permits.

The FAA recommends that airports maintain federal and state depredation permits to allow mitigation and/ or removal of hazardous species. All protected species require special permits for lethal mitigation or capture and relocation procedures. Similarly, endangered or threatened species mitigation also requires special permits. The FAA recommends that airports work closely with a Qualified Airport Wildlife Biologist during the U.S. Fish and Wildlife Service consultation and permitting process. The following Orders can help airports reduce risks from hazardous species by allowing private citizens to control hazardous species off airport properties without the need for a Federal depredation permit.

3.8.1 Standing Depredation Orders.

3.8.1.1 Federal law allows people to protect themselves and their property from damage caused by migratory birds. Provided no effort is made to kill or capture the birds, a depredation permit is not required to merely scare or herd depredating migratory birds other than endangered or threatened species or bald or golden eagles (50 CFR 21.41).

3.8.1.2 In addition, certain species of migratory birds may be mitigated without a federal permit under specific circumstances, many of which relate to agricultural situations. The following Standing Depredation Orders have applicability near airports:

- 50 CFR § 21.49- Control Order for Resident Canada Geese at Airports and Military Airfields.
- 50 CFR § 21.50- Depredation Order for Resident Canada Geese Nests and Eggs.

- 50 CFR § 21.43 - Depredation Order for Blackbirds, Cowbirds, Crows, Grackles, and Magpies.
- 50 CFR § 21.54 - Control Order for Muscovy Ducks in the United States.
- 50 CFR § 21.55 - Control Order for Invasive Migratory Birds in Hawaii.

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CHAPTER 4. RECOMMENDED PROCEDURES FOR THE FAA, AIRPORT OPERATORS AND OTHER GOVERNMENT ENTITIES REGARDING OFF-AIRPORT ATTRACTANTS

4.1 FAA Notification and Review of Proposed Land-Use Practice Changes in the Vicinity of Public-Use Airports.

4.1.1 For projects that are located within 5 miles of the airport's aircraft operations area, the FAA may review development plans, proposed land-use changes, operational changes, major federal actions or wetland mitigation plans to determine if such changes increase risk to airport safety by attracting hazardous wildlife on and around airports. The FAA is not a permitting agency for land use modifications that occur off airport properties, therefore, such reviews are typically initiated by state or federal permitting agencies seeking FAA input on new or revised permits. Each of the land uses listed in Chapter 2 of this AC has the potential to pose a risk to airport operations when they are located within the separation distances provided in Paragraphs 1.2 through 1.4.

4.1.2 Off-site land use modifications near airports may include an assessment of risk for facilities and land-use changes and, if necessary, mitigation strategies that may reduce risk to an acceptable level. However, the FAA recognizes that individual facilities or land-use modifications may present a range of attractants to different species, resulting in varying levels of risk. Therefore, the FAA considers each proposal on a case-by-case basis.

4.1.3 The FAA analyzes each land-use modification or new facility proposal prior to its establishment or any significant planned changes to design or operations that may increase the risk level. As part of a review, the FAA considers several factors that include, but are not limited to:

1. Type of attractant;
2. Size of attractant;
3. Location/distance of attractant from airport;
4. Design (e.g., construction, material, mitigation techniques employed into design);
5. Operation (e.g., cleanliness, constancy/ volume of use, seasonality, time of day);
6. Monitoring protocols (e.g., frequency, documentation, evaluation, species identification and number thresholds that trigger actions of communication or mitigation, baseline wildlife data);
7. Mitigation protocols (e.g., responsibilities, methods, intensity, pre-determined objectives, documentation, evaluation); and
8. Communication protocols to airport and/ or air traffic control tower;

4.1.4 The review of these factors may result in FAA recommended additions or modifications to a conditional use permit that allows the permitting agency to track compliance with the permittee obligations. Such conditions placed within a permit may involve a comprehensive outline and recognition of individuals responsible for monitoring, communication, and mitigation measures if certain action thresholds are met. Action thresholds are defined in this instance as those pre-determined parameters (e.g., number, location, behavior, time of day) of specific hazardous species that would trigger a mitigation response. Additionally, baseline data should be used to determine the effect, if any, on wildlife populations at the proposed off-site location and/or at the airport.

4.1.5 Baseline data may need to be collected, depending on the existence of useful data and timeline for site modification. If, after taking into account the factors above, FAA determines that a facility poses a significant risk to airport safety, FAA will object to its establishment or renewal.

4.1.6 For projects that are located within 5 miles of the airport's aircraft operations area, the FAA Airport District Office may review development plans, proposed land-use changes, operational changes, major federal actions or wetland mitigation plans to determine if such changes present potential wildlife hazards to aircraft operations. The FAA considers sensitive airport areas as those that lie under or next to approach or departure airspace. This brief examination should indicate if further investigation is warranted.

4.1.7 Where a Qualified Airport Wildlife Biologist has conducted a further study to evaluate a site's compatibility with airport operations, the FAA may use the study results to make a determination.

4.2 Waste Management Facilities.

4.2.1 Notification of New/Expanded Project Proposal.

4.2.1.1 49 U.S.C. § 44718(d), prohibits the construction or establishment of new municipal landfills within 6 miles of certain public-use airports, when both the airport and the landfill meet specific conditions. See Paragraph 2.2 of this guidance for a more detailed discussion of these restrictions.

4.2.1.2 The Environmental Protection Agency (EPA) requires any landfill operator proposing a new or expanded waste disposal operation within 5 miles of a runway end to notify the appropriate FAA Regional Airports Division Office and the airport operator of the proposal. See 40 CFR § 258, *Criteria for Municipal Solid Waste Landfills,* Section 258.10, *Airport Safety*. The EPA also requires owners or operators of new landfill units, or lateral expansions of existing MSWLF landfill units, that are located within 10,000 feet of any airport runway end used by turbine-powered aircraft, or within 5,000 feet of any airport runway end used only by piston-type aircraft, to demonstrate successfully that such units are not hazards to aircraft. (See 4.3.2 below.)

4.2.1.3 When new or expanded municipal landfills are being proposed near airports, landfill operators must notify the airport operator and the FAA of the proposal as early as possible pursuant to 40 CFR § 258.

4.2.1.4 The FAA discourages the development of waste disposal and other facilities, discussed in Chapter 2, located within the separation criteria specified in Paragraphs 1.2 through 1.4. To show that a waste-handling facility sited within the separations identified in Paragraphs 1.2 through 1.4 does not attract hazardous wildlife and does not threaten aviation, the developer must establish the facility will not handle putrescible material other than that as outlined in 2.2.4. The FAA recommends against any facility other than those outlined in 2.2.4 (enclosed transfer stations). The FAA will use this information to determine if the facility will be a hazard to aviation.

4.3 Other Land-Use Practice Changes.

4.3.1 The FAA encourages operators of public-use airports who become aware of proposed land use practice changes that may attract hazardous wildlife within 5 miles of their airports to notify their assigned Airport Certification Safety Inspector or Airports District Office Program Manager. The FAA also encourages proponents of such land use changes to notify the FAA as early in the planning process as possible. Advanced notice affords the FAA an opportunity (1) to evaluate the effect of a particular land-use change on aviation safety and (2) to support efforts by the airport sponsor to restrict the use of land next to or near the airport to uses that are compatible with the airport.

4.3.2 The airport operator, project proponent, or land-use operator may use FAA Form 7460-1, Notice of Proposed Construction or Alteration, or other suitable documents similar to FAA Form 7460-1 to notify the appropriate FAA Regional Airports Division Office. Project proponents can contact the appropriate FAA Regional Airports Division Office for assistance with the notification process prior to submitting Form 7460-1.

4.3.3 It is helpful if the notification includes a 15-minute quadrangle map of the area identifying the location of the proposed activity. The land-use operator or project proponent should also forward specific details of the proposed land-use change or operational change or expansion. In the case of solid waste landfills, the information should include the type of waste to be handled, how the waste will be processed, and final disposal methods.

4.3.4 Airports that have Received Federal Assistance.

Airports that have received Federal assistance are required under their grant assurances to take appropriate actions to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations. See Grant Assurance 21. The FAA recommends that airport operators oppose off-airport land-use changes or practices, to the extent practicable, within the separations identified in Paragraphs 1.2 through 1.4, which may attract hazardous wildlife. Failure to do so may lead to noncompliance with applicable grant assurances. The FAA will not approve the placement of airport development projects pertaining to aircraft movement in the vicinity of hazardous wildlife attractants without appropriate mitigating measures. Increasing the intensity of wildlife control efforts is not a substitute for preventing, eliminating or reducing a proposed wildlife hazard. Airport operators should identify hazardous wildlife attractants and any associated wildlife hazards during any planning process for airport development projects.

4.4 Coordination to Prevent Creation of New Off-Airport Hazardous Wildlife Attractants.

Airport operators should work with local and regional planning and zoning boards to be aware of proposed land-use changes, or modification of existing land uses, that could create hazardous wildlife attractants within the separations identified in Paragraphs 1.2 through 1.4. Pay particular attention to proposed land uses involving creation or expansion of wastewater treatment facilities, development of wetland mitigation sites, or development or expansion of dredge spoil containment areas. At the very least, it is recommended that airport operators are on the notification list of the local planning board or equivalent review entity for all communities located within 5 miles of the airport, so they will receive notification of any proposed project and have the opportunity to review it for attractiveness to hazardous wildlife. This may be accomplished through one or more of the following:

4.4.1 Site-specific Criteria.

The airport should establish site-specific criteria for assessment of land uses attractive to hazardous wildlife and locations that would be of concern based on wildlife strikes and on wildlife abundance and activity at the airport and in the local area. These criteria may be more selective, but should not be less restrictive than this guidance.

4.4.2 Outreach.

Airports should actively seek to provide educational information and/ or provide input regarding local development, natural resource modification or wildlife-related concerns that affect wildlife hazards and safe air travel.

4.4.2.1 **External Outreach.**

Airport operators and a Qualified Airport Wildlife Biologist should consider outreach to local planning and zoning organizations on land uses of concern or to local organizations responsible for natural resource management (including wildlife, wetlands, and parks.) Airports should also consider developing and distributing position letters and educational materials on airport-specific concerns regarding wildlife hazards, wildlife activity and attraction. Finally, airports should provide formal comments on local procedures, laws, ordinances, plans, and regulatory actions such as permits related to land uses of concern.

4.4.2.2 Internal Outreach.

Airports should consider developing and distributing position letters and educational materials on airport-specific concerns regarding species identification and mitigation procedures, wildlife hazards, wildlife activity and attraction to employees and personnel with access to the aircraft operations area.

4.5 Coordination on Existing Off-Airport Hazardous Wildlife Attractants.

Airports are encouraged to work with landowners and managers to cooperatively develop procedures to monitor and manage hazardous wildlife attraction. If applicable, these procedures may include:

1. Conducting a wildlife hazard site visit by a wildlife biologist meeting the qualification requirements of Advisory Circular 150/5200-36, *Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculums for Airport Personnel Involved in Controlling Wildlife Hazards on Airports*
2. Conducting regular, standardized, wildlife monitoring surveys;[4]
3. Establishing threshold numbers of wildlife which would trigger certain actions and/or communications;
4. Establishment of procedures to deter or remove hazardous wildlife.

4.6 Prompt Remedial Action.

For attractants found on and off airport property, and with landowner or manager cooperation, Part 139 certificated airports must take immediate action in accordance with their Airport Certification Manual and the requirements of Part 139.337, to alleviate wildlife hazards whenever they are detected. It is also recommended that non-certificated airports take immediate action to alleviate wildlife hazards whenever they are detected. In addition, airports should take prompt action to identify the source of attraction and cooperatively develop procedures to mitigate and monitor the attractant. **For Part 139 Certificated airports, immediate actions are required in accordance with 139.337(a).**

4.7 FAA Assistance.

If there is a question on the implementation of any of the guidance in this section, contact the FAA Regional Airports Division for assistance.

[4] Recommended survey protocols can be found in AC 150/5200-38, *Protocol for the Conduct and Review of Wildlife Hazard Site Visits, Wildlife Hazard Assessments, and Wildlife Hazard Management Plans,* and DeVault, T.L., B.F. Blackwell, and J.L. Belant, eds. 2013. *Wildlife in Airport Environments: Preventing Animal–Aircraft Collisions through Science-Based Management.* Johns Hopkins University Press, Baltimore, MD, USA. 181 pp.

4.7.1 Airport Documentation Procedures.

Airports should document on-site and off-site wildlife attractants as part of their "Wildlife Hazard Management Plan Annual Review," "Wildlife Hazard Management Plan Review Following a Triggering Event," and the airport's Continual Monitoring Annual Report (as outlined in FAA Advisory Circular 150/5200-38). As a best management practice, airports may choose to keep a log to track contacts from landowners or managers, permitting agencies, or other entities concerning land uses near the airport.

APPENDIX A. DEFINITIONS OF TERMS USED IN THIS ADVISORY CIRCULAR

A.1 General.

This appendix provides definitions of terms used throughout this AC.

1. **Air operations area.** Any area of an airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved areas or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiways, or apron.
2. **Airport operator.** The operator (private or public) or sponsor of a public-use airport.
3. **Approach or departure airspace.** The airspace, within 5 statute miles of an airport, through which aircraft move during landing or takeoff.
4. **Bird balls.** High-density plastic floating balls that can be used to cover ponds and prevent birds from using the sites.
5. **Certificate holder.** The holder of an Airport Operating Certificate issued under 14 C.F.R. Part 139.
6. **Construct a new municipal landfill.** To begin to excavate, grade land, or raise structures to prepare a municipal solid waste landfill as permitted by the appropriate regulatory or permitting agency.
7. **Detention ponds.** Storm water management ponds that hold storm water for short periods of time, a few hours to a few days.
8. **Establish a new municipal landfill.** When the first load of putrescible waste is received on-site for placement in a prepared municipal solid waste landfill.
9. **Fly ash.** The fine, sand-like residue resulting from the complete incineration of an organic fuel source. Fly ash typically results from the combustion of coal or waste used to operate a power generating plant.
10. **General aviation aircraft.** Any civil aviation aircraft operating under 14 CFR Part 91.
11. **Hazardous wildlife.** Species of wildlife (birds, mammals, reptiles), including feral and domesticated animals, not under control that may pose a direct hazard to aviation (i.e., strike risk to aircraft) or an indirect hazard such as an attractant to other wildlife that pose a strike hazard or are causing structural damage to airport facilities (e.g., burrowing, nesting, perching).
12. **Municipal Landfill.** A publicly or privately owned discrete area of land or an excavation that receives household waste and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under 40 CFR § 257.2. A municipal landfill may receive other types wastes, such as commercial solid waste, non-hazardous sludge, small-quantity generator waste, and

industrial solid waste, as defined under 40 CFR § 258.2. A municipal landfill can consist of either a stand-alone unit or several cells that receive household waste.

13. **New municipal landfill.** A municipal solid waste landfill that was established or constructed after April 5, 2001.
14. **Piston-powered aircraft.** Fixed-wing aircraft powered by piston engines.
15. **Piston-use airport.** Any airport that does not sell Jet-A fuel for fixed-wing turbine-powered aircraft, and primarily serves fixed-wing, piston-powered aircraft. Incidental use of the airport by turbine-powered, fixed-wing aircraft would not affect this designation. However, such aircraft should not be based at the airport.
16. **Public agency.** A state or political subdivision of a state, a tax-supported organization, or an Indian tribe or pueblo (49 U.S.C. § 47102(19)).
17. **Public airport.** An airport used or intended to be used for public purposes that is under the control of a public agency; and of which the area used or intended to be used for landing, taking off, or surface maneuvering of aircraft is publicly owned (49 U.S.C. § 47102(20)).
18. **Public-use airport.** An airport used or intended to be used for public purposes where the area used or intended to be used for landing, taking off, or surface maneuvering of aircraft may be under the control of a public agency or privately owned and used for public purposes (49 U.S.C. § 47102(21)).
19. **Putrescible waste.** Solid waste that contains organic matter capable of being decomposed by micro-organisms and of such a character and proportion as to be capable of attracting or providing food for birds (40 CFR §257.3-8).
20. **Putrescible-waste disposal operation.** Landfills, garbage dumps, underwater waste discharges, or similar facilities where activities include processing, burying, storing, or otherwise disposing of putrescible material, trash, and refuse.
21. **Retention ponds.** Storm water management ponds that hold water for more than 48 hours.
22. **Risk**. Risk is the relationship between the severity and probability of a threat. It is the product of hazard level and abundance in the critical airspace, and is thus defined as the probability of a damaging strike with a given species.
23. **Runway protection zone.** An area off the runway end to enhance the protection of people and property on the ground (see AC 150/5300-13). The dimensions of this zone vary with the airport design, aircraft, type of operation, and visibility minimum.
24. **Scheduled air carrier operation.** Any common carriage passenger-carrying operation for compensation or hire conducted by an air carrier or commercial operator for which the air carrier, commercial operator, or their representative offers in advance the departure location, departure time, and arrival location. It does not include any operation that is conducted as a supplemental operation under 14 CFR Part 119 or as a public charter operation under 14 CFR Part 380 (14 CFR § 119.3).

25. **Sewage sludge.** Any solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works. (40 CFR § 257.2)
26. **Sludge.** Any solid, semi-solid, or liquid waste generated form a municipal, commercial or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. (40 CFR § 257.2).
27. **Solid waste.** Any garbage, refuse, sludge, from a waste treatment plant, water supply treatment plant or air pollution control facility and other discarded material, including, solid liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved material in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Clean Water Act, or source, special nuclear, or by product material as defined by the Atomic Energy Act of 1954.(40 CFR § 257.2).
28. **Turbine-powered aircraft.** Aircraft powered by turbine engines including turbojets and turboprops but excluding turbo-shaft rotary-wing aircraft.
29. **Turbine-use airport.** Any airport that sells fuel for fixed-wing turbine-powered aircraft.
30. **Wastewater treatment facility.** Any devices and/or systems used to store, treat, recycle, or reclaim municipal sewage or liquid industrial wastes, including publicly owned treatment works, as defined by Section 212 of the Clean Water Act. This definition includes any pretreatment involving the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a publicly owned treatment system. (See 40 CFR § 403.3 (q), (r), & (s)).
31. **Wildlife.** Any wild animal, including without limitation any wild mammal, bird, reptile, fish, amphibian, mollusk, crustacean, arthropod, coelenterate, or other invertebrate, including any part, product, egg, or offspring thereof. 50 CFR § 10.12. As used in this AC, wildlife includes feral animals and domestic animals out of the control of their owners (14 CFR Part 139, Certification of Airports).
32. **Wildlife attractants.** Any human-made structure, land-use practice, or human-made or natural geographic feature that can attract or sustain hazardous wildlife within the landing or departure airspace or the airport's aircraft operations area. These attractants can include architectural features, landscaping, waste disposal sites, wastewater treatment facilities, agricultural or aquaculture activities, surface mining, or wetlands.

33. **Wildlife hazard.** A potential for a damaging aircraft collision with wildlife on or near an airport.
34. **Wildlife strike.** A wildlife strike is deemed to have occurred when:
    a. A strike between wildlife and aircraft has been witnessed;
    b. Evidence or damage from a strike has been identified on an aircraft;
    c. Bird or other wildlife remains, whether in whole or in part, are found:
        i. Within 250 feet of a runway centerline or within 1,000 feet of a runway end unless another reason for the animal's death is identified or suspected, unless another reason for the animal's death is identified or;
        ii. On a taxiway or anywhere else on or off airport that there is reason to believe was the result of a strike with an aircraft.

    d. The presence of birds or other wildlife on or off the airport had a significant negative effect on a flight (i.e., aborted takeoff, aborted landing, high-speed emergency stop, aircraft left pavement area to avoid collision with animal).

APPENDIX B. ADDITIONAL RESOURCES

B.1 Regulations

- 14 CFR § 139.337, *Wildlife Hazard Management*
- 40 CFR § 258, *Criteria for Municipal Solid Waste Landfills*

B.2 Advisory Circulars

- AC 150/5200-32, *Reporting Wildlife Aircraft Strikes*
- AC 150/5200-33, *Hazard Wildlife Attractants on or Near Airports*
- AC 150/5200-34, *Construction or Establishment of New Landfills Near Public Airports*
- AC 150/5200-36, *Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculums for Airport Personnel Involved in Controlling Wildlife Hazards on Airports*
- AC 150/5200-38, *Protocol for the Conduct and Review of Wildlife Hazard Site Visits, Wildlife Hazard Assessments, and Wildlife Hazard Management Plans*
- AC 150/5220-25, *Airport Avian Radar Systems*
- AC 150/5210-24, *Airport Foreign Object Debris (FOD) Management*

B.3 Certification Alerts

- Certalert No. 97-09, *Wildlife Hazard Management Plan Outline* (11/17/1997)
- Certalert No. 98-05, *Grasses Attractive To Hazardous Wildlife* (9/21/1998)
- Certalert No. 06-07, *Requests by State Wildlife Agencies to Facilitate and Encourage Habitat for State Listed Threatened and Endangered Species and Species of Special Concern on Airports* (11/21/2006)
- Certalert No. 13-01, *Federal and State Depredation Permit Assistance* (1/30/2013)
- Certalert No.14-01, *Seasonal Mitigation of Hazardous Species at Airports: Attention to Snowy Owls* (2/26/2014)
- Certalert No. 16-03, *Recommended Wildlife Exclusion Fencing* (8/2016)

B.4 Airport Cooperative Research Program Reports

These, and other wildlife / aviation reports, are available from the Transportation Research Board of the National Academies (TRB) at http://www.trb.org/Publications/Publications.aspx.

- ACRP Research Report 198: Wetland Mitigation, Volume 2, A Guidebook for Airports (2019)
- ACRP Synthesis 92: Airport Waste Management and Recycling Practices (2018)
- ACRP Research Report 174: Guidebook and Primer (2018)
- ACRP Report 122: Innovative Airport Responses to Threatened / Endangered Species (2015)
- ACRP Report 125: Balancing Airport Stormwater and Bird Hazard Management (2015)
- ACRP Report 145: Applying an SMS Approach to Wildlife Hazard Management (2015)
- ACRP Synthesis 39 Report: Airport Wildlife Population Management (2013)
- ACRP Synthesis 52 Report: Habitat Management to Deter Wildlife at Airports (2014)
- ACRP Synthesis 23 Report: Bird Harassment, Repellent, and Deterrent Techniques for Use on and Near Airports (2011)
- ACRP Report 32: Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports (2010)

B.5 Manuals

- Wildlife Hazard Management at Airports - A Manual for Airport Personnel (2005)

B.6 Orders

- 50 CFR § 21.49, Control Order for Resident Canada Geese at Airports and Military Airfields
- 50 CFR § 21.50, Depredation Order for Resident Canada Geese Nests and Eggs
- 50 CFR § 21.43, Depredation Order for Blackbirds, Cowbirds, Crows, Grackles, and Magpies
- 50 CFR § 21.54, Control Order for Muscovy Ducks in the United States
- 50 CFR § 21.55, Control Order for Invasive Migratory Birds in Hawaii

Advisory Circular Feedback

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by (1) mailing this form to Manager, Airport Safety and Operations Division, Federal Aviation Administration ATTN: AAS-300, 800 Independence Avenue SW, Washington DC 20591 or (2) faxing it to the attention of AAS-300 at (202) 267-5257.

Subject: AC 150/5200-33C Date: ____________________

Please check all appropriate line items:

☐ An error (procedural or typographical) has been noted in paragraph __________ on page _____________.

☐ Recommend paragraph ______________ on page ______________ be changed as follows:

____
____
____

☐ In a future change to this AC, please cover the following subject:
(Briefly describe what you want added.)

____
____
____

☐ Other comments:

____
____
____

☐ I would like to discuss the above. Please contact me at (phone number, email address).

Submitted by: ___________________________ Date: ____________________________

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102

August 26, 2022

Regulatory Division

SUBJECT: File Number SPN-2022-00297

Ms. Catherine Keylon
City of Burlingame
Planning Division
501 Primrose Road
Burlingame, California 94010
ckeylon@burlingame.org

Dear Ms. Keylon:

This letter is written in response to a request for comments on the Notice of Preparation of a Draft Environmental Impact Report concerning your project, 1200-1340 Bayshore Highway Project (Peninsula Crossing), as described in the notice from the City of Burlingame dated August 12th, 2022. Your project is located near the San Francisco Bay shoreline and Easton Creek in the City of Burlingame, San Mateo County, California (APN's 026113470, 026113330, 026113480, 026113450. 026142110, 026142140, 026142070, 026142150, 026142160, 026142170, 026142020, 026142030 and 026142180). Since the activities may involve work and fill discharge associated with wetland boardwalks, overlooks, and pedestrian access points within San Francisco Bay and tributaries and, therefore, may impact waters of the U.S., the U.S. Army Corps of Engineers (Corps) will need to review those portions of your project.

All proposed work and/or structures extending bayward or seaward of the line on shore reached by mean high water (MHW) in tidal waters or by ordinary high water in non-tidal waters designated as navigable waters of the United States must be authorized by the Corps of Engineers pursuant to Section 10 of the Rivers and Harbors Act of 1899, 33 U.S.C. § 403 *et seq.*. Additionally, all work and structures proposed in unfilled portions of the interior of diked areas below former MHW must be authorized under Section 10 of the same statute.

All proposed discharges of dredged or fill material into waters of the United States must be authorized by the Corps of Engineers pursuant to Section 404 of the Clean Water Act, 33 U.S.C. § 1344 *et seq.* Waters of the United States generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands.

Your proposed work appears to be within our jurisdiction, and a permit may be required for your project. Application for Corps authorization should be made to this office using the application form in the enclosed pamphlet. To avoid delays it is essential that you enter the File Number at the top of this letter into Item No. 1 of the application. The application must include plans showing the location, extent, and character of the proposed activity, prepared in accordance with the requirements contained in this pamphlet. You should note in planning your project that upon receipt of a properly completed application and plans, it may be necessary to advertise the proposed work by issuing a Public Notice for a period of 30 days.

Our Nationwide and Regional General Permits have already been issued to authorize certain activities, provided specified conditions are met. Your completed application will enable us to determine whether your activity is already authorized. You are advised to refrain from starting your proposed activity until we make a determination that the project is covered by an existing permit.

If an Individual Permit is required, it will be necessary for you to demonstrate to the Corps that your proposed fill is necessary because there are no practicable alternatives, as outlined in the U.S. Environmental Protection Agency's Section 404(b)(1) Guidelines. A copy is enclosed to aid you in preparation of this alternatives analysis. You are advised to refrain from starting your proposed activity until we complete our review of your application and issue you the required authorization.

Commencement of work before you receive our notification will be interpreted as a violation of our regulations.

The Corps regulatory program supports the national goal of "no overall net loss" of wetlands. For permitted activities that result in unavoidable losses, the Corps requires replacement wetlands to offset those losses. The U.S. Army Corps of Engineers and U.S. Environmental Protection Agency released a Compensatory Mitigation Rule on April 10, 2008, to clarify how to provide compensatory mitigation for unavoidable impacts to the nation's wetlands and streams. A copy of this rule can be found on our Headquarters website: www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/mitig_info.aspx. The rule describes where and how mitigation is to be completed but maintains existing requirements on when mitigation is required. The rule also preserves the requirement for applicants to avoid or minimize impacts to aquatic resources before proposing compensatory mitigation projects to offset permitted impacts. Regulatory Guidance Letter 08-03 in the enclosed pamphlet provides guidance on minimum monitoring requirements for compensatory mitigation projects, including the required minimum content for monitoring reports.

You may refer any questions on this matter to Jennifer Stabile of my Regulatory staff by telephone at 415-503-6783 or by e-mail at Jennifer.L.Stabile@usace.army.mil. All correspondence should be addressed to the Regulatory Division, South Branch, referencing the file number at the head of this letter.

Sincerely,

Katerina Galacatos

Digitally signed by Katerina Galacatos
Date: 2022.08.26 14:08:00 -07'00'

Katerina Galacatos, Ph.D.
Chief South Branch, Regulatory Division

Enclosures

Copy Furnished (w/enclosures):

CA DFW, Fairfield, CA (Attn. Craig Weightman, craig.weightman@wildlife.ca.gov)
CA RWQCB, Oakland, CA (Attn. Elizabeth Morrison, Elizabeth.Morrison@waterboards.ca.gov)
BCDC, San Francisco, CA (Attn. Anniken Lydon, anniken.lydon@bcdc.ca.gov)

U.S. Army Corps of Engineers (USACE) **APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT** 33 CFR 325. The proponent agency is CECW-CO-R.	***Form Approved -*** ***OMB No. 0710-0003*** ***Expires: 02-28-2022***

The public reporting burden for this collection of information, OMB Control Number 0710-0003, is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR APPLICATION TO THE ABOVE EMAIL.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: http://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Middle - Last -	First - Middle - Last -
Company -	Company -
E-mail Address -	E-mail Address -
6. APPLICANT'S ADDRESS:	9. AGENT'S ADDRESS:
Address-	Address-
City - State - Zip - Country -	City - State - Zip - Country -
7. APPLICANT'S PHONE NOs. w/AREA CODE	10. AGENTS PHONE NOs. w/AREA CODE
a. Residence b. Business c. Fax	a. Residence b. Business c. Fax

STATEMENT OF AUTHORIZATION

11. I hereby authorize, ______________________ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

______________________________ ______________
SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable) Address
15. LOCATION OF PROJECT Latitude: °N Longitude: °W	City - State- Zip-

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID Municipality

Section - Township - Range -

17. DIRECTIONS TO THE SITE

18. Nature of Activity (Description of project, include all features)

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type	Type	Type
Amount in Cubic Yards	Amount in Cubic Yards	Amount in Cubic Yards

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres

or

Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

24. Is Any Portion of the Work Already Complete? ☐ Yes ☐ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address-

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

Instructions for Preparing a Department of the Army Permit Application

Blocks 1 through 4. To be completed by Corps of Engineers.

Block 5. Applicant's Name. Enter the name and the E-mail address of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the name of the organization and responsible officer and title. If more than one party is associated with the application, please attach a sheet with the necessary information marked Block 5.

Block 6. Address of Applicant. Please provide the full address of the party or parties responsible for the application. If more space is needed, attach an extra sheet of paper marked Block 6.

Block 7. Applicant Telephone Number(s). Please provide the number where you can usually be reached during normal business hours.

Blocks 8 through 11. To be completed, if you choose to have an agent.

Block 8. Authorized Agent's Name and Title. Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, or any other person or organization. Note: An agent is not required.

Blocks 9 and 10. Agent's Address and Telephone Number. Please provide the complete mailing address of the agent, along with the telephone number where he / she can be reached during normal business hours.

Block 11. Statement of Authorization. To be completed by applicant, if an agent is to be employed.

Block 12. Proposed Project Name or Title. Please provide name identifying the proposed project, e.g., Landmark Plaza, Burned Hills Subdivision, or Edsall Commercial Center.

Block 13. Name of Waterbody. Please provide the name of any stream, lake, marsh, or other waterway to be directly impacted by the activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.

Block 14. Proposed Project Street Address. If the proposed project is located at a site having a street address (not a box number), please enter it here.

Block 15. Location of Proposed Project. Enter the latitude and longitude of where the proposed project is located. If more space is required, please attach a sheet with the necessary information marked Block 15.

Block 16. Other Location Descriptions. If available, provide the Tax Parcel Identification number of the site, Section, Township, and Range of the site (if known), and / or local Municipality that the site is located in.

Block 17. Directions to the Site. Provide directions to the site from a known location or landmark. Include highway and street numbers as well as names. Also provide distances from known locations and any other information that would assist in locating the site. You may also provide description of the proposed project location, such as lot numbers, tract numbers, or you may choose to locate the proposed project site from a known point (such as the right descending bank of Smith Creek, one mile downstream from the Highway 14 bridge). If a large river or stream, include the river mile of the proposed project site if known

Block 18. Nature of Activity. Describe the overall activity or project. Give appropriate dimensions of structures such as wing walls, dikes (identify the materials to be used in construction, as well as the methods by which the work is to be done), or excavations (length, width, and height). Indicate whether discharge of dredged or fill material is involved. Also, identify any structure to be constructed on a fill, piles, or float-supported platforms.

The written descriptions and illustrations are an important part of the application. Please describe, in detail, what you wish to do. If more space is needed, attach an extra sheet of paper marked Block 18.

Block 19. Proposed Project Purpose. Describe the purpose and need for the proposed project. What will it be used for and why? Also include a brief description of any related activities to be developed as the result of the proposed project. Give the approximate dates you plan to both begin and complete all work.

Block 20. Reasons for Discharge. If the activity involves the discharge of dredged and/or fill material into a wetland or other waterbody, including the temporary placement of material, explain the specific purpose of the placement of the material (such as erosion control).

Block 21. Types of Material Being Discharged and the Amount of Each Type in Cubic Yards. Describe the material to be discharged and amount of each material to be discharged within Corps jurisdiction. Please be sure this description will agree with your illustrations. Discharge material includes: rock, sand, clay, concrete, etc.

Block 22. Surface Areas of Wetlands or Other Waters Filled. Describe the area to be filled at each location. Specifically identify the surface areas, or part thereof, to be filled. Also include the means by which the discharge is to be done (backhoe, dragline, etc.). If dredged material is to be discharged on an upland site, identify the site and the steps to be taken (if necessary) to prevent runoff from the dredged material back into a waterbody. If more space is needed, attach an extra sheet of paper marked Block 22.

Block 23. Description of Avoidance, Minimization, and Compensation. Provide a brief explanation describing how impacts to waters of the United States are being avoided and minimized on the project site. Also provide a brief description of how impacts to waters of the United States will be compensated for, or a brief statement explaining why compensatory mitigation should not be required for those impacts.

Block 24. Is Any Portion of the Work Already Complete? Provide any background on any part of the proposed project already completed. Describe the area already developed, structures completed, any dredged or fill material already discharged, the type of material, volume in cubic yards, acres filled, if a wetland or other waterbody (in acres or square feet). If the work was done under an existing Corps permit, identity the authorization, if possible.

Block 25. Names and Addresses of Adjoining Property Owners, Lessees, etc., Whose Property Adjoins the Project Site. List complete names and full mailing addresses of the adjacent property owners (public and private) lessees, etc., whose property adjoins the waterbody or aquatic site where the work is being proposed so that they may be notified of the proposed activity (usually by public notice). If more space is needed, attach an extra sheet of paper marked Block 24.

Information regarding adjacent landowners is usually available through the office of the tax assessor in the county or counties where the project is to be developed.

Block 26. Information about Approvals or Denials by Other Agencies. You may need the approval of other federal, state, or local agencies for your project. Identify any applications you have submitted and the status, if any (approved or denied) of each application. You need not have obtained all other permits before applying for a Corps permit.

Block 27. Signature of Applicant or Agent. The application must be signed by the owner or other authorized party (agent). This signature shall be an affirmation that the party applying for the permit possesses the requisite property rights to undertake the activity applied for (including compliance with special conditions, mitigation, etc.).

DRAWINGS AND ILLUSTRATIONS

General Information.

Three types of illustrations are needed to properly depict the work to be undertaken. These illustrations or drawings are identified as a Vicinity Map, a Plan View or a Typical Cross-Section Map. Identify each illustration with a figure or attachment number.

Please submit one original, or good quality copy, of all drawings on 8½ x11 inch plain white paper (electronic media may be substituted). Use the fewest number of sheets necessary for your drawings or illustrations.

Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross-section). **While illustrations need not be professional (many small, private project illustrations are prepared by hand), they should be clear, accurate, and contain all necessary information.**

CFR 40 Part 230 Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material

Subpart B--Compliance With the Guidelines

Sec. 230.10 Restrictions on discharge.

Note: Because other laws may apply to particular discharges and because the Corps of Engineers or State 404 agency may have additional procedural and substantive requirements, a discharge complying with the requirement of these Guidelines will not automatically receive a permit.

Although all requirements in Sec. 230.10 must be met, the compliance evaluation procedures will vary to reflect the seriousness of the potential for adverse impacts on the aquatic ecosystems posed by specific dredged or fill material discharge activities.

(a) Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.

(1) For the purpose of this requirement, practicable alternatives include, but are not limited to:

(i) Activities which do not involve a discharge of dredged or fill material into the waters of the United States or ocean waters;

(ii) Discharges of dredged or fill material at other locations in waters of the United States or ocean waters;

(2) An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. If it is otherwise a practicable alternative, an area not presently owned by the applicant, which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered.

(3) Where the activity associated with a discharge which is proposed for a special aquatic site (as defined in subpart E) does not require access or proximity to or sighting within the special aquatic site in question to fulfill its basic purpose (i.e., is not "water dependent"), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise. In addition, where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge, which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise.

(4) For actions subject to NEPA, where the Corps of Engineers is the permitting agency, the analysis of alternatives required for NEPA environmental documents, including supplemental Corps NEPA documents, will in most cases provide the information for the evaluation of alternatives under these Guidelines. On occasion, these

NEPA documents may address a broader range of alternatives than required to be considered under this paragraph or may not have considered the alternatives in sufficient detail to respond to the requirements of these Guidelines. In the latter case, it may be necessary to supplement these NEPA documents with this additional information.

(5) To the extent that practicable alternatives have been identified and evaluated under a Coastal Zone Management program, a section 208 program, or other planning process, such evaluation shall be considered by the permitting authority as part of the consideration of alternatives under the Guidelines. Where such evaluation is less complete than that contemplated under this subsection, it must be supplemented accordingly.

(b) No discharge of dredged or fill material shall be permitted if it:

(1) Causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable State water quality standard;

(2) Violates any applicable toxic effluent standard or prohibition under section 307 of the Act;

(3) Jeopardizes the continued existence of species listed as endangered or threatened under the Endangered Species Act of 1973, as amended, or results in likelihood of the destruction or adverse modification of a habitat which is determined by the Secretary of Interior or Commerce, as appropriate, to be a critical habitat under the Endangered Species Act of 1973, as amended. If an exemption has been granted by the Endangered Species Committee, the terms of such exemption shall apply, in lieu of this subparagraph;

(4) Violates any requirement imposed by the Secretary of Commerce to protect any marine sanctuary designated under title III of the Marine Protection, Research, and Sanctuaries Act of 1972.

(c) Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States. Findings of significant degradation related to the proposed discharge shall be based upon appropriate factual determinations, evaluations, and tests required by subparts B and G, after consideration of subparts C through F, with special emphasis on the persistence and permanence of the effects outlined in those subparts. Under these Guidelines, effects contributing to significant degradation considered individually or collectively, include:

(1) Significantly adverse effects of the discharge of pollutants on human health or welfare, including but not limited to effects on municipal water supplies, plankton, fish, shellfish, wildlife, and special aquatic sites.

(2) Significantly adverse effects of the discharge of pollutants on life stages of aquatic life and other wildlife dependent on aquatic ecosystems, including the transfer, concentration, and spread of pollutants or their byproducts outside of the disposal site through biological, physical, and chemical processes;

(3) Significantly adverse effects of the discharge of pollutants on aquatic ecosystem diversity, productivity, and stability. Such effects may include, but are not limited to, loss of fish and wildlife habitat or loss of the capacity of a wetland to assimilate nutrients, purify water, or reduce wave energy; or

(4) Significantly adverse effects of discharge of pollutants on recreational, aesthetic, and economic values.

(d) Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem. Subpart H identifies such possible steps.

Sec. 230.11 Factual Determinations.

The permitting authority shall determine in writing the potential short-term or long-term effects of a proposed discharge of dredged or fill material on the physical, chemical, and biological components of the aquatic environment in light of subparts C through F. Such factual determinations shall be used in Sec. 230.12 in making findings of compliance or non-compliance with the restrictions on discharge in Sec. 230.10. The evaluation and testing procedures described in Sec. 230.60 and Sec. 230.61 of subpart G shall be used as necessary to make, and shall be described in, such determination. The determinations of effects of each proposed discharge shall include the following:

(a) Physical substrate determinations. Determine the nature and degree of effect that the proposed discharge will have, individually and cumulatively, on the characteristics of the substrate at the proposed disposal site. Consideration shall be given to the similarity in particle size, shape, and degree of compaction of the material proposed for discharge and the material constituting the substrate at the disposal site, and any potential changes in substrate elevation and bottom contours, including changes outside of the disposal site which may occur as a result of erosion, slumpage, or other movement of the discharged material. The duration and physical extent of substrate changes shall also be considered. The possible loss of environmental values (Sec. 230.20) and actions to minimize impact (subpart H) shall also be considered in making these determinations. Potential changes in substrate elevation and bottom contours shall be predicted on the basis of the proposed method, volume, location, and rate of discharge, as well as on the individual and combined effects of current patterns, water circulation, wind and wave action, and other physical factors that may affect the movement of the discharged material.

(b) Water circulation, fluctuation, and salinity determinations. Determine the nature and degree of effect that the proposed discharge will have individually and cumulatively on water, current patterns, circulation including downstream flows, and normal water fluctuation. Consideration shall be given to water chemistry, salinity, clarity, color, odor, taste, dissolved gas levels, temperature, nutrients, and eutrophication plus other appropriate characteristics. Consideration shall also be given to the potential diversion or obstruction of flow, alterations of bottom contours, or other significant changes in the hydrologic regime. Additional consideration of the possible loss of environmental values (Secs. 230.23 through 230.25) and actions to minimize impacts (subpart H), shall be used in making these determinations. Potential significant effects on the current patterns, water circulation, normal water fluctuation and salinity shall be evaluated on the basis of the proposed method, volume, location, and rate of discharge.

(c) Suspended particulate/turbidity determinations. Determine the nature and degree of effect that the proposed discharge will have, individually and cumulatively, in terms of potential changes in the kinds and concentrations of suspended particulate/turbidity in the vicinity of the disposal site. Consideration shall be given to the grain size of the material proposed for discharge, the shape and size of the plume of suspended particulates, the duration of the discharge and resulting plume and whether or not the potential changes will cause violations of applicable water quality standards. Consideration should also be given to the possible loss of environmental values (Sec. 230.21) and to actions for minimizing impacts (subpart H). Consideration shall include the proposed method, volume, location, and rate of discharge, as well as the individual and combined effects of current patterns, water circulation and fluctuations, wind and wave action, and other physical factors on the movement of suspended particulates.

(d) Contaminant determinations. Determine the degree to which the material proposed for discharge will introduce, relocate, or increase contaminants. This determination shall consider the material to be discharged, the aquatic environment at the proposed disposal site, and the availability of contaminants.

(e) Aquatic ecosystem and organism determinations. Determine the nature and degree of effect that the proposed discharge will have, both individually and cumulatively, on the structure and function of the aquatic ecosystem and organisms. Consideration shall be given to the effect at the proposed disposal site of potential changes in substrate characteristics and elevation, water or substrate chemistry, nutrients, currents, circulation, fluctuation, and salinity, on the recolonization and existence of indigenous aquatic organisms or communities. Possible loss of environmental values (Sec. 230.31), and actions to minimize impacts (subpart H) shall be examined. Tests as described in Sec. 230.61 (Evaluation and Testing), may be required to provide information on the effect of the discharge material on communities, or populations of organisms expected to be exposed to it.

(f) Proposed disposal site determinations.

(1) Each disposal site shall be specified through the application of these Guidelines. The mixing zone shall be confined to the smallest practicable zone within each specified disposal site that is consistent with the type of dispersion determined to be appropriate by the application of these Guidelines. In a few special cases under unique environmental conditions, where there is adequate justification to show that widespread dispersion by natural means will result in no significantly adverse environmental effects, the discharged material may be intended to be spread naturally in a very thin layer over a large area of the substrate rather than be contained within the disposal site.

(2) The permitting authority and the Regional Administrator shall consider the following factors in determining the acceptability of a proposed mixing zone:

(i) Depth of water at the disposal site;

(ii) Current velocity, direction, and variability at the disposal site;

(iii) Degree of turbulence;

(iv) Stratification attributable to causes such as obstructions, salinity or density profiles at the disposal site;

(v) Discharge vessel speed and direction, if appropriate;
(vi) Rate of discharge;
(vii) Ambient concentration of constituents of interest;
(viii) Dredged material characteristics, particularly concentrations of constituents, amount of material, type of material (sand, silt, clay, etc.) and settling velocities;
(ix) Number of discharge actions per unit of time;
(x) Other factors of the disposal site that affect the rates and patterns of mixing.

(g) Determination of cumulative effects on the aquatic ecosystem.
(1) Cumulative impacts are the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material. Although the impact of a particular discharge may constitute a minor change, in itself, the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems.
(2) Cumulative effects attributable to the discharge of dredged or fill material in waters of the United States should be predicted to the extent reasonable and practical. The permitting authority shall collect information and solicit information from other sources about the cumulative impacts on the aquatic ecosystem. This information shall be documented and considered during the decision-making process concerning the evaluation of individual permit applications, the issuance of a General permit, and monitoring and enforcement of existing permits.

(h) Determination of secondary effects on the aquatic ecosystem.
(1) Secondary effects are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material. Information about secondary effects on aquatic ecosystems shall be considered prior to the time final section 404 action is taken by permitting authorities.
(2) Some examples of secondary effects on an aquatic ecosystem are fluctuating water levels in an impoundment and downstream associated with the operation of a dam, septic tank leaching and surface runoff from residential or commercial developments on fill, and leachate and runoff from a sanitary landfill located in waters of the U.S. Activities to be conducted on fast land created by the discharge of dredged or fill material in waters of the United States may have secondary impacts within those waters which should be considered in evaluating the impact of creating those fast lands.

Sec. 230.12 Findings of compliance or non-compliance with the restrictions on discharge.

(a) On the basis of these Guidelines (subparts C through G) the proposed disposal sites for the discharge of dredged or fill material must be:
(1) Specified as complying with the requirements of these Guidelines; or
(2) Specified as complying with the requirements of these Guidelines with the inclusion of appropriate and practicable discharge conditions (see subpart H) to minimize pollution or adverse effects to the affected aquatic ecosystems; or
(3) Specified as failing to comply with the requirements of these Guidelines where:

(i) There is a practicable alternative to the proposed discharge that would have less adverse effect on the aquatic ecosystem, so long as such alternative does not have other significant adverse environmental consequences; or

(ii) The proposed discharge will result in significant degradation of the aquatic ecosystem under Sec. 230.10(b) or (c); or

(iii) The proposed discharge does not include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem; or

(iv) There does not exist sufficient information to make a reasonable judgment as to whether the proposed discharge will comply with these Guidelines.

(b) Findings under this section shall be set forth in writing by the permitting authority for each proposed discharge and made available to the permit applicant. These findings shall include the factual determinations required by Sec. 230.11, and a brief explanation of any adaptation of these Guidelines to the activity under consideration. In the case of a General permit, such findings shall be prepared at the time of issuance of that permit rather than for each subsequent discharge under the authority of that permit.

Subpart C--Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem

Note: The effects described in this subpart should be considered in making the factual determinations and the findings of compliance or non-compliance in subpart B.

Sec. 230.20 Substrate.

(a) The substrate of the aquatic ecosystem underlies open waters of the United States and constitutes the surface of wetlands. It consists of organic and inorganic solid materials and includes water and other liquids or gases that fill the spaces between solid particles.

(b) Possible loss of environmental characteristics and values: The discharge of dredged or fill material can result in varying degrees of change in the complex physical, chemical, and biological characteristics of the substrate. Discharges which alter substrate elevation or contours can result in changes in water circulation, depth, current pattern, water fluctuation and water temperature. Discharges may adversely affect bottom-dwelling organisms at the site by smothering immobile forms or forcing mobile forms to migrate. Benthic forms present prior to a discharge are unlikely to recolonize on the discharged material if it is very dissimilar from that of the discharge site. Erosion, slumping, or lateral displacement of surrounding bottom of such deposits can adversely affect areas of the substrate outside the perimeters of the disposal site by changing or destroying habitat. The bulk and composition of the discharged material and the location, method, and timing of discharges may all influence the degree of impact on the substrate.

Sec. 230.21 Suspended particulates/turbidity.

(a) Suspended particulates in the aquatic ecosystem consist of fine-grained mineral particles, usually smaller than silt, and organic particles. Suspended particulates may enter water bodies as a result of land runoff, flooding, vegetative and planktonic breakdown, resuspension of bottom sediments, and man's activities including dredging and filling. Particulates may remain suspended in the water column for variable periods of time as a result of such factors as agitation of the water mass, particulate specific gravity, particle shape, and physical and chemical properties of particle surfaces.

(b) Possible loss of environmental characteristics and values: The discharge of dredged or fill material can result in greatly elevated levels of suspended particulates in the water column for varying lengths of time. These new levels may reduce light penetration and lower the rate of photosynthesis and the primary productivity of an aquatic area if they last long enough. Sight-dependent species may suffer reduced feeding ability leading to limited growth and lowered resistance to disease if high levels of suspended particulates persist. The biological and the chemical content of the suspended material may react with the dissolved oxygen in the water, which can result in oxygen depletion. Toxic metals and organics, pathogens, and viruses absorbed or adsorbed to fine-grained particulates in the material may become biologically available to organisms either in the water column or on the substrate. Significant increases in suspended particulate levels create turbid plumes which are highly visible and aesthetically displeasing. The extent and persistence of these adverse impacts caused by discharges depend upon the relative increase in suspended particulates above the amount occurring naturally, the duration of the higher levels, the current patterns, water level, and fluctuations present when such discharges occur, the volume, rate, and duration of the discharge, particulate deposition, and the seasonal timing of the discharge.

Sec. 230.22 Water.

(a) Water is the part of the aquatic ecosystem in which organic and inorganic constituents are dissolved and suspended. It constitutes part of the liquid phase and is contained by the substrate. Water forms part of a dynamic aquatic life-supporting system. Water clarity, nutrients and chemical content, physical and biological content, dissolved gas levels, pH, and temperature contribute to its life-sustaining capabilities.

(b) Possible loss of environmental characteristics and values: The discharge of dredged or fill material can change the chemistry and the physical characteristics of the receiving water at a disposal site through the introduction of chemical constituents in suspended or dissolved form. Changes in the clarity, color, odor, and taste of water and the addition of contaminants can reduce or eliminate the suitability of water bodies for populations of aquatic organisms, and for human consumption, recreation, and aesthetics. The introduction of nutrients or organic material to the water column as a result of the discharge can lead to a high biochemical oxygen demand (BOD), which in turn can lead to reduced dissolved oxygen, thereby potentially affecting the survival of many aquatic organisms. Increases in nutrients can favor one group of organisms such as algae to the detriment of other more desirable types such as submerged aquatic vegetation, potentially causing adverse health effects, objectionable tastes and odors, and other problems.

Sec. 230.23 Current patterns and water circulation.

(a) Current patterns and water circulation are the physical movements of water in the aquatic ecosystem. Currents and circulation respond to natural forces as modified by basin shape and cover, physical and chemical characteristics of water strata and masses, and energy dissipating factors.

(b) Possible loss of environmental characteristics and values: The discharge of dredged or fill material can modify current patterns and water circulation by obstructing flow, changing the direction or velocity of water flow, changing the direction or velocity of water flow and circulation, or otherwise changing the dimensions of a water body. As a result, adverse changes can occur in: Location, structure, and dynamics of aquatic communities; shoreline and substrate erosion and depositon rates; the deposition of suspended particulates; the rate and extent of mixing of dissolved and suspended components of the water body; and water stratification.

Sec. 230.24 Normal water fluctuations.

(a) Normal water fluctuations in a natural aquatic system consist of daily, seasonal, and annual tidal and flood fluctuations in water level. Biological and physical components of such a system are either attuned to or characterized by these periodic water fluctuations.

(b) Possible loss of environmental characteristics and values: The discharge of dredged or fill material can alter the normal water-level fluctuation pattern of an area, resulting in prolonged periods of inundation, exaggerated extremes of high and low water, or a static, non-fluctuating water level. Such water level modifications may change salinity patterns, alter erosion or sedimentation rates, aggravate water temperature extremes, and upset the nutrient and dissolved oxygen balance of the aquatic ecosystem. In addition, these modifications can alter or destroy communities and populations of aquatic animals and vegetation, induce populations of nuisance organisms, modify habitat, reduce food supplies, restrict movement of aquatic fauna, destroy spawning areas, and change adjacent, upstream, and downstream areas.

Sec. 230.25 Salinity gradients.

(a) Salinity gradients form where salt water from the ocean meets and mixes with fresh water from land.

(b) Possible loss of environmental characteristics and values: Obstructions which divert or restrict flow of either fresh or salt water may change existing salinity gradients. For example, partial blocking of the entrance to an estuary or river mouth that significantly restricts the movement of the salt water into and out of that area can effectively lower the volume of salt water available for mixing within that estuary. The downstream migration of the salinity gradient can occur, displacing the maximum sedimentation zone and requiring salinity-dependent aquatic biota to adjust to the new conditions, move to new locations if possible, or perish. In the freshwater zone, discharge operations in the upstream regions can have equally adverse impacts. A significant reduction in the volume of fresh water moving into an estuary below that which is considered normal can affect the location and type of mixing thereby changing the characteristic salinity patterns. The resulting changed circulation pattern can cause the upstream migration of the salinity gradient displacing the maximum sedimentation zone. This migration may affect those organisms that are adapted to freshwater environments. It may also affect municipal water supplies.

Note: Possible actions to minimize adverse impacts regarding site characteristics can be found in subpart H.

Subpart D--Potential Impacts on Biological Characteristics of the Aquatic Ecosystem

Note: The impacts described in this subpart should be considered in making the factual determinations and the findings of compliance or non-compliance in subpart B.

Sec. 230.30 Threatened and endangered species.

(a) An endangered species is a plant or animal in danger of extinction throughout all or a significant portion of its range. A threatened species is one in danger of becoming an endangered species in the foreseeable future throughout all or a significant portion of its range. Listings of threatened and endangered species as well as critical habitats are maintained by some individual States and by the U.S. Fish and Wildlife Service of the Department of the Interior (codified annually at 50 CFR 17.11). The Department of Commerce has authority over some threatened and endangered marine mammals, fish and reptiles.

(b) Possible loss of values: The major potential impacts on threatened or endangered species from the discharge of dredged or fill material include:

(1) Covering or otherwise directly killing species;

(2) The impairment or destruction of habitat to which these species are limited. Elements of the aquatic habitat which are particularly crucial to the continued survival of some threatened or endangered species include adequate good quality water, spawning and maturation areas, nesting areas, protective cover, adequate and reliable food supply, and resting areas for migratory species. Each of these elements can be adversely affected by changes in either the normal water conditions for clarity, chemical content, nutrient balance, dissolved oxygen, pH, temperature, salinity, current patterns, circulation and fluctuation, or the physical removal of habitat; and

(3) Facilitating incompatible activities.

(c) Where consultation with the Secretary of the Interior occurs under section 7 of the Endangered Species Act, the conclusions of the Secretary concerning the impact(s) of the discharge on threatened and endangered species and their habitat shall be considered final.

Sec. 230.31 Fish, crustaceans, mollusks, and other aquatic organisms in the food web.

(a) Aquatic organisms in the food web include, but are not limited to, finfish, crustaceans, mollusks, insects, annelids, planktonic organisms, and the plants and animals on which they feed and depend upon for their needs. All forms and life stages of an organism, throughout its geographic range, are included in this category.

(b) Possible loss of values: The discharge of dredged or fill material can variously affect populations of fish, crustaceans, mollusks and other food web organisms through the release of contaminants which adversely affect adults, juveniles, larvae, or eggs, or result in the establishment or proliferation of an undesirable competitive species of plant or animal at the expense of the desired resident species. Suspended particulates settling on attached or buried eggs can smother the eggs by limiting or sealing off their exposure to oxygenated water. Discharge of dredged and fill material may result in the debilitation or death of sedentary organisms by smothering, exposure to chemical contaminants in dissolved or suspended form, exposure to high levels of suspended particulates, reduction in food supply, or alteration of the substrate upon which they are dependent. Mollusks are particularly sensitive to the discharge of material during periods of reproduction and growth and development due primarily to their limited mobility. They can be rendered unfit for human consumption by tainting, by production and accumulation of toxins, or by ingestion and retention of pathogenic organisms, viruses, heavy metals or persistent synthetic organic chemicals. The discharge of dredged or fill material can redirect, delay, or stop the reproductive and feeding movements of some species of fish and crustacean, thus preventing their aggregation in accustomed places such as spawning or nursery grounds and potentially leading to reduced populations. Reduction of detrital feeding species or other representatives of lower trophic levels can impair the flow of energy from primary consumers to higher trophic levels. The reduction or potential elimination of food chain organism populations decreases the overall productivity and nutrient export capability of the ecosystem.

Sec. 230.32 Other wildlife.

(a) Wildlife associated with aquatic ecosystems are resident and transient mammals, birds, reptiles, and amphibians.

(b) Possible loss of values: The discharge of dredged or fill material can result in the loss or change of breeding and nesting areas, escape cover, travel corridors, and preferred food sources for resident and transient wildlife species associated with the aquatic ecosystem. These adverse impacts upon wildlife habitat may result from changes in water levels, water flow and circulation, salinity, chemical content, and substrate characteristics and elevation. Increased water turbidity can adversely affect wildlife species which rely upon sight to feed, and disrupt the respiration and feeding of certain aquatic wildlife and food chain organisms. The availability of contaminants from the discharge of dredged or fill material may lead to the bioaccumulation of such contaminants in wildlife. Changes in such physical and chemical factors of the environment may favor the introduction of undesirable plant and animal species at the expense of resident species and communities. In some aquatic environments lowering plant and animal species diversity may disrupt the normal functions of the ecosystem and lead to reductions in overall biological productivity.

Note: Possible actions to minimize adverse impacts regarding characteristics of biological components of the aquatic ecosystem can be found in subpart H.

Subpart E--Potential Impacts on Special Aquatic Sites

Note: The impacts described in this subpart should be considered in making the factual determinations and the findings of compliance or non-compliance in subpart B. The definition of special aquatic sites is found in Sec. 230.3(q-1).

Sec. 230.40 Sanctuaries and refuges.

(a) Sanctuaries and refuges consist of areas designated under State and Federal laws or local ordinances to be managed principally for the preservation and use of fish and wildlife resources.

(b) Possible loss of values: Sanctuaries and refuges may be affected by discharges of dredged or fill material which will:
(1) Disrupt the breeding, spawning, migratory movements or other critical life requirements of resident or transient fish and wildlife resources;
(2) Create unplanned, easy and incompatible human access to remote aquatic areas;
(3) Create the need for frequent maintenance activity;
(4) Result in the establishment of undesirable competitive species of plants and animals;
(5) Change the balance of water and land areas needed to provide cover, food, and other fish and wildlife habitat requirements in a way that modifies sanctuary or refuge management practices;
(6) Result in any of the other adverse impacts discussed in subparts C and D as they relate to a particular sanctuary or refuge.

Sec. 230.41 Wetlands.

(a)(1) Wetlands consist of areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.
(2) Where wetlands are adjacent to open water, they generally constitute the transition to upland. The margin between wetland and open water can best be established by

specialists familiar with the local environment, particularly where emergent vegetation merges with submerged vegetation over a broad area in such places as the lateral margins of open water, headwaters, rainwater catch basins, and groundwater seeps. The landward margin of wetlands also can best be identified by specialists familiar with the local environment when vegetation from the two regions merges over a broad area.

(3) Wetland vegetation consists of plants that require saturated soils to survive (obligate wetland plants) as well as plants, including certain trees, that gain a competitive advantage over others because they can tolerate prolonged wet soil conditions and their competitors cannot. In addition to plant populations and communities, wetlands are delimited by hydrological and physical characteristics of the environment. These characteristics should be considered when information about them is needed to supplement information available about vegetation, or where wetland vegetation has been removed or is dormant.

(b) Possible loss of values: The discharge of dredged or fill material in wetlands is likely to damage or destroy habitat and adversely affect the biological productivity of wetlands ecosystems by smothering, by dewatering, by permanently flooding, or by altering substrate elevation or periodicity of water movement. The addition of dredged or fill material may destroy wetland vegetation or result in advancement of succession to dry land species. It may reduce or eliminate nutrient exchange by a reduction of the system's productivity, or by altering current patterns and velocities. Disruption or elimination of the wetland system can degrade water quality by obstructing circulation patterns that flush large expanses of wetland systems, by interfering with the filtration function of wetlands, or by changing the aquifer recharge capability of a wetland. Discharges can also change the wetland habitat value for fish and wildlife as discussed in subpart D. When disruptions in flow and circulation patterns occur, apparently minor loss of wetland acreage may result in major losses through secondary impacts. Discharging fill material in wetlands as part of municipal, industrial or recreational development may modify the capacity of wetlands to retain and store floodwaters and to serve as a buffer zone shielding upland areas from wave actions, storm damage and erosion.

Sec. 230.42 Mud flats.

(a) Mud flats are broad flat areas along the sea coast and in coastal rivers to the head of tidal influence and in inland lakes, ponds, and riverine systems. When mud flats are inundated, wind and wave action may re-suspend bottom sediments. Coastal mud flats are exposed at extremely low tides and inundated at high tides with the water table at or near the surface of the substrate. The substrate of mud flats contains organic material and particles smaller in size than sand. They are either un-vegetated or vegetated only by algal mats.

(b) Possible loss of values: The discharge of dredged or fill material can cause changes in water circulation patterns which may permanently flood or dewater the mud flat or disrupt periodic inundation, resulting in an increase in the rate of erosion or accretion. Such changes can deplete or eliminate mud flat biota, foraging areas, and nursery areas. Changes in inundation patterns can affect the chemical and biological exchange and decomposition process occurring on the mud flat and change the deposition of suspended material affecting the productivity of the area. Changes may reduce the mud flat's capacity to dissipate storm surge runoff.

Sec. 230.43 Vegetated shallows.

(a) Vegetated shallows are permanently inundated areas that under normal circumstances support communities of rooted aquatic vegetation, such as turtle grass and eelgrass in estuarine or marine systems as well as a number of freshwater species in rivers and lakes.

(b) Possible loss of values: The discharge of dredged or fill material can smother vegetation and benthic organisms. It may also create unsuitable conditions for their continued vigor by:
(1) Changing water circulation patterns;
(2) releasing nutrients that increase undesirable algal populations;
(3) releasing chemicals that adversely affect plants and animals;
(4) increasing turbidity levels, thereby reducing light penetration and hence photosynthesis; and
(5) changing the capacity of a vegetated shallow to stabilize bottom materials and decrease channel shoaling. The discharge of dredged or fill material may reduce the value of vegetated shallows as nesting, spawning, nursery, cover, and forage areas, as well as their value in protecting shorelines from erosion and wave actions. It may also encourage the growth of nuisance vegetation.

Sec. 230.44 Coral reefs.

(a) Coral reefs consist of the skeletal deposit, usually of calcareous or silicaceous materials, produced by the vital activities of anthozoan polyps or other invertebrate organisms present in growing portions of the reef.

(b) Possible loss of values: The discharge of dredged or fill material can adversely affect colonies of reef building organisms by burying them, by releasing contaminants such as hydrocarbons into the water column, by reducing light penetration through the water, and by increasing the level of suspended particulates. Coral organisms are extremely sensitive to even slight reductions in light penetration or increases in suspended particulates. These adverse effects will cause a loss of productive colonies which in turn provide habitat for many species of highly specialized aquatic organisms.

Sec. 230.45 Riffle and pool complexes.

(a) Steep gradient sections of streams are sometimes characterized by riffle and pool complexes. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. Pools are characterized by a slower stream velocity, a steaming flow, a smooth surface, and a finer substrate. Riffle and pool complexes are particularly valuable habitat for fish and wildlife.

(b) Possible loss of values: Discharge of dredged or fill material can eliminate riffle and pool areas by displacement, hydrologic modification, or sedimentation. Activities which affect riffle and pool areas and especially riffle/pool ratios, may reduce the aeration and filtration capabilities at the discharge site and downstream, may reduce stream habitat diversity, and may retard repopulation of the disposal site and downstream waters through sedimentation and the creation of unsuitable habitat. The discharge of dredged or fill material which alters stream hydrology may cause scouring or sedimentation of riffles and pools. Sedimentation induced through hydrological modification or as a direct result of the deposition of unconsolidated dredged or fill material may clog riffle and pool areas, destroy habitats, and create anaerobic conditions. Eliminating pools and meanders by the discharge of dredged or fill material can reduce water holding capacity of streams and cause rapid runoff from a watershed. Rapid runoff can deliver large quantities of flood water in a short time to downstream areas resulting in the destruction of natural habitat, high property loss, and the need for further hydraulic modification.

Note: Possible actions to minimize adverse impacts on site or material characteristics can be found in subpart H.

Subpart F--Potential Effects on Human Use Characteristics

Note: The effects described in this subpart should be considered in making the factual determinations and the findings of compliance or non-compliance in subpart B.

Sec. 230.50 Municipal and private water supplies.

(a) Municipal and private water supplies consist of surface water or ground water which is directed to the intake of a municipal or private water supply system.

(b) Possible loss of values: Discharges can affect the quality of water supplies with respect to color, taste, odor, chemical content and suspended particulate concentration, in such a way as to reduce the fitness of the water for consumption. Water can be rendered unpalatable or unhealthy by the addition of suspended particulates, viruses and pathogenic organisms, and dissolved materials. The expense of removing such substances before the water is delivered for consumption can be high. Discharges may also affect the quantity of water available for municipal and private water supplies. In addition, certain commonly used water treatment chemicals have the potential for combining with some suspended or dissolved substances from dredged or fill material to form other products that can have a toxic effect on consumers.

Sec. 230.51 Recreational and commercial fisheries.

(a) Recreational and commercial fisheries consist of harvestable fish, crustaceans, shellfish, and other aquatic organisms used by man.

(b) Possible loss of values: The discharge of dredged or fill materials can affect the suitability of recreational and commercial fishing grounds as habitat for populations of consumable aquatic organisms. Discharges can result in the chemical contamination of recreational or commercial fisheries. They may also interfere with the reproductive success of recreational and commercially important aquatic species through disruption of migration and spawning areas. The introduction of pollutants at critical times in their life cycle may directly reduce populations of commercially important aquatic organisms or indirectly reduce them by reducing organisms upon which they depend for food. Any of these impacts can be of short duration or prolonged, depending upon the physical and chemical impacts of the discharge and the biological availability of contaminants to aquatic organisms.

Sec. 230.52 Water-related recreation.

(a) Water-related recreation encompasses activities undertaken for amusement and relaxation. Activities encompass two broad categories of use: consumptive, e.g., harvesting resources by hunting and fishing; and non-consumptive, e.g. canoeing and sight-seeing.

(b) Possible loss of values: One of the more important direct impacts of dredged or fill disposal is to impair or destroy the resources, which support recreation activities. The disposal of dredged or fill material may adversely modify or destroy water use for recreation by changing turbidity, suspended particulates, temperature, dissolved oxygen, dissolved materials, toxic materials, pathogenic organisms, quality of habitat, and the aesthetic qualities of sight, taste, odor, and color.

Sec. 230.53 Aesthetics.

(a) Aesthetics associated with the aquatic ecosystem consist of the perception of beauty by one or a combination of the senses of sight, hearing, touch, and smell. Aesthetics of aquatic ecosystems apply to the quality of life enjoyed by the general public and property owners.

(b) Possible loss of values: The discharge of dredged or fill material can mar the beauty of natural aquatic ecosystems by degrading water quality, creating distracting disposal sites, inducing inappropriate development, encouraging unplanned and incompatible human access, and by destroying vital elements that contribute to the compositional harmony or unity, visual distinctiveness, or diversity of an area. The discharge of dredged or fill material can adversely affect the particular features, traits, or characteristics of an aquatic area which make it valuable to property owners. Activities which degrade water quality, disrupt natural substrate and vegetational characteristics, deny access to or visibility of the resource, or result in changes in odor, air quality, or noise levels may reduce the value of an aquatic area to private property owners.

Sec. 230.54 Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves.

(a) These preserves consist of areas designated under Federal and State laws or local ordinances to be managed for their aesthetic, educational, historical, recreational, or scientific value.

(b) Possible loss of values: The discharge of dredged or fill material into such areas may modify the aesthetic, educational, historical, recreational and/or scientific qualities thereby reducing or eliminating the uses for which such sites are set aside and managed.

Note: Possible actions to minimize adverse impacts regarding site or material characteristics can be found in subpart H.

Subpart G--Evaluation and Testing

Sec. 230.60 General evaluation of dredged or fill material.

The purpose of these evaluation procedures and the chemical and biological testing sequence outlined in Sec. 230.61 is to provide information to reach the determinations required by Sec. 230.11. Where the results of prior evaluations, chemical and biological tests, scientific research, and experience can provide information helpful in making a determination, these should be used. Such prior results may make new testing unnecessary. The information used shall be documented. Where the same information applies to more than one determination, it may be documented once and referenced in later determinations.

(a) If the evaluation under paragraph (b) indicates the dredged or fill material is not a carrier of contaminants, then the required determinations pertaining to the presence and effects of contaminants can be made without testing. Dredged or fill material is most likely to be free from chemical, biological, or other pollutants where it is composed primarily of sand, gravel, or other naturally occurring inert material. Dredged material so composed is generally found in areas of high current or wave energy such as streams with large bed loads or coastal areas with shifting bars and channels. However, when such material is discolored or contains other indications that contaminants may be present, further inquiry should be made.

(b) The extraction site shall be examined in order to assess whether it is sufficiently removed from sources of pollution to provide reasonable assurance that the proposed discharge material is not a carrier of contaminants. Factors to be considered include but are not limited to:

(1) Potential routes of contaminants or contaminated sediments to the extraction site, based on hydrographic or other maps, aerial photography, or other materials that show watercourses, surface relief, proximity to tidal movement, private and public roads, location of buildings, municipal and industrial areas, and agricultural or forest lands.

(2) Pertinent results from tests previously carried out on the material at the extraction

site, or carried out on similar material for other permitted projects in the vicinity. Materials shall be considered similar if the sources of contamination, the physical configuration of the sites and the sediment composition of the materials are comparable, in light of water circulation and stratification, sediment accumulation and general sediment characteristics. Tests from other sites may be relied on only if no changes have occurred at the extraction sites to render the results irrelevant. (3) Any potential for significant introduction of persistent pesticides from land runoff or percolation;

(4) Any records of spills or disposal of petroleum products or substances designated as hazardous under section 311 of the Clean Water Act (See 40 CFR part 116);

(5) Information in Federal, State and local records indicating significant introduction of pollutants from industries, municipalities, or other sources, including types and amounts of waste materials discharged along the potential routes of contaminants to the extraction site; and

(6) Any possibility of the presence of substantial natural deposits of minerals or other substances which could be released to the aquatic environment in harmful quantities by man-induced discharge activities.

(c) To reach the determinations in Sec. 230.11 involving potential effects of the discharge on the characteristics of the disposal site, the narrative guidance in subparts C through F shall be used along with the general evaluation procedure in Sec. 230.60 and, if necessary, the chemical and biological testing sequence in Sec. 230.61. Where the discharge site is adjacent to the extraction site and subject to the same sources of contaminants, and materials at the two sites are substantially similar, the fact that the material to be discharged may be a carrier of contaminants is not likely to result in degradation of the disposal site. In such circumstances, when dissolved material and suspended particulates can be controlled to prevent carrying pollutants to less contaminated areas, testing will not be required.

(d) Even if the Sec. 230.60(b) evaluation (previous tests, the presence of polluting industries and information about their discharge or runoff into waters of the U.S., bio-inventories, etc.) leads to the conclusion that there is a high probability that the material proposed for discharge is a carrier of contaminants, testing may not be necessary if constraints are available to reduce contamination to acceptable levels within the disposal site and to prevent contaminants from being transported beyond the boundaries of the disposal site, if such constraints are acceptable to the permitting authority and the Regional Administrator, and if the potential discharger is willing and able to implement such constraints. However, even if tests are not performed, the permitting authority must still determine the probable impact of the operation on the receiving aquatic ecosystem. Any decision not to test must be explained in the determinations made under Sec. 230.11.
Sec. 230.61 Chemical, biological, and physical evaluation and testing.

Note: The Agency is today proposing revised testing guidelines. The evaluation and testing procedures in this section are based on the 1975 section 404(b)(1) interim final Guidelines and shall remain in effect until the revised testing guidelines are published as final regulations.

(a) No single test or approach can be applied in all cases to evaluate the effects of proposed discharges of dredged or fill materials. This section provides some guidance in determining which test and/or evaluation procedures are appropriate in a given case. Interim guidance to applicants concerning the applicability of specific approaches or procedures will be furnished by the permitting authority.

(b) Chemical-biological interactive effects. The principal concerns of discharge of dredged or fill material that contain contaminants are the potential effects on the water column and on communities of aquatic organisms.

(1) Evaluation of chemical-biological interactive effects. Dredged or fill material may be excluded from the evaluation procedures specified in paragraphs (b) (2) and (3) of this section if it is determined, on the basis of the evaluation in Sec. 230.60, that the likelihood of contamination by contaminants is acceptably low, unless the permitting authority, after evaluating and considering any comments received from the Regional Administrator, determines that these procedures are necessary. The Regional Administrator may require, on a case-by-case basis, testing approaches and procedures by stating what additional information is needed through further analyses and how the results of the analyses will be of value in evaluating potential environmental effects. If the General Evaluation indicates the presence of a sufficiently large number of chemicals to render impractical the identification of all contaminants by chemical testing, information may be obtained from bioassays in lieu of chemical tests.

(2) Water column effects.

(i) Sediments normally contain constituents that exist in various chemical forms and in various concentrations in several locations within the sediment. An elutriate test may be used to predict the effect on water quality due to release of contaminants from the sediment to the water column. However, in the case of fill material originating on land which may be a carrier of contaminants, a water leachate test is appropriate.

(ii) Major constituents to be analyzed in the elutriate are those deemed critical by the permitting authority, after evaluating and considering any comments received from the Regional Administrator, and considering results of the evaluation in Sec. 230.60. Elutriate concentrations should be compared to concentrations of the same constituents in water from the disposal site. Results should be evaluated in light of the volume and rate of the intended discharge, the type of discharge, the hydrodynamic regime at the disposal site, and other information relevant to the impact on water quality. The permitting authority should consider the mixing zone in evaluating water column effects. The permitting authority may specify bioassays when such procedures will be of value.

(3) Effects on benthos. The permitting authority may use an appropriate benthic bioassay (including bioaccumulation tests) when such procedures will be of value in assessing ecological effects and in establishing discharge conditions.

(c) Procedure for comparison of sites.

(1) When an inventory of the total concentration of contaminants would be of value in comparing sediment at the dredging site with sediment at the disposal site, the permitting authority may require a sediment chemical analysis. Markedly different concentrations of contaminants between the excavation and disposal sites may aid in making an environmental assessment of the proposed disposal operation. Such differences should be

interpreted in terms of the potential for harm as supported by any pertinent scientific literature.

(2) When an analysis of biological community structure will be of value to assess the potential for adverse environmental impact at the proposed disposal site, a comparison of the biological characteristics between the excavation and disposal sites may be required by the permitting authority. Biological indicator species may be useful in evaluating the existing degree of stress at both sites. Sensitive species representing community components colonizing various substrate types within the sites should be identified as possible bioassay organisms if tests for toxicity are required. Community structure studies should be performed only when they will be of value in determining discharge conditions. This is particularly applicable to large quantities of dredged material known to contain adverse quantities of toxic materials. Community studies should include benthic organisms such as microbiota and harvestable shellfish and finfish. Abundance, diversity, and distribution should be documented and correlated with substrate type and other appropriate physical and chemical environmental characteristics.

(d) Physical tests and evaluation. The effect of a discharge of dredged or fill material on physical substrate characteristics at the disposal site, as well as on the water circulation, fluctuation, salinity, and suspended particulates content there, is important in making factual determinations in Sec. 230.11. Where information on such effects is not otherwise available to make these factual determinations, the permitting authority shall require appropriate physical tests and evaluations as are justified and deemed necessary. Such tests may include sieve tests, settleability tests, compaction tests, mixing zone and suspended particulate plume determinations, and site assessments of water flow, circulation, and salinity characteristics.

Subpart H--Actions To Minimize Adverse Effects

Note: There are many actions which can be undertaken in response to Sec. 203.10(d) to minimize the adverse effects of discharges of dredged or fill material. Some of these, grouped by type of activity, are listed in this subpart.

Sec. 230.70 Actions concerning the location of the discharge.

The effects of the discharge can be minimized by the choice of the disposal site. Some of the ways to accomplish this are by:

(a) Locating and confining the discharge to minimize smothering of organisms;

(b) Designing the discharge to avoid a disruption of periodic water inundation patterns;

(c) Selecting a disposal site that has been used previously for dredged material discharge;

(d) Selecting a disposal site at which the substrate is composed of material similar to that being discharged, such as discharging sand on sand or mud on mud;

(e) Selecting the disposal site, the discharge point, and the method of discharge to minimize the extent of any plume;

(f) Designing the discharge of dredged or fill material to minimize or prevent the creation of standing bodies of water in areas of normally fluctuating water levels, and minimize or prevent the drainage of areas subject to such fluctuations.

Sec. 230.71 Actions concerning the material to be discharged.

The effects of a discharge can be minimized by treatment of, or limitations on the material itself, such as:

(a) Disposal of dredged material in such a manner that physiochemical conditions are maintained and the potency and availability of pollutants are reduced.

(b) Limiting the solid, liquid, and gaseous components of material to be discharged at a particular site;

(c) Adding treatment substances to the discharge material;

(d) Utilizing chemical flocculants to enhance the deposition of suspended particulates in diked disposal areas.

Sec. 230.72 Actions controlling the material after discharge.

The effects of the dredged or fill material after discharge may be controlled by:

(a) Selecting discharge methods and disposal sites where the potential for erosion, slumping or leaching of materials into the surrounding aquatic ecosystem will be reduced. These sites or methods include, but are not limited to:
(1) Using containment levees, sediment basins, and cover crops to reduce erosion;
(2) Using lined containment areas to reduce leaching where leaching of chemical constituents from the discharged material is expected to be a problem;

(b) Capping in-place contaminated material with clean material or selectively discharging the most contaminated material first to be capped with the remaining material;

(c) Maintaining and containing discharged material properly to prevent point and nonpoint sources of pollution;

(d) Timing the discharge to minimize impact, for instance during periods of unusual high water flows, wind, wave, and tidal actions.

Sec. 230.73 Actions affecting the method of dispersion.

The effects of a discharge can be minimized by the manner in which it is dispersed, such as:

(a) Where environmentally desirable, distributing the dredged material widely in a thin layer at the disposal site to maintain natural substrate contours and elevation;

(b) Orienting a dredged or fill material mound to minimize undesirable obstruction to the water current or circulation pattern, and utilizing natural bottom contours to minimize the size of the mound;

(c) Using silt screens or other appropriate methods to confine suspended particulate/turbidity to a small area where settling or removal can occur;

(d) Making use of currents and circulation patterns to mix, disperse and dilute the discharge;

(e) Minimizing water column turbidity by using a submerged diffuser system. A similar effect can be accomplished by submerging pipeline discharges or otherwise releasing materials near the bottom;

(f) Selecting sites or managing discharges to confine and minimize the release of suspended particulates to give decreased turbidity levels and to maintain light penetration for organisms;

(g) Setting limitations on the amount of material to be discharged per unit of time or volume of receiving water.

Sec. 230.74 Actions related to technology.

Discharge technology should be adapted to the needs of each site. In determining whether the discharge operation sufficiently minimizes adverse environmental impacts, the applicant should consider:

(a) Using appropriate equipment or machinery, including protective devices, and the use of such equipment or machinery in activities related to the discharge of dredged or fill material;

(b) Employing appropriate maintenance and operation on equipment or machinery, including adequate training, staffing, and working procedures;

(c) Using machinery and techniques that are especially designed to reduce damage to wetlands. This may include machines equipped with devices that scatter rather than mound excavated materials, machines with specially designed wheels or tracks, and the use of mats under heavy machines to reduce wetland surface compaction and rutting;

(d) Designing access roads and channel spanning structures using culverts, open channels, and diversions that will pass both low and high water flows, accommodate fluctuating water levels, and maintain circulation and faunal movement;

(e) Employing appropriate machinery and methods of transport of the material for discharge.

Sec. 230.75 Actions affecting plant and animal populations.

Minimization of adverse effects on populations of plants and animals can be achieved by:

(a) Avoiding changes in water current and circulation patterns which would interfere with the movement of animals;

(b) Selecting sites or managing discharges to prevent or avoid creating habitat conducive to the development of undesirable predators or species which have a competitive edge ecologically over indigenous plants or animals;

(c) Avoiding sites having unique habitat or other value, including habitat of threatened or endangered species;

(d) Using planning and construction practices to institute habitat development and restoration to produce a new or modified environmental state of higher ecological value by displacement of some or all of the existing environmental characteristics. Habitat development and restoration techniques can be used to minimize adverse impacts and to compensate for destroyed habitat. Use techniques that have been demonstrated to be effective in circumstances similar to those under consideration wherever possible. Where proposed development and restoration techniques have not yet advanced to the pilot demonstration stage, initiate their use on a small scale to allow corrective action if unanticipated adverse impacts occur;

(e) Timing discharge to avoid spawning or migration seasons and other biologically critical time periods;

(f) Avoiding the destruction of remnant natural sites within areas already affected by development.

Sec. 230.76 Actions affecting human use.

Minimization of adverse effects on human use potential may be achieved by:

(a) Selecting discharge sites and following discharge procedures to prevent or minimize any potential damage to the aesthetically pleasing features of the aquatic site (e.g. viewscapes), particularly with respect to water quality;

(b) Selecting disposal sites which are not valuable as natural aquatic areas;

(c) Timing the discharge to avoid the seasons or periods when human recreational activity associated with the aquatic site is most important;

(d) Following discharge procedures which avoid or minimize the disturbance of aesthetic features of an aquatic site or ecosystem;

(e) Selecting sites that will not be detrimental or increase incompatible human activity, or require the need for frequent dredge or fill maintenance activity in remote fish and wildlife areas;

(f) Locating the disposal site outside of the vicinity of a public water supply intake.

Sec. 230.77 Other actions.

(a) In the case of fills, controlling runoff and other discharges from activities to be conducted on the fill;

(b) In the case of dams, designing water releases to accommodate the needs of fish and wildlife;

(c) In dredging projects funded by Federal agencies other than the Corps of Engineers, maintain desired water quality of the return discharge through agreement with the Federal funding authority on scientifically defensible pollutant concentration levels in addition to any applicable water quality standards;

(d) When a significant ecological change in the aquatic environment is proposed by the discharge of dredged or fill material, the permitting authority should consider the ecosystem that will be lost as well as the environmental benefits of the new system.

Subpart I--Planning To Shorten Permit Processing Time

Sec. 230.80 Advanced identification of disposal areas.

(a) Consistent with these Guidelines, EPA and the permitting authority, on their own initiative or at the request of any other party and after consultation with any affected State that is not the permitting authority, may identify sites which will be considered as:
 (1) Possible future disposal sites, including existing disposal sites and non-sensitive areas; or
 (2) Areas generally unsuitable for disposal site specification;

(b) The identification of any area as a possible future disposal site should not be deemed to constitute a permit for the discharge of dredged or fill material within such area or a specification of a disposal site. The identification of areas that generally will not be available for disposal site specification should not be deemed as prohibiting applications for permits to discharge dredged or fill material in such areas. Either type of identification constitutes information to facilitate individual or General permit application and processing.

(c) An appropriate public notice of the proposed identification of such areas shall be issued;

(d) To provide the basis for advanced identification of disposal areas, and areas unsuitable for disposal, EPA and the permitting authority shall consider the likelihood that use of the area in question for dredged or fill material disposal will comply with these Guidelines. To facilitate this analysis, EPA and the permitting authority should review available water resources management data including data available from the public, other Federal and State agencies, and information from approved Coastal Zone Management programs and River Basin Plans;

(e) The permitting authority should maintain a public record of the identified areas and a written statement of the basis for identification.

US Army Corps of Engineers®

SPECIAL PUBLIC NOTICE

Updated Map and Drawing Standards for the South Pacific Division Regulatory Program

February 10, 2016

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Introduction: This notice establishes updated standards and guidelines for maps and drawings submitted as part of delineations and applications for U.S. Army permits and jurisdictional determinations. The intent of these standards is to improve the quality and consistency of maps and drawings and simplify and improve review and processing by Corps Regulatory project managers. We estimate that at least 70-80% of maps and drawings submitted to the Corps Regulatory Program in South Pacific Division (comprised of Albuquerque, San Francisco, Sacramento, and Los Angeles districts) already meet the majority of these standards. By adhering to a single standard for maps and drawings, applicants and consultants should have a clear and concise product, and project managers should be able to provide permit decisions and jurisdictional determinations in a more consistent and timely manner. In addition, electronic mapping of permit-related maps and drawings will enable data sharing with other resource agencies for coordination of mitigation decision-making.

Applicability: These standards apply to all submittals to Regulatory Divisions, within the Districts of the Corps' South Pacific Division, and supersede all previous SPD district-specific standards related to map and drawing requirements. At the Corps' discretion, these standards may be modified or waived on a case by case basis, for example, projects or activities with small or temporary impacts to waters of the U.S. (for example, less than a tenth of an acre of permanent impact), projects where the applicant possesses limited financial resources (for example, private homeowners and small land owners), emergencies, and restoration projects with limited grant funding. Additional examples where these standards may be modified or waived include reauthorization of previously-authorized work and maintenance, repair, and/or rehabilitation projects where the original authorization included adequate drawings that are available. In general, compensatory mitigation plans must adhere to these standards, regardless of whether the standards are waived for the overall project.

Standards:

1) General:

a. Documents must include at a minimum: location (vicinity) map(s) and plan view map(s). Mitigation plans and construction drawings should also include representative cross-sectional views. Delineation maps must be provided for the project area, staging areas, disposal sites, access routes, and proposed mitigation sites, etc.
b. The orientation of the map on the page (as it is read) must be the same for all maps submitted.
c. By convention, North will normally be toward the top of the page.

d. For plan view maps where specific elevations are shown, and for all cross sections, the reference elevation datum (e.g. North American Vertical Datum of 1988, National Geodetic Vertical Datum of 1929, etc.) must be indicated.

e. Procedure: the Corps will review submitted maps and drawings for conformance with these standards. Documents not meeting the standards may be returned for revision.

f. Base maps:
    a. If aerial photographs are used, these must be orthorectified, date-stamped, and with the imagery source identified on the map.
    b. Date of imagery must be chosen such that aquatic resources have maximum visibility (e.g., during wet season).
    c. At least one map showing topography must be included.

g. Format:
    a. Both paper and electronic versions of documents are required; however, submittal of electronic documents may be waived on a project-specific basis for applicants without access to the appropriate software. For electronic documents, Adobe PDF format is preferred.
    b. Size: If larger than 11 x 17 inches, documents must be folded to fit within a 8.5 x 11 inch binder.
    c. GIS: All GIS data and associated metadata shall be provided on a digital medium (for example, CD or DVD), preferably using the Environmental Systems Research Institute (ESRI) shapefile format. Other data types may be accepted at the Corps project manager's discretion.

h. Plan view :
    a. At least two control points on opposite corners with latitude and longitude clearly annotated.
    b. North arrow.
    c. Bar scale <u>and</u> text scale (e.g., "1 inch = 250 ft") not to exceed 1 inch = 400 feet.
    d. Legend for any relevant items shown (e.g., wetlands and/or other water types), including the area (acres or square feet) in parenthesis for all relevant items shown on the map (e.g. project boundary, project construction footprint, waters of the U.S., impacts to waters of the U.S., etc.). Such items must be clearly identified in the legend. Annotate clearly showing the location of cross-sectional views (e.g., "A-A' ")
    e. Date prepared/revised.
    f. Name and organization of map preparer.
    g. Appropriate landmarks (on-site and nearby roads, prominent structures and/or topographic features, etc.).

i. Cross-sectional view:
    a. Must include a bar scale <u>and</u> text scale (e.g., "1 inch = 100 ft") for horizontal and vertical dimensions.
    b. If there are tidal areas within the survey area, identify the location and elevation of Mean High Water and the High Tide Line on all maps and cross-section drawings when appropriate.

2) Location (vicinity) map(s):

a. One or more vicinity maps must be submitted, at least one of which must use a USGS 7.5- minute quadrangle sheet as its basemap (if no USGS quadrangle is available, another accurate local map may be used as a basemap) with the project study boundary clearly outlined and the quadrangle name included on the map.
b. Does not need to be to-scale, but must include commonly recognizable landmark(s).
c. Must include north arrow.
d. Project location must be clearly marked and annotated.
e. Must include adjacent local roadways.

3) Proposed projects:

a. Show all proposed fills, structures, and /or limits of work within and adjacent to potential waters of the

U.S., including wetlands.

b. Show the location of delineated waters of the U.S. within the project area.
c. All impact areas within waters of the United States must be labeled with a unique name (For example, RSP1, RSP2, Cofferdam1, BoxCulvert1, AccessRoad1, etc.).
d. Clearly annotate all fills, structures, and /or limits of work as either permanent or temporary.
e. Pre-construction drawings (grading plans) and post-construction drawings (as-built plans) must include name, company/agency, and signature of preparer, date signed, drawing title, and total number of sheets.
f. Both plan view and cross-sectional view maps must be provided.
g. The proposed project drawing(s) must also be accompanied by a completed copy of the Impacts sheet in the Consolidated ORM Upload Workbook (ORM-Upload_Sheet_Consolidated_Rapanos20151022.xlsm from the attached **Zip file**).

4) Post-construction drawings (as-built plans):

a. Both plan view and cross-sectional view maps must be provided.
b. Must be the same size and alignment (spatial) as authorized grading plans (i.e., grading plans and as-built plans must overlay such that structures, boundaries, etc. align).
c. Show any deviations from the fills and/or structures authorized as part of an approved pre-construction drawing in red.

5) Delineations of waters of the United States (see **attached example map**):

a. Plan view maps must be provided.
b. Cross-sectional view drawings must be provided at the Corps project manager's discretion. Examples of when cross-sectional view drawings would be appropriate include stream or wetland restorations, stream crossings, proposed structures, and delineations of tidal areas.
c. The survey area boundary must be clearly annotated and/or symbolized. The survey area boundary encloses the spatial area for which a Corps jurisdictional determination is being requested.
d. Clearly show location and extent of all areas within the survey area potentially meeting the criteria for waters of the U.S., including special aquatic sites (e.g., wetlands, sanctuaries and refuges, mudflats, vegetated shallows, and riffle and pool complexes), and/or navigable waters. Each type of boundary (for example, ordinary high water mark, mean high water, wetlands or other special aquatic sites, and high tide line) must be clearly annotated and/or symbolized to ensure they are differentiable on the map.
e. Show locations of any wetland delineation or ordinary high water mark data points, labeled according to the number of the corresponding wetland delineation form or ordinary high water mark data sheet. Generally, a wetland boundary must be based on at least one set of paired wetland delineation data points, with one within the proposed wetland boundary and one immediately outside it.
f. Include representative ordinary high water mark (OHWM) widths where measured in the field (averages may be acceptable for uniform channel reaches). OHWM widths must be shown with a transect/profile line (e.g., A-A') labeled with the corresponding width measurement in feet. In some cases, a corresponding cross section may be required, in which case the cross section must include the corresponding OHWM elevations.
g. Include information not directly related to a delineation of waters of the U.S. on a separate map(s).
h. If there are tidal areas within the survey area, identify the location and elevation of Mean High Water and the High Tide Line on all maps and cross-section drawings. Annotate boundaries with the corresponding elevation (ft) and the tidal (vertical) datum used (NAVD88, NGVD29, MLLW, etc.).
i. For non-tidal zones, identify the Ordinary High Water Mark.
j. Each line or polygon representing a water of the U.S. must be labeled with a unique name (For example, WL1, WL2, VP1, VP2, STR1, STR2, etc.). Multi-geometry features, such as streams split by a culvert crossing, shall be separated into individual sections, each with their own unique names (For Example, STR1a, STR1b, etc.).
k. The delineation report must be accompanied by a completed copy of the Aquatic Resources sheet in the Consolidated ORM Upload Workbook (ORM_Upload_Sheet_Consolidated_Rapanos_20151022.xslm from the attached **Zip file**).

l. If submitted, delineation-related GIS data must use the same unique names as on the map and the Consolidated ORM Upload Workbook, and must include a text file of metadata, including datum, projection, and mapper contact information.

6) Mitigation plans and long-term preservation (LTP) maps (see **attached example map**):

a. Both plan view and cross-sectional view maps must be provided.

b. Mitigation areas must be clearly differentiable based on both the type of aquatic resource and the type of mitigation. Aquatic resource types must be differentiated by color, and mitigation types must be differentiated using different fill symbols, as described below and shown in the example ArcMap layer package (Regulatory_mitigation_template_20160115.lpk in the attached **Zip file**). Establishment areas must use a line fill symbol with lines at 45° and 315° angles. Re-establishment areas must use a line fill symbol with lines at a 0° angle. Rehabilitation areas must use a line fill symbol with lines at a 45° angle. Enhancement areas must use a line fill symbol with lines at a 90° angle. Aquatic resources preserved as compensatory mitigation (preservation) must use a simple fill symbol. For a definition of mitigation terms, see 2008 Mitigation Rule (33 CFR Part 332).

c. All mitigation sites and LTP boundaries must be clearly labeled with a unique name (for example, LTP1, WetEstab1, WetEstab2, StrmEnhance1, etc.).

d. Locations of mitigation sites must be shown relative to other landscape features and habitat types (e.g., riparian corridor, wetland complex, etc.).

e. The mitigation plan must be accompanied by a completed copy of the Permittee Responsible Mitigation sheet of the Consolidated ORM Upload Workbook (ORM_Upload_Sheet_Consolidated_Rapanos_20151022.xslm from the attached **Zip file**).

f. If submitted, GIS data for mitigation projects must use the unique names as described above, conform to the data dictionary below, and must include a text file of metadata, including datum, projection, and mapper contact information.

7) Mitigation monitoring report maps:

a. Each discrete mitigation site must be shown on a map as indicated in Section 6 above.

b. Any sampling presented in the monitoring report must be shown on a map, including locations and extent of sampling points, transects, quadrats, etc.

8) Ground photograph Maps:

a. Any ground photographs included with proposed project, post-construction (as-built), delineation, mitigation plan, or mitigation monitoring maps or reports must be accompanied by a map of photo-points.

b. Each photo-point must be labeled with a unique name and the compass direction in which the photograph was taken (e.g., a dot with an arrow or labels such as P1-NW and P1-315°).

c. A table must be provided either on the map or as a separate attachment, which lists each uniquely named photograph, its geographic coordinates (latitude, longitude), the compass direction in which the photograph was taken (e.g., N, NW, 45°, 270°, etc.), and a brief explanation of the photograph's relevance.

Updates: These standards may be updated periodically. The most current version will be posted on the SPD Regulatory Program website.

Attachments:

Attachment 1. **Delineation of Wetlands and Other Waters of the U.S.**

Attachment **2.** **Mitigation Plan and Long-term Preservation Map**

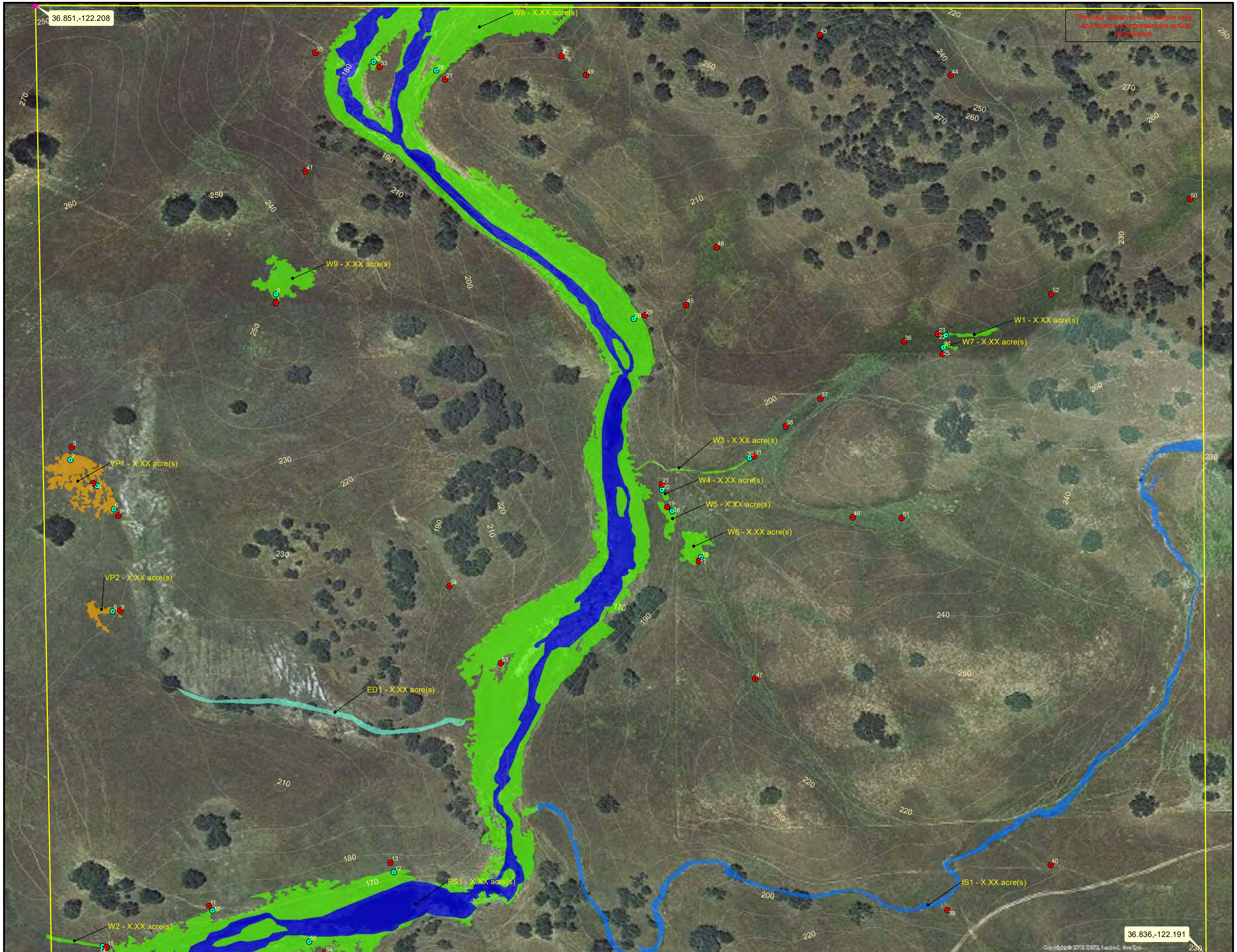

Figure X:
Delineation of Wetlands and Other Waters of the U.S. for the Hypothetical Project Site

Legend

- Map Reference Point
- Survey Area Boundary (X.XX Acres)
- Upland Sampling Point
- Wetland Sampling Point
- Topography (10-foot Contour Interval)

Wetlands (X.XX acres)

- Vernal Pool (X.XX acres)
- Wetland (X.XX acres)

Other Waters (X.XX acres)

- Ephemeral Drainage (X.XX acres)
- Intermittent Stream (X.XX acres)
- Perennial Stream (X.XX acres)

N W E S

250 125 0 250

Feet

Coordinate System: NAD 1983 UTM Zone 10N
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: NAVD88, U.S. Feet
1 inch = 250 feet

Created on April 30, 2013
Revised on February 8, 2016

Made in accordance with the
Updated Map and Drawing Standards for the South Pacific Division Regulatory Program,
as amended on February 10, 2016, by:
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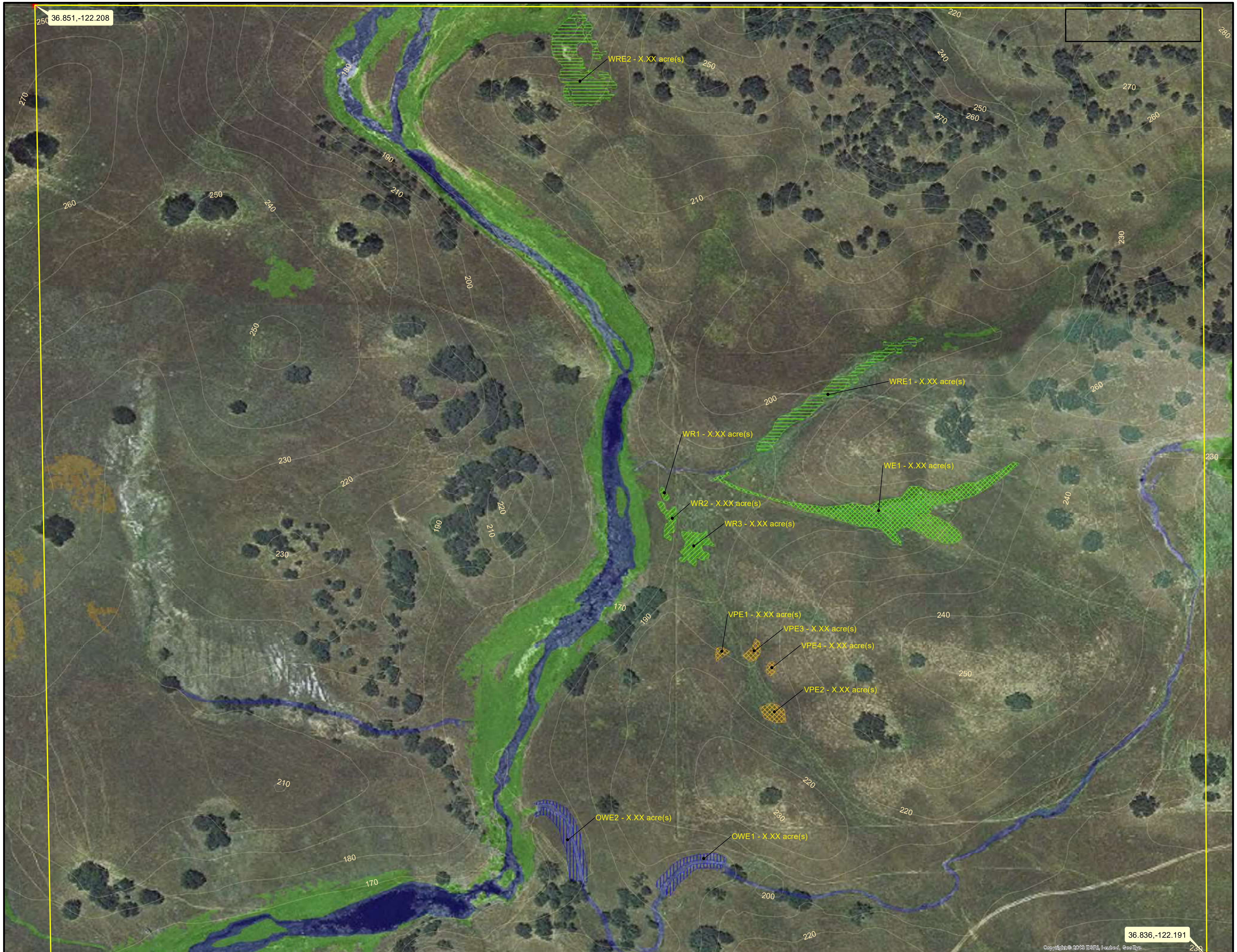

Figure X:
Mitigation Plan and
Long-term Preservation Map for the
Hypothetical Mitigation Project Site

Legend

Project/Preserve Boundary (X.XX Acres)

Topography (10-foot Contour Interval)

Map Reference Point

Pre-project Delineation

Waters Type

Open Water (X.XX acres)

Vernal Pool (X.XX acres)

Wetland (X.XX acres)

Proposed Mitigation

Mitigation Type

Open Water Enhancement (X.XX Acres)

Vernal Pool Establishment (X.XX acres)

Wetland Establishment (X.XX acres)

Wetland Re-establishment (X.XX acres)

Wetland Rehabilitation (X.XX acres)

N
W E
S

250 125 0 250
Feet

Coordinate System: NAD 1983 UTM Zone 10N
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: NAVD88, U.S. Feet
1 inch = 250 feet

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REGULATORY GUIDANCE LETTER

US Army Corps of Engineers

No. 08-03 **Date: 10 October 2008**

SUBJECT: Minimum Monitoring Requirements for Compensatory Mitigation Projects Involving the Restoration, Establishment, and/or Enhancement of Aquatic Resources.

1. Purpose and Applicability

a. Purpose. This Regulatory Guidance Letter (RGL) provides the Districts and regulated public guidance on minimum monitoring requirements for compensatory mitigation projects, including the required minimum content for monitoring reports. This RGL replaces RGL 06-03.

b. Applicability. The final Mitigation Rule published on April 10, 2008, states that the submission of monitoring reports to assess the development and condition of compensatory mitigation projects is required, but the content and level of detail for those reports must be commensurate with the scale and scope of the compensatory mitigation projects as well as the compensatory mitigation project type (see 33 CFR 332.6(a)(1)).

This RGL applies to all Department of the Army (DA) permit authorizations under Section 404 of the Clean Water Act and Sections 9 and 10 of the Rivers and Harbors Act that contain special conditions requiring compensatory mitigation provided through aquatic resource restoration, establishment and/or enhancement. This guidance also applies to monitoring reports that are prepared for mitigation bank sites and in-lieu-fee project sites.

This RGL supports the Program Analysis and Review Tool (PART) program goals for the Regulatory Program. Specifically, this RGL supports the PART performance measures for mitigation site compliance and mitigation bank/ in-lieu-fee compliance. These measures apply to active mitigation sites, mitigation banks, and in-lieu-fee project sites that still require monitoring.

2. Background

Recent studies by the Government Accountability Office (GAO) and National Research Council (NRC) indicated that the U.S. Army Corps of Engineers (Corps) was not providing adequate oversight to ensure that compensatory mitigation projects were successfully replacing the aquatic resource functions lost as a result of permitted activities. For example, the GAO study determined that many project files requiring mitigation lacked monitoring reports despite the fact that such reports were required as a condition of the permit. Similarly, the NRC study documented that a lack of clearly stated objectives and performance standards in the approved compensatory mitigation proposals made it difficult to ascertain whether the goal of no net loss of wetland resources was achieved.

On April 10, 2008, the Corps and Environmental Protection Agency published the "Compensatory Mitigation for Losses of Aquatic Resources: Final Rule" (Mitigation Rule) which governs compensatory mitigation for activities authorized by permits issued by the Department of the Army (33 CFR Parts 325 and 332). This RGL complements and is consistent with the final Mitigation Rule.

3. Discussion

Inconsistent approaches to monitoring compensatory mitigation projects are one of several factors that have affected the ability of Corps project managers (PMs) to adequately assess achievement of the performance standards of Corps-approved mitigation plans. Standardized monitoring requirements will aid PMs when reviewing compensatory mitigation sites, thereby allowing the Corps to effectively assess the status and success of compensatory mitigation projects.

This RGL addresses the minimum information needed for monitoring reports that are used to evaluate compensatory mitigation sites. Monitoring requirements are typically based on the performance standards for a particular compensatory mitigation project and may vary from one project to another.

Monitoring reports are documents intended to provide the Corps with information to determine if a compensatory mitigation project site is successfully meeting its performance standards. Remediation and/or adaptive management used to correct deficiencies in compensatory mitigation project outcomes should be based on information provided in the monitoring reports and site inspections.

4. Guidance

a. Monitoring guidelines for compensatory mitigation.

i. Performance Standards. Performance standards, as defined in 33 CFR 332.2, and discussed in more detail at 33 CFR 332.5, will be consistent with the objectives of the compensatory mitigation project. These standards ensure that the compensatory mitigation project is objectively evaluated to determine if it is developing into the desired resource type and providing the expected functions. The objectives, performance standards, and monitoring requirements for compensatory mitigation projects required to offset unavoidable impacts to waters of the United States must be provided as special conditions of the DA permit or specified in the approved final mitigation plan (see 33 CFR 332.3(k)(2)). Performance standards may be based on functional, conditional, or other suitable assessment methods and/or criteria and may be incorporated into the special conditions to determine if the site is achieving the desired functional capacity. Compensatory mitigation projects offset the impacts to diverse types of aquatic resources, including riverine and estuarine habitats. Special conditions of the DA permits will clearly state performance standards specific to the type and function of the ecosystem in relation to the objectives of the compensatory mitigation project.

ii. Monitoring Timeframe. The special conditions of the DA permit (or the mitigation plan as referenced in the special conditions) must specify the length of the monitoring period (see 33 CFR 332.6(a)(1)). For mitigation banks, the length of the monitoring period will be specified in either the DA permit, mitigation banking instrument, or approved mitigation plan. For in-lieu fee projects, the length of the monitoring period will be specified in either the DA permit or the approved in-lieu fee project plan.

The monitoring period must be sufficient to demonstrate that the compensatory mitigation project has met performance standards, but not less than five years (see 33 CFR 332.6(b)). The District determines how frequently monitoring reports are submitted, the monitoring period length, and report content. If a compensatory mitigation project has met its performance standards in less than five years, the monitoring period length can be reduced, if there are at least two consecutive monitoring reports that demonstrate that success. Permit conditions will support the specified monitoring requirement and include deadlines for monitoring report submittal. Longer monitoring timeframes are necessary for compensatory mitigation projects that take longer to develop (see 33 CFR 332.6(b)). For example, forested wetland restoration may take longer than five years to meet performance standards.

Annual monitoring and reporting to the Corps is appropriate for most types of compensatory mitigation projects, though the project sponsor may have to monitor progress more often during the project's early stages. Certain compensatory mitigation projects may require more frequent monitoring and reporting during the early stages of development to allow project managers to quickly address problems and/or concerns. Annual monitoring can resume once the project develops in accordance with the approved performance standards. In cases where monitoring is required for longer than five years, monitoring may be conducted on a less than annual timeframe (such as every other year), though yearly monitoring is recommended until the project becomes established as a successful mitigation project. In this case, off-year monitoring should include some form of screening assessment such as driving by the mitigation site, telephone conversations regarding condition of the mitigation site, etc. On-site conditions, the complexity of the approved mitigation plan, and unforeseen circumstances will ultimately determine whether the monitoring period should be extended beyond the specified monitoring time frame for a particular project. Complex and/or ecologically significant compensatory mitigation projects should have higher priority for site visits.

As discussed above, the remaining monitoring requirements may be waived upon a determination that the compensatory mitigation project has achieved its performance standards. The original monitoring period may be extended upon a determination that performance standards have not been met or the compensatory mitigation project is not on track to meet them (e.g., high mortality rate of vegetation). Monitoring requirements may also be revised in cases where adaptive management or remediation is required.

iii. Monitoring Reports. Monitoring requirements, including the frequency for providing monitoring reports to the District Commander and the Interagency Review Team (IRT), will be determined on a case-by-case basis and specified in either the DA permit, mitigation banking instrument, or approved mitigation plan. The content of the monitoring reports will be specified in the special conditions of the DA permit so that the requirements are clearly identified for the permittee or third-party mitigation sponsor. In addition, the monitoring reports should comply with the timeframes specified in the special conditions of the DA permit. Monitoring reports will not be used as a substitute for on site compliance inspections. The monitoring report will provide the PM with sufficient information on the compensatory mitigation project to assess whether it is meeting performance standards, and to determine whether a compliance visit is warranted. The party responsible for monitoring can electronically submit the monitoring reports and photos for review.

Visits to mitigation sites will be documented in the administrative record and will count toward District performance goals. An enforcement action may be taken if the responsible party fails to submit complete and timely monitoring reports.

b. Contents of Monitoring Reports. Monitoring reports provide the PM with a convenient mechanism for assessing the status of required compensatory mitigation projects. The PM should schedule a site visit and determine potential remedial actions if problems with the compensatory mitigation project are identified in a monitoring report.

The submittal of large bulky reports that provide mostly general information should be discouraged. While often helpful as background, reiteration of the mitigation and monitoring plan content, lengthy discussions of site progress, and extensive paraphrasing of quantified data are unnecessary. Monitoring reports should be concise and effectively provide the information necessary to assess the status of the compensatory mitigation project. Reports should provide information necessary to describe the site conditions and whether the compensatory mitigation project is meeting its performance standards.

Monitoring reports will include a Monitoring Report Narrative that provides an overview of site conditions and functions. This Monitoring Report Narrative should be concise and generally less than 10 pages, but may be longer for compensatory mitigation projects with complex monitoring requirements. Monitoring Report Narratives may be posted on each District's Regulatory web site.

Monitoring reports will also include appropriate supporting data to assist District Commanders and other reviewers in determining how the compensatory mitigation project is progressing towards meeting its performance standards. Such supporting data may include plans (such as as-built plans), maps, and photographs to illustrate site conditions, as well as the results of functional, condition, or other assessments used to provide quantitative or qualitative measures of the functions provided by the compensatory mitigation project site.

c. Monitoring Report Narrative:

i. Project Overview (1 page)

(1) Corps Permit Number or Name of the Mitigation Bank or In-Lieu Fee Project

(2) Name of party responsible for conducting the monitoring and the date(s) the inspection was conducted.

(3) A brief paragraph describing the purpose of the approved project, acreage and type of aquatic resources impacted, and mitigation acreage and type of aquatic resources authorized to compensate for the aquatic impacts.

(4) Written description of the location, any identifiable landmarks of the compensatory mitigation project including information to locate the site perimeter(s), and coordinates of the mitigation site (expressed as latitude, longitudes, UTMs, state plane coordinate system, etc.).

(5) Dates the compensatory mitigation project commenced and/or was completed.

(6) Short statement on whether the performance standards are being met.

(7) Dates of any recent corrective or maintenance activities conducted since the previous report submission.

(8) Specific recommendations for any additional corrective or remedial actions.

ii. Requirements (1 page)

List the monitoring requirements and performance standards, as specified in the approved mitigation plan, mitigation banking instrument, or special conditions of the DA permit, and evaluate whether the compensatory mitigation project site is successfully achieving the approved performance standards or trending towards success. A table is a recommended option for comparing the performance standards to the conditions and status of the developing mitigation site.

iii. Summary Data (maximum of 4 pages)

Summary data should be provided to substantiate the success and/or potential challenges associated with the compensatory mitigation project. Photo documentation may be provided to support the findings and recommendations referenced in the monitoring report and to assist the PM in assessing whether the compensatory mitigation project is meeting applicable performance standards for that monitoring period. Submitted photos should be formatted to print on a standard 8 ½" x 11" piece of paper, dated, and clearly labeled with the direction from which the photo was taken. The photo location points should also be identified on the appropriate maps.

iv. Maps and Plans (maximum of 3 pages)

Maps should be provided to show the location of the compensatory mitigation site relative to other landscape features, habitat types, locations of photographic reference points, transects, sampling data points, and/or other features pertinent to the mitigation plan. In addition, the submitted maps and plans should clearly delineate the mitigation site perimeter(s), which will assist PMs in locating the mitigation area(s) during subsequent site inspections. Each map or diagram should be formatted to print on a standard 8 ½" x 11" piece of paper and include a legend and the location of any photos submitted for review. As-built plans may be included.

v. Conclusions (1 page)

A general statement should be included that describes the conditions of the compensatory mitigation project. If performance standards are not being met, a brief explanation of the difficulties and potential remedial actions proposed by the permittee or sponsor, including a timetable, should be provided. The District Commander will ultimately determine if the mitigation site is successful for a given monitoring period.

d. Completion of Compensatory Mitigation Requirements. For permittee-responsible mitigation projects, compensatory mitigation requirements will not be considered fulfilled until the permittee has received written concurrence from the District Commander that the compensatory mitigation project has met its objectives and no additional monitoring reports are required. PMs will review the final monitoring reports to make this determination. A final field visit should be conducted to verify that on-site conditions are consistent with information documented in the monitoring reports.

e. Special Condition. The following condition should be added to all DA permits that require permittee-responsible mitigation. This condition does not apply to mitigation banks or in-lieu-fee programs:

Your responsibility to complete the required compensatory mitigation as set forth in Special Condition X will not be considered fulfilled until you have demonstrated compensatory mitigation project success and have received written verification of that success from the U.S. Army Corps of Engineers.

5. Duration

This guidance remains in effect unless revised or rescinded.

STEVEN L. STOCKTON, P.E.
Director of Civil Works

STATE OF CALIFORNIA Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

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August 24, 2022

Catherine Keylon, Senior Planner
City of Burlingame
501 Primrose Road
Burlingame, CA 94010

Re: 2022080299, 1200-1340 Bayshore Highway Project, San Mateo County

Dear Ms. Keylon:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

a. A brief description of the project.

b. The lead agency contact information.

c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).

d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

a. Alternatives to the project.

b. Recommended mitigation measures.

c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

a. Type of environmental review necessary.

b. Significance of the tribal cultural resources.

c. Significance of the project's impacts on tribal cultural resources.

d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

a. Whether the proposed project has a significant impact on an identified tribal cultural resource.

b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
  - **a.** The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
  - **b.** Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (https://ohp.parks.ca.gov/?page_id=30331) for an archaeological records search. The records search will determine:
  - **a.** If part or all of the APE has been previously surveyed for cultural resources.
  - **b.** If any known cultural resources have already been recorded on or adjacent to the APE.
  - **c.** If the probability is low, moderate, or high that cultural resources are located in the APE.
  - **d.** If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - **a.** The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
  - **b.** The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:

   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.

   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Cody.Campagne@nahc.ca.gov.

Sincerely,

Cody Campagne

Cody Campagne
Cultural Resources Analyst

cc: State Clearinghouse

California Department of Transportation

DISTRICT 4
OFFICE OF REGIONAL AND COMMUNITY PLANNING
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September 8, 2022

SCH #: 2022080299
GTS #: 04-SM-2022-00451
GTS ID: 27371
Co/Rt/Pm: SM/101/16.805

Catherine Keylon, Senior Planner
City of Burlingame
501 Primrose Road
Burlingame, CA 94010

Re: 1240-1340 Bayshore Highway + Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR)

Dear Catherine Keylon:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the 1240-1340 Bayshore Highway Project. We are committed to ensuring that impacts to the State's multimodal transportation system and to our natural environment are identified and mitigated to support a safe, sustainable, integrated and efficient transportation system. The following comments are based on our review of the August 2022 NOP.

Project Understanding
The proposed Project would include demolition of the site's existing structures and surface parking lots and construction of three (3) life science/ office buildings totaling approximately 1.46 million gross square feet and two parking structures containing a total of 3,525 parking spaces. Each life science/office building would be 11 stories above grade and approximately 213 feet in height to parapets (229 feet to top of mechanical penthouse). Parking structures would be 10- to 10.5-stories above grade and two stories below grade, and a maximum of approximately 115 feet in height to parapets.

Travel Demand Analysis
With the enactment of Senate Bill (SB) 743, Caltrans is focused on maximizing efficient development patterns, innovative travel demand reduction strategies, and multimodal improvements. For more information on how Caltrans assesses Transportation Impact Studies, please review Caltrans' Transportation Impact Study Guide (*link*).

If the project meets the screening criteria established in the City's adopted Vehicle Miles Traveled (VMT) policy to be presumed to have a less-than-significant VMT impact and exempt from detailed VMT analysis, please provide justification to support the exempt status in alignment with the City's VMT policy. Projects that do not meet the screening criteria should include a detailed VMT analysis in the DEIR, which should include the following:

- VMT analysis pursuant to the City's guidelines. Projects that result in automobile VMT per capita above the threshold of significance for existing (i.e. baseline) city-wide or regional values for similar land use types may indicate a significant impact. If necessary, mitigation for increasing VMT should be identified. Mitigation should support the use of transit and active transportation modes. Potential mitigation measures that include the requirements of other agencies such as Caltrans are fully enforceable through permit conditions, agreements, or other legally-binding instruments under the control of the City.

- A schematic illustration of walking, biking and auto conditions at the project site and study area roadways. Potential traffic safety issues to the State Transportation Network (STN) may be assessed by Caltrans via the Interim Safety Guidance (*link*).

- The project's primary and secondary effects on pedestrians, bicycles, travelers with disabilities and transit performance should be evaluated, including countermeasures and trade-offs resulting from mitigating VMT increases. Access to pedestrians, bicycle, and transit facilities must be maintained.

Mitigation Strategies
Location efficiency factors, including community design and regional accessibility, influence a project's impact on the environment. Using Caltrans' Smart Mobility Framework Guide 2020 *(link)*, the proposed project site is identified as a suburban placetype where community design is fair and regional accessibility is varied.

Given the place, type and size of the project, the DEIR should include a robust Transportation Demand Management (TDM) Program to reduce VMT and greenhouse gas emissions from future development in this area. The measures listed below have been quantified by California Air Pollution Control Officers Association (CAPCOA) and shown to have different efficiencies reducing regional VMT Orientation of project towards non-auto corridor;

- Consider incorporating bicycle and pedestrian improvements near the proposed project location as a mitigation measure for possible project VMT impacts. Bicyclists and pedestrians are vulnerable road users best served by infrastructure

improvements, especially if circulation patterns change or intensify due to the proposed project;
- Traffic calming measures;
- Implementation of a neighborhood electric vehicle (EV) network, including designated parking spaces for EVs;
- Limiting parking supply;
- Unbundled parking from property costs;
- Implementation of Urban Non-Motorized Zone;
- Market price public parking;
- Ridesharing programs, Commute Trip Reduction programs, bike sharing programs;
- Transit and trip planning resources such as a commute information kiosk;
- Real-time transit information system;
- Transit access supporting infrastructure (including bus shelter improvements and sidewalk/ crosswalk safety facilities);
- Employer-based vanpool;
- Telecommuting programs and alternative work schedules.

The proposed site is near the Bay Trail – an important local and regional recreational trail – and an associated access point. The DEIR could look at creating tie-ins to the trail, signage and wayfinding, crossing improvements at the nearby intersections, bike lanes along adjoining streets, and/or other improvements in coordination with the City of Burlingame and Caltrans to help mitigate impacts.

The Caltrans District 4 Pedestrian Plan indicates that local community groups have identified needed improvements at the nearby intersection of Old Bayshore Highway and Airport Boulevard, as well as the intersection of Old Bayshore Highway and the US 101 NB on/off-ramps. At the environmental document stage, we recommend working with the City of Burlingame and Caltrans to identify the public's concerns about these intersections and studying possible mitigation measures at sites as necessary.

Using a combination of strategies appropriate to the project and the site can reduce VMT, along with related impacts on the environment and State facilities. TDM programs should be documented with annual monitoring reports by a TDM coordinator to demonstrate effectiveness. If the project does not achieve the VMT reduction goals, the reports should also include next steps to take in order to achieve those targets.

Please reach out to Caltrans for further information about TDM measures and a toolbox for implementing these measures in land use projects. Additionally, refer to the California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (*link*).

Transportation Impact Fees
Please identify project-generated travel demand and estimate the costs of transit and active transportation improvements necessitated by the proposed project; viable funding sources such as development and/or transportation impact fees should also be identified. We encourage a sufficient allocation of fair share contributions toward multi-modal and regional transit improvements to fully mitigate cumulative impacts to regional transportation. We also strongly support measures to increase sustainable mode shares, thereby reducing VMT.

Hydraulics
The DEIR should include a discussion of the existing hydrology, hydraulics, and water quality features in place and how the proposed work will/could influence these factors. Details about existing and proposed drainage patterns, stormwater interception (including drainage inlets and conveyance facilities), stormwater treatment for permanent and temporary (during construction) conditions are particularly useful.

Due to the location of this project, please include a discussion of the potential effects of sea-level rise, current and projected tidal influences and how the design of the proposed project addresses and accommodates for these factors will need to be included in the DEIR. Projects within Caltrans' Right-of-Way (ROW) will need be designed and constructed to accommodate the projected sea-level rise criteria/requirements outlined in Chapter 880 of the Caltrans Highway Design Manual (HDM). Similarly, proposed development outside of Caltrans' ROW will need to accommodate sea-level rise criteria/requirements set by the City of Burlingame and San Mateo County. The DEIR should include discussion of any existing and proposed flood control measures that address sea-level rise and include concurrence from the City of Burlingame, the San Mateo Flood Control District any concerned agencies.

Additionally, a discussion of the existing FEMA designated Flood zones, as represented on FEMA flood maps, and how the proposed development plans to address improvements, if any, to improve conditions at the project location and localized area will need to be included in the EIR. The project is located south of Easton Creek as shown on the FEMA Flood Maps. There are surrounding areas within designated "AE" zones. As mentioned above regarding sea level rise, it is important that discussion of current and proposed flood control measures include concurrence from the City of Burlingame and the San Mateo Flood Control District.

Even if only generally included in the DEIR, an explanation of any proposed flood control measures or improvements and how they are to be constructed and maintained with an explanation of the provisions (financial, procedural, and operational) for long term maintenance will be useful. Any successful flood control project needs to include a discussion of how future maintenance will be performed and funded. A more comprehensive discussion of future maintenance provisions should be included in the project report(s).

Lead Agency
As the Lead Agency, the City Burlingame is responsible for all project mitigation, including any needed improvements to the STN. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures.

Equitable Access
If any Caltrans facilities are impacted by the project, those facilities must meet American Disabilities Act (ADA) Standards after project completion. As well, the project must maintain bicycle and pedestrian access during construction. These access considerations support Caltrans' equity mission to provide a safe, sustainable, and equitable transportation network for all users.

Encroachment Permit
Please be advised that any permanent work or temporary traffic control that encroaches onto Caltrans' ROW requires a Caltrans-issued encroachment permit. As part of the encroachment permit submittal process, you may be asked by the Office of Encroachment Permits to submit a completed encroachment permit application package, digital set of plans clearly delineating Caltrans' ROW, digital copy of signed, dated and stamped (include stamp expiration date) traffic control plans, this comment letter, your response to the comment letter, and where applicable, the following items: new or amended Maintenance Agreement (MA), approved Design Standard Decision Document (DSDD), approved encroachment exception request, and/or airspace lease agreement. Your application package may be emailed to D4Permits@dot.ca.gov.

Please note that Caltrans is in the process of implementing an online, automated, and milestone-based Caltrans Encroachment Permit System (CEPS) to replace the current permit application submittal process with a fully electronic system, including online payments. The new system is expected to be available during 2022. To obtain information about the most current encroachment permit process and to download the permit application, please visit https://dot.ca.gov/programs/traffic-operations/ep/applications.

Thank you again for including Caltrans in the environmental review process. Should you have any questions regarding this letter, or for future notifications and requests for review of new projects, please email LDR-D4@dot.ca.gov.

Sincerely,

MARK LEONG
District Branch Chief
Local Development Review

c: State Clearinghouse

San Francisco Bay Conservation and Development Commission
375 Beale Street, Suite 510, San Francisco, California 94105 tel 415 352 3600 fax 888 348 5190
State of California | Gavin Newsom – Governor | info@bcdc.ca.gov | www.bcdc.ca.gov

September 12, 2022

Catherine Keylon, Senior Planner
City of Burlingame Planning Division
501 Primrose Road
Burlingame, CA 94010
Via E-mail: <ckeylon@burlingame.org>

**SUBJECT; Comments on the Notice of Preparation of a Draft Environmental Impact Report for the 1200-1340 Bayshore Highway Project (Peninsula Crossing)
BCDC Inquiry File No. MC.MC.7415.026**

Dear Ms. Keylon:

Thank you for the opportunity to comment on the scope of the upcoming Draft Environmental Impact Report (DEIR) for the 1200-1340 Bayshore Highway (Peninsula Crossing) Project (Project).

The San Francisco Bay Conservation and Development Commission (BCDC) is providing the following comments as a responsible agency with discretionary approval power over aspects of the Project, as described below. BCDC will rely on the Final EIR when considering its approvals for the project, and we appreciate this opportunity to comment on information and analyses to be included in the scope of the DEIR. While the description of the project in the NOP is not specific enough for BCDC staff to comment on every potential issue that could be raised with respect to BCDC's laws and policies, staff has prepared the following comments outlining issues under BCDC's jurisdiction that should be addressed. The Commission itself has not reviewed the NOP; the following comments are based on BCDC staff review of the NOP, the McAteer-Petris Act (Title 7.2 of the California Government Code), and the *San Francisco Bay Plan* (Bay Plan).

San Francisco Bay Conservation and Development Commission

BCDC is a State planning and regulatory agency with permitting authority over San Francisco Bay, the Bay shoreline, and Suisun Marsh, as established in the McAteer-Petris Act and the Suisun Marsh Preservation Act. Per the McAteer-Petris Act, BCDC is responsible for granting or denying permits for any proposed fill; extraction of materials; or substantial changes in use of any water, land, or structure within the Commission's jurisdiction (Government Code Section 66632). Additionally, BCDC establishes land use policies for the Bay as a resource and for development of the Bay and shoreline in the Bay Plan, which provides the basis for the Commission's review and actions on proposed projects.

The Project site is partially located within two areas of BCDC's permitting jurisdiction:

- In the San Francisco Bay, being all areas subject to tidal action, including tidelands (land lying between mean high tide and mean low tide) and submerged lands (Government Code Section 66610[a]); and
- In the shoreline band consisting of all territory located between the shoreline of the Bay and 100 feet landward of and parallel with the shoreline (Government Code Section 66610[b]).

The Project team has previously worked with BCDC staff to map the limits of these jurisdictional areas. Staff requests that the City include this mapping in the DEIR and pay particular attention to potential impacts that may occur in these areas. Areas in the Bay jurisdiction include Easton Creek and the tidally influenced wetland at the southern end of the Project site. Areas in the shoreline band jurisdiction include the shoreline, most of the open space and public access amenities, and portions of some of the buildings and parking structures.

Please note that the Exhibit 3, "Conceptual Site and Landscape Plan," included with the NOP depicts an older understanding of the jurisdictional limits that has been superseded, as BCDC staff has determined that the extent of tidal influence on Easton Creek is farther upstream than Old Bayshore Highway. Thus, BCDC's Bay jurisdiction follows the creek as it enters the culvert to the edge of the Project site. BCDC staff is available to review any mapping to ensure that our agency's jurisdiction is accurately depicted.

Environmental Analyses

Below is a list of environmental topics from the NOP and a description of how they overlap with BCDC policy areas that staff will use to evaluate the Project for a BCDC major permit. Including these analyses in the DEIR and addressing any related impacts with mitigation measures will support staff in developing relevant conditions and necessary findings to include in the permit. The McAteer-Petris Act and the Bay Plan, both referenced below, are available on BCDC's website, at https://www.bcdc.ca.gov/plans/mcateer_petris.html and https://www.bcdc.ca.gov/pdf/bayplan/bayplan.pdf, respectively.

AESTHETICS

The Bay Plan includes a policy section on Appearance, Design, and Scenic Views upon which the Commission will base its findings for the Project's visual impacts on the Bay. In defining the significance of the Project's aesthetic impacts, please consider the findings and policies in this section, and acknowledge these policies in the regulatory settings of the analysis. BCDC provides additional guidance on the interpretation of these policies in the Public Access Design Guidelines for Shoreline Spaces, particularly in the sections related to Visual Access, Visual Quality, and Bay Setting. Please consider the Guidelines in your evaluation of the Project's potential effects on scenic vistas and scenic resources. The Guidelines are available on BCDC's website (https://www.bcdc.ca.gov/planning/SPLG.pdf).

Biological Resources

The Bay Plan includes a number of policy sections related to biological resources, including Fish, Other Aquatic Organisms and Wildlife; Tidal Marshes and Tidal Flats; Subtidal Areas; and Mitigation. Please review the policies and findings in these sections and consider them in your biological resources analysis and in the development of any related mitigation measures, and acknowledge them in the regulatory setting for this section. Additionally, please consider the Bay Plan in your analysis of whether the Project would conflict with the provisions of a regional habitat conservation plan.

In defining the study area for the biological resources analysis in the DEIR, please include any areas of the Bay that may be affected by site preparation and construction activities and the ongoing operation of the Project, including those that might be affected by light, sound, debris, runoff, etc. Additionally, please provide a detailed analysis of any potential impacts in and along Easton Creek and in the tidally influenced wetland present on the site.

Cultural/Tribal Cultural Resources

As part of the Bay Plan's policies on Environmental Justice and Social Equity, the Commission is required to consider its guiding principles on environmental justice and social equity in all of its actions and activities. The first of these guiding principles is to "recognize and acknowledge the California Native American communities who first inhabited the Bay Area and their cultural connection to the natural resources of the region." Additionally, Public Access Policy No. 5 states that public access should embrace "local multicultural and indigenous history and presence," and Recreation Policy No. 4 states that parks should emphasize historical and cultural education and interpretation.

Please ensure that the DEIR includes a description of the Native American history and cultural resources associated with the Project site. In preparing the DEIR, please conduct meaningful outreach towards the tribes associated with this area as part of the AB 52 consultation requirement. Additionally, please ensure that the cultural and tribal cultural resources environmental setting identifies all historically and culturally significant resources at the Project site and at any related sites (if applicable), and note in the analysis whether and how the Project will acknowledge or incorporate information about those resources in its design or programming.

Geology and Soils

The analysis in the DEIR's geology and soils section relates to issue areas that BCDC will consider in permitting the Project, including the safety and stability of the site in light of the site preparation and filling work required for the Project's construction; the potential for erosion and implications for the long-term stability, safety, and usability of the proposed public access and open space amenities; and the potential for any erosion to affect biological resources and/or water quality in riparian, wetland, and Bay habitats present at the site. In your analysis of geology and soils, please pay particular attention to the potential for soil erosion in the shoreline band, as well as any potential hazards related to the fill required to elevate the site and the ability of the underlying soil to support it.

Hazards and Hazardous Materials

The potential for hazardous materials release is relevant to BCDC permitting considerations of whether the Project is consistent with Bay Plan policies on water quality, biological resources, climate change, and environmental justice. As part of its analysis of the potential for the Project to create a contaminant hazard for the public or the environment, please consider the potential for groundwater rise to mobilize below-ground contaminants. Groundwater rise as a function of rising sea levels is emerging as an issue of great concern for its potential to bring hazardous materials to the surface, even in areas where capping has already taken place, and even where shoreline protection is utilized to address above-ground flooding. Such exposure could affect water quality, habitat quality, and the usability of any public access facilities required by BCDC as a condition of permit approval. Therefore, please include a discussion of whether groundwater rise could potentially mobilize below-ground contaminants at the Project site.

Hydrology and Water Quality

The Bay Plan includes policy sections for Water Quality and Climate Change that are relevant to the DEIR hydrology and water quality analysis. Please review these findings and policies and include them in the regulatory settings for this section. As part of the settings and analysis, please clearly identify the water quality standards, plans, and/or discharge requirements applicable to the Project site. As part of the hydrology analyses, including the analysis of the Project's effect on drainage and whether flood hazards present a risk of releasing pollutants, please use relevant sea level rise scenarios in accordance with the best available science (currently considered to be the Ocean Protection Council's 2018 Sea Level Rise Guidance). Because sea levels are expected to rise over the life of the Project, the analysis of operational impacts would be incomplete without a consideration of sea level rise scenarios. Note that as part of the application for the Project, the project proponents are expected to provide a sea level rise risk assessment prepared by a qualified engineer, per Bay Plan Climate Change Policy No. 2. The risk assessment will be expected to include mid- and end-of-century scenarios at the medium-high risk level, with the high emissions assumption, using the NAVD 88 datum.

Land Use and Planning

The McAteer-Petris Act and the Bay Plan are a State law and a land use plan, respectively, adopted for the purpose of avoiding or mitigating an environmental effect and should be included in the regulatory settings for this section as well as considered in the impact analysis.

Public Services and Recreation

Per the McAteer-Petris Act, BCDC is tasked with ensuring maximum feasible public access to the Bay. As such, BCDC has permitted a number of public recreation facilities along the shoreline in the vicinity of the Project site, including contiguous segments of the Bay Trail to the north and south of the site that connect a series of existing and planned park spaces. As the Project will provide both a new Bay Trail connection and a new recreation destination in this network, please include the adjacent continuous Bay Trail segments and connected planned and existing recreation areas in the study area for the recreation analysis, identify the service area and service population for these facilities, assess whether the recreational facilities provided are commensurate with the need generated by the Project, and consider whether the Project has the potential to result in the physical deterioration of these facilities.

TRANSPORTATION

One of BCDC's key considerations for assessing maximum feasible public access is the convenience and safety of site access where a project connects to the larger transportation network, particularly for members of the public approaching the site via the Bay Trail or by surface roads. Please review the findings and policies in the Bay Plan's sections on Transportation and Public Access and acknowledge them in the regulatory settings for the transportation analysis. Additionally, please consider these policies in your analysis of whether the Project would conflict with a policy addressing transit, roadway, bicycle, and pedestrian facilities, and whether the Project would increase transportation hazards, with particular attention paid to the Bay Trail and routes by which drivers would access the Project's public parking spaces.

Conclusion

We appreciate your attention to the topics discussed above and for the opportunity to make the above comments on the scope of the DEIR. If you have any questions or concerns regarding this matter, please do not hesitate to contact me at (415)-352-3650 or by email at katharine.pan@bcdc.ca.gov.

Sincerely,

DocuSigned by:
Katharine Pan
157169C7B19F403...

KATHARINE PAN
Principal Shoreline Development Analyst

cc: State Clearinghouse (state.clearinghouse@opr.ca.gov)

KP/gg

San Francisco International Airport

September 8, 2022

TRANSMITTED VIA E-MAIL
ckeylon@burlingame.org

Catherine Keylon, Senior Planner
City of Burlingame
Planning Division
501 Primrose Road
Burlingame, California 94010

Subject: NOP Comments: Draft Environmental Impact Report for the 1200-1340 Bayshore Highway Project (Peninsula Crossing), Burlingame

San Francisco International Airport (SFO or the Airport) staff have reviewed the Notice of Preparation (NOP) of the Draft Environmental Impact Report (DEIR) for the 1200-1340 Bayshore Highway Project (the Proposed Project), located in the City of Burlingame (the City). We appreciate this opportunity to provide comments on the NOP of the DEIR.

According to the NOP, the Proposed Project is located along the San Francisco Bay shoreline in northeastern Burlingame, approximately 1.2 miles south of the Airport and one and a half miles east of the Millbrae Multimodal Transit Center. U.S. Highway 101 (US-101) is located approximately 200 feet west of the site. The property is approximately 12 acres and consists of 13 parcels (Assessor's Parcel Numbers [APNs] 026-113-470, 026-113-330, 026-113-480, 026-113-450, 026-142-110, 026-142-140, 026-142-070, 026-142-150, 026-142-160, 026-142-170, 026-142-020, 026-142-030, and 026-142-180). The Proposed Project would include demolition of the site's existing structures and surface parking lots and construction of three (3) life science/office buildings totaling approximately 1.46 million gross square feet and two parking structures containing a total of 3,525 parking spaces. The maximum height of the life science/office buildings would be 229 feet above ground (to the top of the mechanical penthouse) and the maximum height of the parking structures would be 115 feet above ground.

The Proposed Project site is inside Airport Influence Area B as defined by the *Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport* (SFO ALUCP). The Proposed Project site would be located outside the 65 decibel Community Noise Equivalent Level (dBA CNEL) contour and all safety compatibility zones, and therefore would not appear to be inconsistent with the Noise and Safety Compatibility policies adopted in the SFO ALUCP. The Airport notes that this area is south of departing aircraft from Runways 1L and 1R and the reverse thrust of arriving aircraft on Runways 28L and 28R, with 1340 Old Bayshore Highway located about 0.78 mile southeast from the 65 CNEL noise contour. While this factor does not affect ALUCP compatibility determinations, site designers should take proximity to departing aircraft into account when planning and designing the site.

The lowest critical aeronautical surfaces above the Proposed Project vary between approximately 240 feet above mean sea level (AMSL)[1] near 1340 Bayshore Highway, to approximately 280 feet AMSL near 1200 Bayshore Highway. Based on drawings submitted with the entitlement application, the elevation of the

[1] In this context, AMSL is defined from the origin of the North American Vertical Datum of 1988 (NAVD88).

Post Office Box 8097 San Francisco, California 94128 Tel 650.821.5000 Fax 650.821.5005 www.flysfo.com

highest buildings (Buildings 1, 2, and 3) is 229 feet AMSL.[2] Therefore, the Proposed Project would not appear to be inconsistent with the Airspace Compatibility Policies of the SFO ALUCP, provided that the Proposed Project receives a Determination of No Hazard from the Federal Aviation Administration (see below).

Note that this determination does not waive the requirement for the Proposed Project sponsor to undergo Federal Aviation Administration review as described in 14 Code of Federal Regulations Part 77 for both (1) the permanent structures and (2) any temporary cranes or other equipment taller than the permanent structures required to construct those structures.

Due to the proximity of the Proposed Project to the Airport, Airspace Protection Policies (AP-1 through AP-4) from the SFO ALUCP are enclosed as reminders of incompatible site characteristics, especially as it pertains to wildlife attractants, particularly large flocks of birds, that pose threats to safe aircraft operations, and building materials or features that reflect and create bright lights or glare.

* * *

The Airport appreciates your consideration of these comments. If I can be of assistance, please do not hesitate to contact me at (650) 821-6678 or at nupur.sinha@flysfo.com.

Sincerely,

DocuSigned by:
Nupur Sinha
7D552AE6A4CE495...

Nupur Sinha
Director of Planning and Environmental Affairs
San Francisco International Airport

Attachment

cc: Audrey Park, SFO

[2] Entitlement application for 1200-1340 Old Bayshore Highway, Burlingame, CA 94010. Volume 3: Building 1, 2, 3, South Parking & North Parking.

and associated with human disease of varying severity.

b. Biosafety Level 3 practices, safety equipment, and facility design and construction are applicable to clinical, diagnostic, teaching, research, or production facilities in which work is done with indigenous or exotic agents with a potential for respiratory transmission, and which may cause serious and potentially lethal infection.

c. Biosafety Level 4 practices, safety equipment, and facility design and construction are applicable for work with dangerous and exotic agents that pose a high individual risk of life-threatening disease, which may be transmitted via the aerosol route and for which there is no available vaccine or therapy.

4.5 Airspace Protection

The compatibility of proposed land uses with respect to airspace protection shall be evaluated in accordance with the policies set forth in this section. These policies are established with a twofold purpose:

1. To protect the public health, safety, and welfare by minimizing the public's exposure to potential safety hazards that could be created through the construction of tall structures.

2. To protect the public interest in providing for the orderly development of SFO by ensuring that new development in the Airport environs avoids compromising the airspace in the Airport vicinity. This avoids the degradation in the safety, utility, efficiency, and air service capability of the Airport that could be caused by the attendant need to raise visibility minimums, increase minimum rates of climb, or cancel, restrict, or redesign flight procedures.

4.5.1 FEDERAL REGULATIONS REGARDING TALL STRUCTURES

14 Code of Federal Regulations (CFR) Part 77, *Safe, Efficient Use and Preservation of the Navigable Airspace*, governs the FAA's review of proposed construction exceeding certain height limits, defines airspace obstruction criteria, and provides for FAA aeronautical studies of proposed construction. **Appendix F** describes the FAA airspace review process and the extent of FAA authority related to airspace protection.

4.5.2 PART 77, SUBPART B, NOTIFICATION PROCESS

Federal regulations require any person proposing to build a new structure or alter an existing structure with a height that would exceed the elevations described in CFR Part 77, Subpart B, Section 77.9, to prepare an FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, and submit the notice to the FAA. The regulations apply to buildings and other structures or portions of structures, such as mechanical equipment, flag poles, and other projections that may exceed the aforementioned elevations.

Exhibit IV-10 depicts the approximate elevations at which the 14 CFR Part 77 notification requirements would be triggered; see **Exhibit IV-11** for a close-up view of the northern half and **Exhibit IV-12** for a close-up view of the southern half of the area. These exhibits are provided for informational purposes only. Official determinations of the areas and elevations within which the federal notification requirements apply are subject to the authority of the FAA. The FAA is empowered to require the filing of notices for proposed construction based on considerations other than height. For example, in some areas of complex airspace and high air traffic volumes, the FAA may be concerned about the potential for new construction of any height to interfere with electronic navigation aids. In these areas, the FAA will want to review all proposed construction projects.

The FAA has developed an on-line tool for project sponsors to use in determining whether they are required to file a Notice of Proposed Construction or Alteration. Sponsors of proposed projects are urged to refer to this website to determine whether they are required to file Form 7460-1 with the FAA:

https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm

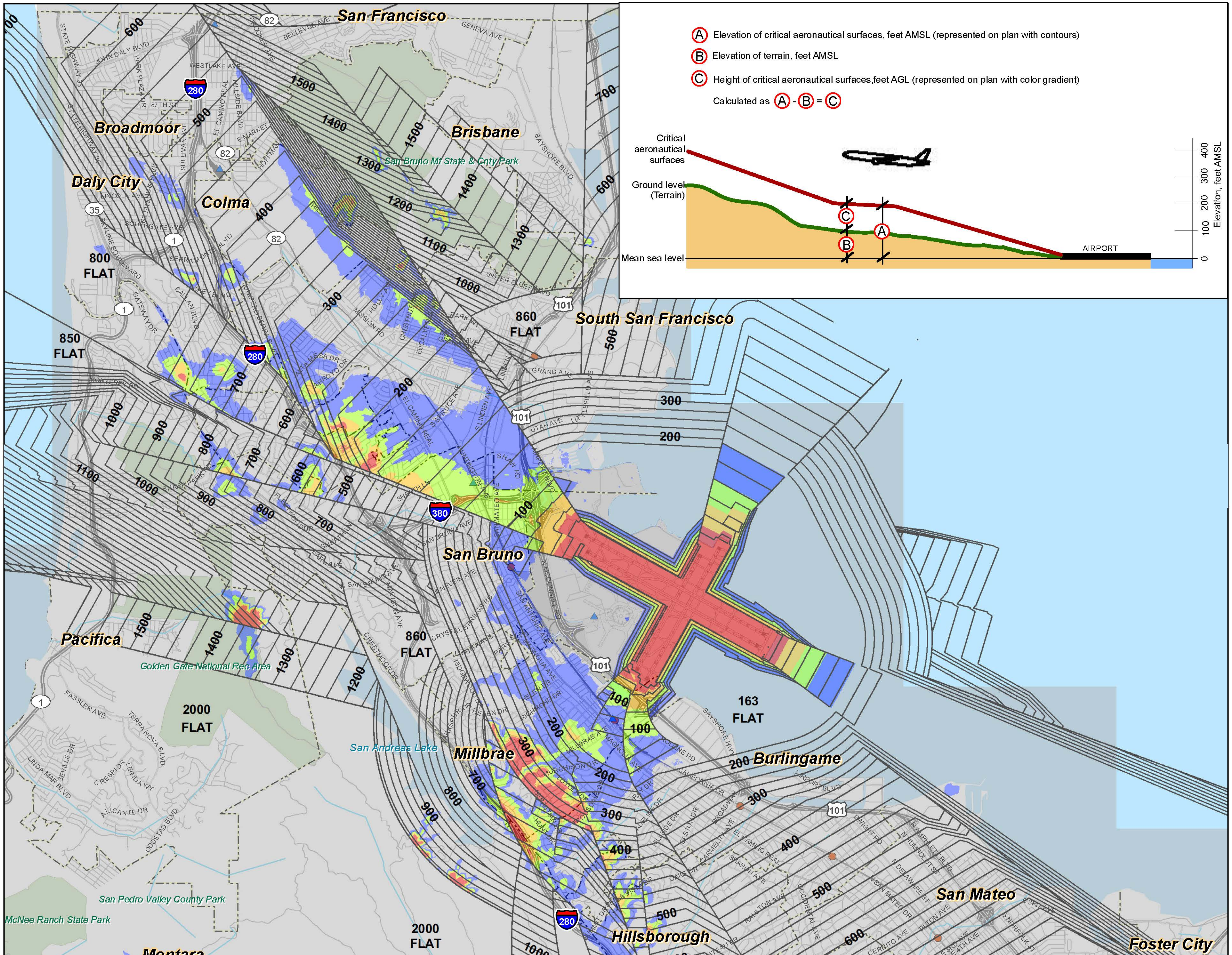
4.5.3 AIRSPACE MAPPING

Part 77, Subpart C, establishes obstruction standards for the airspace around airports including approach zones, conical zones, transitional zones, and horizontal zones known as "imaginary surfaces." **Exhibit IV-13** depicts the Part 77 Civil Airport Imaginary Surfaces at SFO. The imaginary surfaces rise from the primary surface, which is at ground level immediately around the runways. The surfaces rise gradually along the approach slopes associated with each runway end and somewhat more steeply off the sides of the runways. The FAA considers any objects penetrating these surfaces, whether buildings, trees or vehicles travelling on roads and railroads, as obstructions to air navigation. Obstructions may occur without compromising safe air navigation, but they must be marked, lighted, and noted on aeronautical publications to ensure that pilots can see and avoid them.

Close-up views of the north and south sides of the Part 77 surfaces are provided in **Exhibit IV-14** and **Exhibit IV-15**, respectively. Additionally, **Exhibit IV-16** provides an illustration of the outer approach and transitional surfaces located on the southeast side of the Part 77 surfaces.

Together with its tenant airlines, SFO has undertaken a mapping effort to illustrate the critical aeronautical surfaces that protect the airspace required for multiple types of flight procedures such as those typically factored into FAA aeronautical studies, as shown on **Exhibit IV-17** and **Exhibit IV-18**. These aeronautical surfaces include those established in accordance with FAA Order 8260.3B, *U.S. Standard for Terminal Instrument Procedures (TERPS)*, and a surface representing the airspace required for One-Engine Inoperative (OEI) departures from Runway 28L (to the west through the San Bruno Gap).[16] The exhibits depict the lowest elevations from the combination of the OEI procedure surface and all TERPS surfaces. The surfaces are defined with Required Obstacle Clearance (ROC) criteria to ensure safe separation of aircraft using the procedures from the underlying obstacles. Any proposed structures penetrating these surfaces are likely to receive Determinations of Hazard (DOH) from the FAA through the 7460-1 aeronautical study process. These surfaces indicate the maximum height at which structures can be considered compatible with Airport operations.

[16] See Appendix F, Section F.3.2 for a discussion of one-engine inoperative procedures.



LEGEND

(A) 100 Elevation of critical aeronautical surfaces, feet Above Mean Sea Level (AMSL), North American Vertical Datum of 1988 (NAVD88)

(C) **Height of Critical Aeronautical Surfaces, Feet Above Ground Level (AGL)**

- 35 and lower
- 35- 65
- 65 - 100
- 100 - 150
- 150 and more

- Airport Property
- BART Station
- CALTRAIN Station
- Regional Park or Recreation Area
- Municipal Boundary
- Railroad
- Freeway
- Road

Notes:

1. This map is intended for informational and conceptual planning purposes, generally representing the aeronautical surfaces considered most critical by San Francisco International Airport (SFO) and its constituent airlines. It does not represent actual survey data, nor should it be used as the sole source of information regarding compatibility with airspace clearance requirements in the development of data for an FAA Form 7460-1, Notice of Proposed Construction or Alteration. SFO does not certify its accuracy, information, or title to the properties contained in this plan. SFO does make any warrants of any kind, express or implied, in fact or by law, with respect to boundaries, easements, restrictions, claims, overlaps, or other encumbrances affecting such properties.

2. This map does not replace the FAA's obstruction evaluation / airport airspace analysis (OE/AAA) review process. Proposing construction at elevations and heights that are lower than the critical aeronautical surfaces shown on this map, (a) does not relieve the construction sponsor of the obligation to file an FAA Form 7460-1, and (b) does not ensure that the proposal will be acceptable to the FAA, SFO, air carriers, or other agencies or stakeholders. SFO, San Mateo County, and local authorities having jurisdiction reserve the right to re-assess, review, and seek modifications to projects that may be consistent with this critical aeronautical surfaces map but that through the FAA OE/AAA process are found to have unexpected impacts to the safety or efficiency of operations at SFO.

Sources: San Francisco International Airport, Jacobs Consultancy, and Planning Technology Inc., 2009

NORTH

0 0.25 0.5 1 Miles

Exhibit IV-17

CRITICAL AERONAUTICAL SURFACES – NORTHWEST SIDE

Comprehensive Airport Land Use Plan
for the Environs of San Francisco International Airport

C/CAG

City/County Association of Governments
of San Mateo County, California

Exhibit IV-19, which is provided for information purposes only, depicts a profile view of the lowest critical airspace surfaces along the extended centerline of Runway 10L-28R – the TERPS Obstacle Departure Procedure (ODP) surface, representing standard all-engines departures, and the approximate OEI surface developed by SFO through independent study in consultation with the airlines serving SFO. The exhibit also shows the terrain elevation beneath the airspace surfaces and various aircraft approach and departure profiles, based on varying operating assumptions. The exhibit illustrates a fundamental principle related to the design of airspace protection surfaces. The surfaces are always designed below the actual aircraft flight profile which they are designed to protect, thus providing a margin of safety. Note that the ODP climb profile is above the ODP airspace surface, and the OEI climb profile is above the OEI airspace surface.

4.5.4 AIRSPACE PROTECTION POLICIES

The following airspace protection policies (AP) shall apply to the ALUCP.

AP-1 COMPLIANCE WITH 14 CFR PART 77, SUBPART B, NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION

AP-1.1 Local Government Responsibility to Notify Project Sponsors

Local governments should notify sponsors of proposed projects at the earliest opportunity to file Form 7460-1, *Notice of Proposed Construction or Alteration*, with the FAA for any proposed project that would exceed the FAA notification heights, as shown approximately on Exhibit IV-10. Under Federal law, it is the responsibility of the project sponsor to comply with all notification and other requirements described in 14 CFR Part 77. This requirement applies independent of this ALUCP.

AP-1.2 FAA Aeronautical Study Findings Required Before Processing Development Application

The sponsor of a proposed project that would exceed the FAA notification heights, as shown approximately on Exhibit IV-10, shall present to the local government permitting agency with his or her application for a development permit, a copy of the findings of the FAA's aeronautical study, or evidence demonstrating that he or she is exempt from having to file an FAA Form 7460-1. It is the responsibility of the local agency to consider the FAA determination study findings as part of its review and decision on the proposed project.

AP-2 COMPLIANCE WITH FINDINGS OF FAA AERONAUTICAL STUDIES

Project sponsors shall be required to comply with the findings of FAA aeronautical studies with respect to any recommended alterations in the building design and height and any recommended marking and lighting of their structures for their proposed projects to be deemed consistent with this ALUCP.

AP-3 MAXIMUM COMPATIBLE BUILDING HEIGHT

In order to be deemed consistent with the ALUCP, the maximum height of a new building must be the lower of (1) the height shown on the SFO critical aeronautical surfaces map (Exhibits IV-17 and IV-18), or (2) the maximum height determined not to be a "hazard to air navigation" by the FAA in an aeronautical study prepared pursuant to the filing of Form 7460-1.

For the vast majority of parcels, the height limits established in local zoning ordinances are lower than the critical airspace surfaces. In those cases, the zoning district height regulations will control. Compliance with the zoning district height and the SFO critical aeronautical surfaces map, however, does not relieve the construction sponsor of the obligation to file a FAA Form 7460-1 *Notice of Proposed Construction or Alteration*, if required, and to comply with the determinations resulting from the FAA's aeronautical study.

For a project to be consistent with this ALUCP, no local agency development permits shall be issued for any proposed structure that would penetrate the aeronautical surfaces shown on Exhibits IV-17 and IV-18 or the construction of which **has not** received a Determination of No Hazard from the FAA, or which would cause the FAA to increase the minimum visibility requirements for any instrument approach or departure procedure at the Airport.

AP-4 OTHER FLIGHT HAZARDS ARE INCOMPATIBLE

Proposed land uses with characteristics that may cause visual, electronic, or wildlife hazards, particularly bird strike hazards, to aircraft taking off or landing at the Airport or in flight are incompatible in Area B of the Airport Influence Area. They may be permitted only if the uses are consistent with FAA rules and regulations. Proof of consistency with FAA rules and regulations and with any performance standards cited below must be provided to the Airport Land Use Commission (C/CAG Board) by the sponsor of the proposed land use action.

Specific characteristics that may create hazards to aircraft in flight and which are incompatible include:

(a) Sources of glare, such as highly reflective buildings or building features, or bright lights, including search lights or laser displays, which would interfere with the vision of pilots making approaches to the Airport.

(b) Distracting lights that that could be mistaken by pilots on approach to the Airport for airport identification lighting, runway edge lighting, runway end identification lighting, or runway approach lighting.

(c) Sources of dust, smoke, or water vapor that may impair the vision of pilots making approaches to the Airport.

(d) Sources of electrical interference with aircraft or air traffic control communications or navigation equipment, including radar.

(e) Land uses that, as a regular byproduct of their operations, produce thermal plumes with the potential to rise high enough and at sufficient velocities to interfere with the control of aircraft in flight. Upward velocities of 4.3 meters (14.1 feet) per second at altitudes above 200 feet above the ground shall be considered as potentially interfering with the control of aircraft in flight.[17]

(f) Any use that creates an increased attraction for wildlife, particularly large flocks of birds, that is inconsistent with FAA rules and regulations, including, but not limited to, FAA Order 5200.5A, *Waste Disposal Sites On or Near Airports*, FAA Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*, and any successor or replacement orders or advisory circulars. Exceptions to this policy are acceptable for wetlands or other environmental mitigation projects required by ordinance, statute, court order, or Record of Decision issued by a federal agency under the National Environmental Policy Act.

4.5.5 iALP AIRSPACE TOOL

In consultation with C/CAG, SFO developed the iALP Airspace Tool, a web-based, interactive tool to evaluate the relationship of proposed buildings with the Airport's critical airspace surfaces. The iALP Airspace Tool is designed to assist planners, developers, and other interested persons with the implementation of the airspace protection policies of the SFO ALUCP. The tool helps users determine: (1) the maximum allowable building height at a given site, and/or (2) whether a building penetrates a critical airspace surface, and by how much, given the proposed building height.

A more detailed description of the iALP Airspace Tool and a tutorial explaining how to use it is presented in **Appendix J**. Use of this tool, however, does not relieve a project sponsor of the duty to comply with all federal regulations, including the obligation to file Form 7460-1, Notice of Proposed Construction or Alteration, with the FAA.

17 This is a threshold established by the California Energy Commission in its review of power plant licensing applications. See *Blythe Solar Power Project: Supplemental Staff Assessment, Part 2*,. CEC-700-2010-004-REV1-SUP-PT2, July 2010. California Energy Commission. Docket Number 09-AFC-6, p. 25. This criterion is based on guidance established by the Australian Government Civil Aviation Authority (Advisory Circular AC 139-05(0), June 2004). The FAA's Airport Obstructions Standards Committee (AOSC) is studying this matter but has not yet issued specific guidance.

SIERRA CLUB
LOMA PRIETA CHAPTER

SIERRA CLUB
BAY ALIVE

September 12, 2022

Catherine Keylon, Senior Planner
City of Burlingame
Planning Division 501 Primrose Road
Burlingame, CA 94010
ckeylon@burlingame.org

Dear Ms. Keylon,

The Sierra Club Loma Prieta Chapter respectfully submits the following comments regarding the Notice of Preparation (NOP) for the Draft Environmental Impact Report (DEIR) for the 1200-1340 Bayshore Highway Peninsula Crossing ("Project") in Burlingame, California.

Our organization has a deep interest in the San Francisco Bay and its ecosystems, as well as areas near the Bay where development may impact natural resources and climate resilience in the region. Please see our full scoping comments below.

Project Description

The project description in the NOP document is inadequate in that it includes no information on the design or alignment of flood infrastructure in this very high risk area nor how it will be coordinated with One Shoreline or property owners and communities that will depend on this levee system for flood protection.

Alternatives

- Please include and analyze an environmental alternative that incorporates a 100 foot setback of the development from the Bay, creek, and marshland edge in order to provide space for the protection and migration of ecosystems and wildlife and allow space for potential future flood protection needs.
- Please consider an alternative building design that increases the wall to glazing ratio. The expansive glazed area shown in renderings may become hazardous to birds, create glare, reflect sunlight and heat towards the Bay, emit light at night, and impair energy inefficiency. Please analyze an alternate facade that has no more than 40% exposed glazing,[1] especially for the facades that are visible from towards the Bay, waterways and wetlands.

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[1] 2019 California Energy Code, Title 24, part 6, Section 140.3(a)5Aii
https://codes.iccsafe.org/content/CEC2019P2/subchapter-5-nonresidential-high-rise-residential-and-hotel-motel-occupancies-performance-and-prescriptive-compliance-approaches-for-achieving-energy-efficiency

Cumulative Impacts

Please include the following Burlingame projects in the cumulative analysis of all environmental impacts: 620 Airport, 777 Airport, and 1669-1699 Bayshore Highway. The One Shoreline Project both north and south of the project and the San Francisco International Airport levee project should also be included in the cumulative analysis for potential biological impacts from increasing access and attracting more recreational users.

Of significant concern is the lack of information in the NOP about proposed flood protection infrastructure and how it will be coordinated and integrated with flood infrastructure on adjoining parcels as well as the One Shoreline Project.[2] Please evaluate the cumulative impacts of the disparate flood protection strategies employed across the major projects identified above, including stormwater runoff from elevated sites.

OneShoreline - Millbrae Burlingame Shoreline Protection Project

ENVIRONMENTAL IMPACT ANALYSIS AND MITIGATION CATEGORIES

AESTHETICS

Aesthetics should be included in the DEIR scope of analysis, including modeled building heights and height stepbacks. The DEIR should carefully identify scenic resources, including open views of the Bay and foothills in the East Bay, sunrise over the Bay, and baylands that may be affected, and should identify those resources that are likely to be

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See also,"Bird Safety" section below and ASHRAE 90.1 prescribing maximum glazing ratios

[2] San Mateo County Flood and Sea Level Rise Resiliency District, One Shoreline Millbrae and Burlingame Shoreline Area Protection and Enhancement Project https://oneshoreline.org/wp-content/uploads/2022/01/OneShoreline-RFP-for-Millbrae-Burlingame-Shoreline_Final.pdf

impacted by the anticipated development program. Specific standards should be identified to preserve community viewsheds and avoid or minimize potential impacts of tall buildings, such as shadowing from buildings, light at night, glare from morning sun reflected onto the Bay from glazing, and wind tunnel effects around tall buildings.

The extremely large floor plates are inconsistent with surrounding buildings. Analyze the need for articulation of the facades to minimize massing.

Analyze the need to mitigate the massive parking garage facades with treatment such as using Living Green Walls and/or design features that avoid distracting from the shoreline aesthetics. Ensure that garage interior and exterior lighting follows the Light Pollution section below in Biological Resources.

AIR QUALITY/GREENHOUSE GAS EMISSIONS

A detailed study of the impact of construction is needed. Construction activities and construction equipment will have an ongoing impact on air quality, emissions, noise and vibration, including the use of heavy equipment, construction related traffic, etc.
Please analyze and mitigate both construction and operational impacts to air quality and greenhouse gas emissions, including from proposed off-site improvements,
across all phases of construction.

Traffic and transportation is a major source of greenhouse gas emissions. Please analyze and mitigate impacts from the proposed net increase of between 4,088 and 5,226 new commuters.

BIOLOGICAL RESOURCES

Impacts of Concern

For all impacts on wildlife and habitats the highest and best mitigation is <u>a significant buffering of habitat from construction, development and human activity</u>. This project spans a shoreline that includes two waterways, a creek and a rare, remnant tidal slough in a wetland, in addition to a significant span on the Bay's natural edge. These should be recognized as important biological resources.

<u>Encroachment and Disturbance</u>

The DEIR needs to analyze the biological impacts of human presence in regards to noise, litter, encroachment into wildlife habitats, pets, trash from food trucks, use of helium balloons and similar activities. Please analyze the impacts of project elements such as walkways and bridges over sensitive wetland areas along Easton Creek, the no-name slough wetlands, and the Bay shoreline. Please consider shading, lighting, noise, predators and the increase of human activity and disturbance in the natural communities of jurisdictional wetlands.

1. Evaluate and mitigate the potential impacts of increased human traffic using outdoor recreation infrastructure like trails. Studies have shown that wildlife retreat

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when humans move along trails[3] and that waterfowl are particularly intolerant of recreational trail use.[4] Consider reducing bike traffic along trails by providing a safe bike lane for commuter traffic on Old Bayshore Highway.

2. Evaluate and mitigate impacts of noise on wildlife during construction and operations, including noise arising from events or large gatherings along the shoreline or amidst developed shoreline projects.
3. Evaluate and mitigate impacts of human intrusion into wetland habitats.
4. Evaluate and mitigate impacts of people walking their dogs off-leash particularly adjoining shoreline wetland habitats. Enforcement is challenging but some methods can be more effective than others, as discussed by Mountain View's Senior Biologist Phil Higgins in a Palo Alto webinar in November, 2021.[5]
5. Seek an informal consultation with the San Francisco Bay Regional Water Quality Control Board and the California Fish & Wildlife Service to identify potential impacts to Easton Creek and the no-name slough/marsh, particularly in regards to proposed boardwalk impacts and also avoidance of impacts to the Bay beach and mudflats.

Predation and Nuisance Species

Increased human presence and tall structures can increase the presence of predators along the shoreline. Analysis must identify and mitigate to minimize depredation of migratory and nesting birds and other sensitive species. Nuisance predator species include racoons, opossums, skunks, foxes, rats, gulls, crows and roaming cats. Depredation is of major concern for the endangered species that live in the shoreline marshes.To minimize and mitigate the attraction to predators and other nuisance predator species, the following will help:

1. Prohibit feeding of animals outdoors, and provide a program to show how this requirement will be enforced during operations of the project,
2. Ensure that all trash containers are inaccessible to wildlife,
3. Design all architectural elements and structures that are visible from the Bay or wetlands (including bridges, lighting structures) to discourage perching by raptors, and
4. To reduce access for avian predators, do not plant trees along or near the shoreline and wetlands.

Disruption of Existing Wetlands and Shoreline Beach

Wetlands are uniquely sensitive to impacts from actions on surrounding lands and necessarily are subject to the Clean Water Act as well as wildlife and habitat statute

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[3] Trulio, L. A., & Sokale, J. (2008). Foraging Shorebird Response to Trail Use around San Francisco Bay. *The Journal of Wildlife Management*, *72*(8), 1775–1780. http://www.jstor.org/stable/40208460

[4] Lynne A. Trulio and Heather R. White "Wintering Waterfowl Avoidance and Tolerance of Recreational Trail Use," *Waterbirds* 40(3), 252-262, (1 September 2017). https://doi.org/10.1675/063.040.0306

[5] Phil Higgins, Balancing Public Access and Habitat Enhancement in the Baylands,11/16/21, webinar @ ~1:50:02; https://www.sfestuary.org/truw-pahlp/

protections regardless of land ownership and location of the BCDC band. As such, actions such as construction or landscape management along the shoreline must be carefully monitored and mitigated even if equipment or workers never touch the marsh. Dust and seeds of invasive species can travel on even slight breezes. Oil spills or other contaminants may travel to sensitive habitats within the project area.

Both temporary and permanent impacts to these wetlands must be evaluated and avoided, including impacts resulting from construction activities such as grading, installation of subsurface infrastructure and placing of fill to raise the height of buildings, or installation of flood barriers such as an anticipated levee system. In addition,

1. Construction and landscaping practices should evaluate and mitigate impacts of work like construction (temporary impact) and landscaping (temporary and repetitive) on sensitive wetlands by setting standards and monitoring compliance for all such actions.
    a. Place dirt piles away from the shoreline and cover with tarps when not in use.
    b. To avoid import of invasive plant species, tires should be washed off site or at site entrance (for all vehicles used on the site) with water captured to not spread on site.
    c. If pile driving is necessary, use methods that minimize noise and are confined to limited periods of time.
    d. Do not permit night-time construction activities along the shoreline in order to avoid impacts on night-active species in the marshes. For any exceptions to night-time construction activities, require that all needed lighting be shielded and directed downward and away from sensitive habitats.
    e. Landscapers should not use blowers near the wetlands because the practice sends seeds, dust, and other contaminants into the wetlands. Blower noise would also disrupt the quiet of the shoreline environment for people and wildlife.
    f. The DEIR should establish development standards that ensure adequate “rights-of-way” for levees and be sufficiently wide on the upland side to allow for future levee widening in order to support additional levee height and ensure that <u>no fill for levee construction or widening is placed in the Bay</u>.

<u>Bird Safety</u>

Human infrastructure threatens communities and ecosystems with significant impacts. Collisions with buildings alone kill nearly 1 billion birds per year, highlighting the necessity for bird-safe design to protect local and migratory bird populations. The DEIR needs to analyze any potential impacts of the project’s design on bird populations, such as the likelihood of bird-strikes. Consider the following mitigation measures:

1. Bird-safe design should be required for all structures within 300-ft from riparian habitats, wetlands and open space, and

2. Bird safety treatments should accomplish a threat factor of 20 or less, as provided in the Product and Solutions Database of the American Bird Conservancy.[6]

Light Pollution

Artificial light at night causes significant impacts. Light disrupts the circadian rhythm of living beings, which can detrimentally impact mating, foraging, and migration behaviors, sometimes with lethal results. Light pollution has also been correlated with increased health risks and hormone disruption in humans. To mitigate these impacts, we recommend that the impacts of light pollution be studied and that the following standards be established.

1. Require shielded lights and prohibit up-lighting.
2. All lighting shall have a correlated color temperature of 2700 Kelvin or less.
3. All lighting shall be angled downwards and facing away from glazed facades, the Bay and other habitat areas.
4. Timers, dimmers, shades, and occupancy sensors should be used in commercial buildings to ensure that lights are turned off when buildings are not in use. Non-essential lights should be turned off at 10pm. Do not light habitat or the Bay Trail.
5. Do not have minimum lighting requirements.
6. Construction lighting should not be exempted from outdoor lighting standards.
7. At structured parking garages, all lighting shall be on occupancy sensors and no light should spill outside the building towards the Bay or Bay Trail or the wetlands.

As a point of reference, the City of Cupertino's recently enacted dark skies ordinance may be informative.[7]

Shading

Analyze and mitigate daylight attenuation impacts on the health and survival of the bayland, creek, and slough ecosystems due to shadowing by tall adjacent buildings. Studies have shown the importance of sunlight[8] to estuarine ecosystems and that shadowing from bridges[9] and docks[10] can negatively affect plant growth and invertebrate density in estuarine ecosystems. By extension, tall buildings along Burlingame's treeless marsh, that thrives in open sunlight, are likely to introduce even broader shadow impacts.

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[6] https://abcbirds.org/glass-collisions/products-database/

[7] City of Cupertino Bird Safe and Dark Sky ordinance, requirements, and standards https://www.cupertino.org/our-city/departments/community-development/planning/non-residential-mixed-use-development/bird-safe-and-dark-sky

[8] Thom et al. 2008 Light Requirements for Growth and Survival of Eelgrass Zostera marina L in Pacific Northwest USA Estuaries https://www.researchgate.net/publication/226247644_Light_Requirements_for_Growth_and_Survival_of_Eelgrass_Zostera_marina_L_in_Pacific_Northwest_USA_Estuaries

[9] Broome et al. 2005 Effects of Shading from Bridges on Estuarine Ecosystems. CTE/NCDOT Joint Environmental Research Program Final Report https://connect.ncdot.gov/projects/research/RNAProjDocs/2001-12FinalReport.pdf

[10] Logan et al. 2017 Effects of Docks on Salt Marsh Vegetation: An Evaluation of Ecological Impacts and the Efficacy of Current Design Standards https://www.mass.gov/doc/effects-of-docks-on-salt-marsh-vegetation-an-evaluation-of-ecological-impacts-and-the-efficacy/download

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Please include shadow studies to analyze shading impacts on the baylands, creek, and slough/marsh from buildings. Mitigations should include setback standards and also stepped-back heights for building design as well as avoidance of recreation or other features that extend over bayland habitat.

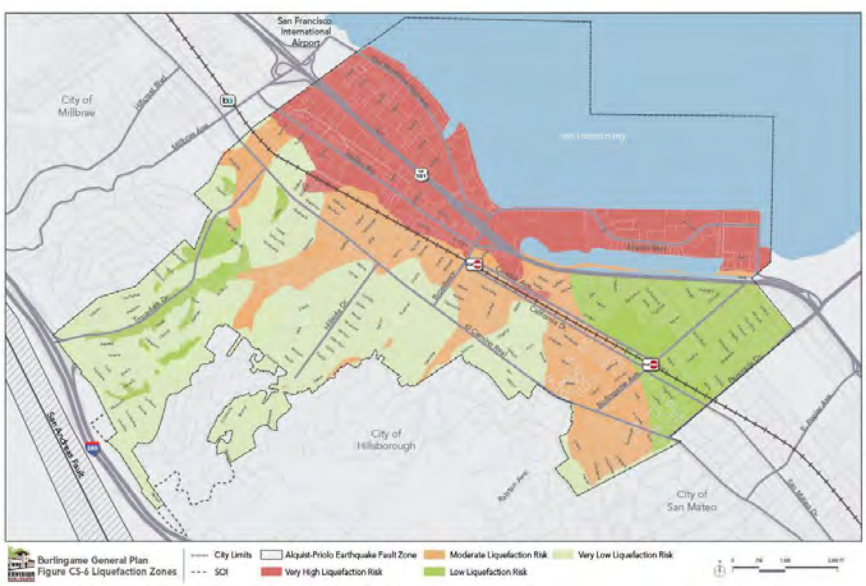
<u>Glare and lightcast</u>
Analyze and mitigate glare from glazing and night light cast from windows with building design guidelines that avoid both impacts on surrounding natural communities especially marsh wetlands.

<u>Pesticides and rodenticides</u>
Analyze and mitigate both pesticides and rodenticides with avoidance practices because each is known to kill desired species, directly or indirectly. Pesticides used along the often windy shoreline can both impact habitat and become a water contaminant.

GEOLOGY AND SOILS

The DEIR needs to provide a thorough analysis of all aspects of geologic risks of the project site and proposed plans.

As this figure from “Envision Burlingame” demonstrates, seismic liquefaction is a “very high” risk for the project site. Its impacts are manifold although commonly only considered in regards to new building construction. Evaluation must also consider all liquefaction threats, including but not limited to (1) the Bay’s edge (collapse of Bay facing soft- or hardscape walls), (2) pedestrian and vehicle access (collapse/distort roads, driveways, loading docks, surface parking, trails and open public spaces), (3) buried infrastructure (crack or otherwise damage sewer and water pipes; electrical, internet or other conduits), and (4) slump or collapse of earthen platforms (installed for FEMA standards). A seismic liquefaction event can cut all function or operation of the site and create barriers that interfere with emergency access/egress.



Liquefaction zones - from “Envision Burlingame”

HAZARDS AND HAZARDOUS MATERIALS

The DEIR should evaluate the cumulative impacts of hazardous waste sites within the project area.

1. Due to contamination of the project area by past land uses, including a gas station, it is critical that the DEIR evaluate the risk of soil and groundwater disturbance related to this project. The DEIR should address the following topics related to hazardous chemicals within the project area:

    a. **Changes to groundwater flow directions or rates due to pumping for borehole drilling and dewatering of building foundations** Consolidation of soils by dewatering and placement of building foundations will create a subsurface barrier, shifting groundwater flow,
    b. **Transport of contaminated soils as dust to nearby sensitive or vulnerable populations and wetlands, and**
    c. **The potential for subsurface utilities such as sewers or electrical lines to act as conduits for transport of hazardous soil vapors into buildings.**

2. Investigate the transport of hazardous substances from the project area to estuarine sediments and waters.

BioScience projects may bring heightened safety risks due to sea level rise and associated groundwater rise.

Please evaluate and mitigate potential safety risks related to an expansion of life science/lab facilities in the plan area, including clear delineation of impacts related to specific biosafety levels. In an urbanized setting, the biological materials being studied, if allowed to escape, could become a regional health hazard to humans and natural ecosystems. Furthermore, siting of such facilities in shoreline areas, identified as flood zones, can create vulnerabilities for the Bay ecology as sea levels rise and 100 year flood events occur with increased frequency; placement in areas where soil liquefaction in seismic events could lead to structural failure also pose heightened biosafety hazards. Please consider the Sierra Club Loma Prieta Chapter's biosafety hazard guidelines to inform an appropriate mitigation strategy.

Hazards Unique To Biotechnology Labs

Technical offices, labs and research facilities have unique characteristics that are very different from typical commercial uses.[11] For public safety, many cities confine laboratories or research facilities to industrial zones and some prohibit them within 250-feet of residential developments, a public use facility such as a hotel or publicly-owned open space.

[11] National Center for Biotechnology Information: Handling and Management of Chemical Hazards

Please evaluate impacts on neighboring properties from these specialized facilities, including:

- Twenty-four-hour on-site activity (all night light pollution or noise from HVAC),
- Rooftop mechanical equipment which adds significant building height casting greater shadows and blocking of sunlight, and
- Noise and chemical odors generated from extensive exhaust systems.

These impacts can be particularly harmful to public open space such as the Bay Trail and normal commercial offices or hotels. Potential mitigations could include the following:

- The majority of the mechanical equipment is either below-grade in the garage levels or enclosed in a 'penthouse', which has insulated walls with concrete exterior panels and an insulated concrete roof slab to keep mechanical sounds from escaping,
- Cooling towers and generators to be located in a roof well, fully surrounded by walls, to reduce any transmission of noise,
- All louvers and exhaust stacks on the exterior will have sound attenuation ('silencers') to control any noise output,
- Garage exhaust fans should be low-speed and have carbon monoxide sensors so that the fans only turn on as needed, with sound attenuators, and
- Identify whether vivariums are to be included, and if so the protocols for animal acquisition, husbandry, handling and safety.

<u>Different Biosafety Levels Present Different Risks</u>

There are four levels of Biosafety in biotech labs. These levels are set by international standards and are intended to define the increasing levels of hazard to lab workers depending on the infectious agents, ranging from relatively benign agents to virulently lethal ones. It is important to note that standard safety protocols do not address hazards to the natural environment and community. Biotechnology labs may involve labs at different BioSafety Levels, at different times, depending on need.

Please evaluate impacts from each biosafety level anticipated for this project. Potential mitigation measures include:

1. Requirements for the city or county to establish public health and safety protocols, for all relevant biosafety levels, including first responder training for

    - how to use the ventilation equipment for uninterrupted positive/negative air pressure which is critical for safety and total air replacement systems,
    - what to do in the event of system failure,
    - what to do in the event of a power outage,
    - what to do in the event of flooding causing infrastructure failure and damage,
    - what to do in the event of seismic event causing infrastructure damage, and
    - what to do in the event of back-up system failure.

2. Require all operators proposing the use of regulated biological agents at BSL-1, BSL-2 or BSL-3 containment levels to obtain a permit from the County Health Department before commencing or continuing said research, manufacturing, or other use of regulated biological agents and annually thereafter. BSL-4 should be prohibited.

HYDROLOGY AND WATER QUALITY

Climate Challenge: Water above and below ground

Associated with climate change, meteorological shifts have already changed the local climate: extended periods of drought and less frequent but intense, major storms or sequential storms such as the Bay Area's October 2021 atmospheric river. Such storms test local stormwater systems and, by infiltration, sewer systems, and produce surface ponding and localized flooding. The rising groundwater impact of sea level rise (subsurface aquifers) will exacerbate the problem. The DEIR needs to set a framework for development actions that can adapt and survive these climate changes.

An important reference to consult is a report prepared by the San Francisco Estuary Institute for the City of Sunnyvale: Sea-level rise impacts on shallow groundwater in Moffett Park.[12] This report is specific to findings in Moffett Park but its analysis is useful, discussing potential impacts and adaptation action for development. Notably its sources for groundwater data are from existing well databases, not involving any physical hydrologic study. As food for thought, below is the list of potential impacts compiled in the SFEI report.

- Corrosion: Salinity impacting below ground infrastructure
- Buoyancy: Buoyant force impact on foundations, buried utilities and pipes, roads
- Seepage: Seepage into subsurface structures, floors, walls
- Infiltration: Infiltration into stormwater and sewage pipelines reducing capacity
- Liquefaction: Higher water tables increase liquefaction risk
- Damage to vegetation: Saturated soils and/or higher salinity can impact plants
- Contaminant mobilization: Movement in existing remediation or of unidentified contaminants
- Emergence flooding: Site-dependent and even non-emergent levels can exacerbate surface flooding

Again, given the hydro-geologic location of the project, we strongly urge inclusion of groundwater rise analysis in the DEIR.

The DEIR should evaluate the potential for rising groundwater to worsen spread of hazardous contaminants existing in surface soils within the project area.

Sea level rise is projected to lead to increased direct flooding of the project area which is already at risk from King Tides and storm surges. A less recognized hazard that should

[12] SFEI et al, Sea-level rise impacts on shallow groundwater in Moffett Park, November 2021; https://static1.squarespace.com/static/5e38a3dd6f9db304821e8e5e/t/61a7b37743ec4b770e11ee73/1638380421678/Moffett+Park+Specific+Plan+Groundwater+Addendum.pdf

be evaluated in the DEIR is surface flooding associated with climate change-induced severe storm events and the potential for rising groundwater tables to bring buried pollutants to or nearer to the surface, perhaps to infiltrate degraded stormwater or sewage lines and to transport additional pollutants into wetlands or the Bay. Rising water could move contamination in buried soils laterally or vertically and, if present, release hazardous vapors along utility conduits and into buildings. The DEIR needs to include a hydrologic evaluation of this potential pathway for chemical exposures.

LAND USE AND PLANNING

As mentioned above, consider an alternative to the proposed project with a 100 foot setback from the Bay, creek, and marsh edge to accommodate a wider and taller future levee and nature based adaptation.

Bay fill should be avoided in any aspect of this project, including the possibility of future levees.

NOISE

Evaluate noise and vibration, including the effects of noise on people, neighboring buildings (existing and expected by zoning), nature and wildlife along the Bay, existing sensitive receptors in the project vicinity, existing sources and maximum noise levels anticipated or allowable in the project, and groundborne vibration during the construction period and operation of the building. Include methods to mitigate the effects of increased noise and vibration.

POPULATION AND HOUSING

Given the substantial proposed increase in development intensity, the DEIR should study the expanded project's impact on city-wide and regional jobs/housing balance. The Bay Area is in a regional housing crisis and the actions of each city contribute to the overall imbalance.

RECREATION

The DEIR should evaluate how increased Bay Trail use will impact Bay, creek, and slough wetlands. See Biological Resources Section.

UTILITIES AND SERVICE SYSTEMS

Impact of rising groundwater

The project area is served by utilities that rely on underground conduits that may be seriously impacted by rising groundwater associated with sea level rise. Please see the rising groundwater discussion in our comments on Hydrology and Water Quality.

Sewer System Analysis

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The DEIR should analyze and provide a baseline of existing location and physical conditions of the sewer services. The analysis should provide maps of the existing sewer pipeline system showing where it is located and what is known about pipe conditions that are inclusive of degradation due to aging.

Thank you for the opportunity to submit comments on the Peninsula Crossing Project NOP. We look forward to continued engagement in the review of the draft EIR.

Sincerely,

Jennifer Chang Hetterly
Campaign Coordinator, Bay Alive
Sierra Club Loma Prieta Chapter

Susan DesJardin
Bay Alive Chair
Sierra Club Loma Prieta Chapter

Cc: James Eggers
Executive Director
Sierra Club Loma Prieta Chapter

Gladwyn d’Souza
Conservation Committee Chair
Sierra Club Loma Prieta Chapter

From:	CD/PLG-Catherine Keylon
To:	Crescentia Brown; Virginia Calkins (vcalkins@divcowest.com); KELLY BEGGS (kbeggs@goodcityco.com); Julia Hoffman
Subject:	FW: Bayfront Development
Date:	Thursday, September 1, 2022 10:53:59 AM

FYI

From: suzanne rogers <suzannedelzellrogers@gmail.com>
Sent: Thursday, September 1, 2022 9:24 AM
To: GRP-Planning Commissioners <PlanningCommissioners@burlingame.org>
Subject: Bayfront Development

Good morning. I am writing to oppose the height of the proposed 11 story development working its way through the approval process. The rendering in the paper shows the buildings from the bay looking up into the Burlingame hills. As a Burlingame resident the rendering that is relevant to me is from the hills and 101 looking out to the bay. This project will be, from my point of view, a giant wall between my town and the bay. I appreciate Commissioner Sandy Comaroto requesting modeling so its impact on the views will be better understood.

Every additional floor added to a project means more cars being added to the overcrowded Broadway intersection. I no longer support Broadway businesses due to the constant level of congestion. Every additional floor approved means less visual access to the bay views, the views of the Oakland Hills, San Bruno Mountain and the sky. As a sixty year resident of Burlingame I do not feel that the interests of the residents are being given enough consideration in the development plans. Do I need to drive out to the bay and stand on the shore to appreciate views that are an important part of what makes Burlingame such a special town? I don't have a view from my house but I drive down Hillside or Trousdale almost every day and never tire of the bay views. I feel like the bayfront development is proceeding without considering the impact on the residents. I am not opposed to development but an 11 story building is totally inappropriate.

Thank you for listening.

From: CD/PLG-Catherine Keylon
To: Crescentia Brown
Cc: Virginia Calkins (vcalkins@divcowest.com); KELLY BEGGS (kbeggs@goodcityco.com); Julia Hoffman
Subject: FW: 1200 – 1340 Bayshore Highway (Peninsula Crossing)
Date: Wednesday, August 31, 2022 11:26:35 AM

FYI – see comment below received on NOP from resident Andrew Au. I have already replied and provided information about our process and added him to our interested parties list.

From: ANDY AU [mailto:awau@outlook.com]
Sent: Tuesday, August 30, 2022 6:32 PM
To: CD/PLG-Catherine Keylon <ckeylon@burlingame.org>
Subject: 1200 – 1340 Bayshore Highway (Peninsula Crossing)

Ms Keylon

Appreciate if you could advise me when the Environmental Impact Report will be out and open to the public for review. One key factor I am concerned is traffic impact on the Broadway Caltrans crossing which currently is very congested during weekdays. This is a very large project (1.5 million sf) that will add significant traffic burden on Broadway. Will this EIR look at the traffic impact of the current Broadway crossing and whether it will also study if the Broadway overpass is built.

Also, whether traffic will be studied assuming this project be a smaller development like at 750,000 sf.

Also there are several other bio tech projects proposed. What impact will those projects combined with this project have on the Broadway crossing.

Thank you,

Andrew Au 602 Concord Way, Burlingame

From:	CD/PLG-Ruben Hurin
To:	CD/PLG-Catherine Keylon
Subject:	FW: 1200 Bayshore Highway at Hwy 101 - Burlingame proposed development
Date:	Friday, August 12, 2022 4:35:05 PM

Ruben Hurin
Planning Manager
City of Burlingame
Community Development Department – Planning Division
Tel. 650.558.7256 | rhurin@burlingame.org

From: Jane [mailto:smokiethecat@ymail.com]
Sent: Thursday, August 11, 2022 7:11 PM
To: Public Comment <publiccomment@burlingame.org>
Cc: steve pade <stevepade@gmail.com>; Elisa Clowes <cloweslaw@gmail.com>
Subject: 1200 Bayshore Highway at Hwy 101 - Burlingame proposed development

EGADS!!
No - No - No
to the proposed development of 1.5 million square feet of new building at the intersection of Broadway, Highway 101, and Bayshore Highway. Eleven and ten story buildings - are you crazy to allow this to even be in review. We went thru this at the new Facebook development and it is still too big at 6 stories. Please please please consider our community and not the tax dollars. The City of Burlingame does not need this huge development for some of the following reasons:

TRAFFIC - TRAFFIC - TRAFFIC - Broadway is already too busy and we will never be able to handle the traffic from the scale of this development.
UTILITIES - Where is all the water, sewer, electric, etc going to come from? We are in a drought and do not have enough now to meet our needs. The sewer treatment plant is at capacity and sometimes flows into the Bay. This is going to aggravate the problem.
ENVIRONMENTAL - Impacts to the Bay and beyond with more carbon emissions, Bay pollution from all the activity, cars and people at this development. Damage to the creek flows that drain into the Bay through this site at two locations. These creeks should be opened up and expanded as environmental features not buried in the concrete.
EARTHQUAKE impacts - This area is all landfill and we know what happened in 1989 when the Hyatt crashed into the lobby of the hotel. The area is sinking and no more development of this scope will only make it worse.
SCENIC - Views will be obstructed of the Bay for many, many folks.
COMMUNITY CHARACTER - The scale and scope of this development is not in keeping with the character for the City of Burlingame. It will only be a modern monstrosity
that will deflect from the historic character of our community.

PLEASE DO NOT APPROVE THIS DEVELOPMENT. The City of Burlingame does not need this project now or ever !

Thank you
Jane -Burlingame resident for 35 years.

From: CD/PLG-Ruben Hurin
To: CD/PLG-Catherine Keylon
Subject: FW: 1200 - 1340 Bayshore Highway Project
Date: Wednesday, August 17, 2022 12:08:35 PM

FYI…another "public comment" submitted for 1200-1340 Bayshore Hwy.

Ruben

Ruben Hurin
Planning Manager
City of Burlingame
Community Development Department – Planning Division
Tel. 650.558.7256 | rhurin@burlingame.org

From: bob mead [mailto:bobmead1@yahoo.com]
Sent: Monday, August 15, 2022 12:52 PM
To: Public Comment <publiccomment@burlingame.org>
Subject: 1200 - 1340 Bayshore Highway Project

Please do not approve this project.

The city of Burlingame and surrounding areas do not have available housing for the workers that would be employed there. Furthermore, this will aggravate the traffic jams on highway 101. We already have the new 500,000 sq ft Facebook development at Coyote Point to somehow accommodate.

Burlingame doesn't need this. It needs to be located in an area where reasonably priced housing can be provided and the associated traffic won't be a problem.

Build some housing there instead.

Thank you for listening,

Robert Mead
2418 Adeline Dr.
Burlingame, CA 94010

From: Zack Zlotoff Rozlen
To: Public Comment
Subject: 1200 - 1340 Bayshore Highway Project
Date: Monday, August 22, 2022 8:36:26 PM

Hello Commissioners,

I am excited about the enhancements to the bay trail. The area is already one of my favorite parts of our city and I love the new public spaces.

A few things stick out about the 1200-1340 Bayshore project:

Parking
2 10-store parking garages seems excessive for how much office space there is. I'm not sure what the standard ratio is, but this is a lot of space right next to our beautiful bay trail being used for car storage. This location is very close to Broadway station, which already has a commute.org shuttle stop from Millbrae. Maybe some of the money going towards parking can instead go towards increased service for another shuttle from Millbrae? Or perhaps they can share some parking with the nearby hotels.

Bay Trail Maintenance
More people enjoying the bay trail is certainly a good problem, but I think it would be a small drop in the bucket for the developer to help this financially and would go a long way for our city.
This project specifically is right on a patch of the bay trail with a discontinuation of the trail where some improvements could be made.

Jobs/Housing Imbalance
These projects are adding a lot of high-paying jobs to our area and increasing demand for housing in an area without considering how it will affect the already-worsening housing affordability crisis. I understand we can't currently build residences on east of 101, but think we need to address housing supply as we're adding demand for housing.

Thank you for your time,
Zack

From: Nina G
To: Public Comment
Subject: Design Review Study Item 9b
Date: Monday, August 22, 2022 8:32:37 PM

Thank you Commissioners for this opportunity to participate.

I'm a Sierra Club Loma Prieta Chapter member involved in environmental conservation as a vital way for all to enjoy nature.

It's great that the Bayfront Commercial zoning district includes as its purpose the enjoyment of nature and public access to the bay.

In that regard, I'd like to note that the applicant met with a number of us some time ago and expressed a willingness to collaborate to protect the wetlands ecosystem by eliminating the bridge shown as Site Feature 4 in Volume 2 of the project design plans.

Perhaps the fact that this bridge remains in the current project plans is simply an oversight.

Therefore, it would be great to see this bridge eliminated as an essential environmental protection and conservation measure.

Thanks again for your consideration and dedicated public service,

Nina Goodale

From: CD/PLG-Ruben Hurin
To: CD/PLG-Catherine Keylon
Subject: FW: 1200 - 1340 Bayshore Highway - written comment
Date: Monday, August 22, 2022 9:43:52 AM

Hi Catherine,

Another public comment email received to be read aloud at tonight's meeting. I'll send any other that come in today. With this one, you should have three (3) to read so far.

Thanks,

Ruben

Ruben Hurin
Planning Manager
City of Burlingame
Community Development Department – Planning Division
Tel. 650.558.7256 | rhurin@burlingame.org

-----Original Message-----
From: Mark Goan [mailto:markgoan94@gmail.com]
Sent: Sunday, August 21, 2022 3:04 PM
To: Public Comment <publiccomment@burlingame.org>
Subject: 1200 - 1340 Bayshore Highway - written comment

May I start off by saying I think this is a very well designed and beneficial project for the city. One concern I have that I'd like to see the EIR address is the integration of solar / renewables. Looking at the renderings I don't see any obvious solar installation. I'd like the project to possibly consider shaded solar on the parking garages such as the city of Millbrae Alexandria life sciences campus project is having installed. I feel if we are to really embrace these projects and there benefits it's only right where possible we try and offset the demand on the electricity grid.

Thanks,
Mark Goan

From: Joan Renson
To: Public Comment
Subject: NO on 10-11 Story Bldg along the Bayfront at Broadway
Date: Monday, August 22, 2022 6:43:42 PM
Attachments: image073961.png
image175402.png
image839204.png
image976084.png
image835721.png
image335691.png
image665398.png
image531380.png
image587059.png
image532806.png

Greetings, I just want to voice my opinion on this huge proposed new building at the Bayfront at Broadway. I say **"NO"** to this building and I just have a few reasons:

- That area is already heavily congested and a mess at peak commute times, and this building will just put it over the top. The current infrastructure does not support this size of a building at this location. The Train Tracks at Broadway are a joke and already and I can't even imagine the traffic at lunch time if anyone from this building wants to go to lunch. Broadway can't take this kind of traffic, car or people. There are also multiple buildings proposed for that road down the street anyway.
- Burlingame is not geared for such fast big building development and we just don't want to loose our town to these big developers who don't care a less about the rest of us who have to live and get around here.
- If we already do not have enough water for the current population, we certainly do not have the extra water to accommodate this buildings needs not to mention the load this will put on our sewer system.
- Taking it down to 3 stories would be a much better idea for this location
- NO, NO, NO, NO,NO and NO thank you!

Regards,
Joan

From: Athan Rebelos
To: Public Comment
Subject: Planning Commission Item 9B, 1200 -1340 Bayshore Hwy.
Date: Monday, August 22, 2022 7:47:45 PM

As I mentioned earlier tonight, I'm excited about the new development along Bayshore Highway.

My asks for this project are similar but more significant than those for item 9A. Because of its location and scale, I expect lots of engaging outdoor space. Many large-scale public arts and publicly accessible amenities for community meetings, a cafe, and a full-service restaurant - bar. This development will displace some well-known and loved Burlingame businesses, and I ask that they be provided an opportunity to reopen at this new development.

This location is reachable by pedestrians and bicyclists from the Broadway Caltrain Station, the shopping and dining district, and the surrounding neighborhoods. We need attractive, pedestrian-scale lighting and wide sidewalks with shade trees along the street (uplit trees would be great). The developer should submit a proposed plan to encourage bicycles with protected bicycle facilities. Of course, I strongly encourage a method for enhanced shuttle service between the facility, the Caltrain Stations, Broadway, and Burlingame Ave.

Thank you,
Athan Rebelos

Oral Scoping Comments from August 22, 2022 Planning Commission Meeting

City of Burlingame

BURLINGAME CITY HALL
501 PRIMROSE ROAD
BURLINGAME, CA 94010

Meeting Minutes
Planning Commission

Monday, August 22, 2022 **7:00 PM** **Online**

On September 16, 2021, Governor Newsom signed into law AB 361, which allows a local agency to meet remotely when:
1. The local agency holds a meeting during a declared state of emergency;
2. State or local health officials have imposed or recommended measures to promote social distancing; and
3. Legislative bodies declare the need to meet remotely due to present imminent risks to the health or safety of attendees.

On August 15, 2022 the City Council adopted Resolution Number 099-2022 stating that the City Council and Commissions will continue to meet remotely for at least thirty days for the following reasons:

1. There is still a declared state of emergency;
2. The State recommends that individuals in public spaces maintain social distancing and wear masks; and
3. The City can't maintain social distancing requirements for the public, staff, Councilmembers, and Commissioners in their meeting spaces.

Pursuant to Resolution Number 099-2022, the City Council Chambers will not be open to the public for the August 22, 2022 Planning Commission Meeting.

Members of the public may view the meeting by logging on to the Zoom meeting listed below. Additionally, the meeting will be streamed live on YouTube and uploaded to the City's website after the meeting.

Members of the public may provide written comments by email to publiccomment@burlingame.org.

Emailed comments should include the specific agenda item on which you are commenting, or note that your comment concerns an item that is not on the agenda or is on the consent agenda. The length of the emailed comment should be commensurate with the three minutes customarily allowed for verbal comments, which is approximately 250-300 words. To ensure your comment is received and read to the Planning Commission for the appropriate agenda item, please submit your email no later than 5:00 p.m. on August 22, 2022. The City will make every effort to read emails received after that time, but cannot guarantee such emails will read into the record. Any emails received after the 5:00 p.m. deadline which are not read into the record will be provided to the Planning Commission after the meeting.

To Join the Zoom Meeting:

To access by computer:
Go to www.zoom.us/join
Meeting ID: 816 1801 2426
Passcode: 082306

To access by phone:
Dial 1-346-248-7799
Meeting ID: 816 1801 2426
Passcode: 082306

1. CALL TO ORDER

The meeting was called to order at 7:01 p.m. Staff in attendance: Community Development Director Kevin Gardiner, Planning Manager Ruben Hurin, Senior Planner Catherine Keylon, and Assistant City Attorney Scott Spansail.

2. ROLL CALL

Present 7 - Comaroto, Gaul, Horan, Lowenthal, Pfaff, Schmid, and Tse

3. APPROVAL OF MINUTES

a. Draft August 8, 2022 Planning Commission Meeting Minutes

Attachments: Draft August 8, 2022 Planning Commission Meeting Minutes

Commissioner Comaroto made a motion, seconded by Commissioner Tse, to approve the meeting minutes. The motion carried by the following vote:

Aye: 7 - Comaroto, Gaul, Horan, Lowenthal, Pfaff, Schmid, and Tse

4. APPROVAL OF AGENDA

There were no changes to the agenda.

5. PUBLIC COMMENTS, NON-AGENDA

> Public Comment by Anthony: My name is Anthony and I have been a carpenter in the Bay Area for 27 years, and 23 with the United Brotherhood of Carpenters Local 22 in San Francisco. I'm here to talk about what is best not only for construction workers but for Burlingame. Local hire, local hire keeps the jobs and money in the community you serve and provides a living wage. This allows our local construction workers the ability to prosper here in Burlingame. Healthcare, not just for one but for the entire family a family as a whole.This includes vision and dental care as well. These are all things I've enjoyed for so many years as a union carpenter. I would kindly ask the commissioners please consider adopting a requirement for all proposed developments, the Bay Area standard area carpenter wages provide healthcare coverage and a commitment to hire local carpenters including apprentices and developers and general contractors will do the right thing and pay standard wages on their own. With your leadership, we can send a message to all these developers and contractors that Burlingame will not stand for the exploitation of carpenters and apprentices so they can increase their profits. Thank you for your time and consideration.

> Public Comment by Steven Goodale: My name is Steven Goodale and I'm a member of the Sierra Club Sustainable Land Use Committee. I'm speaking on bioscience and biosafety levels and providing slides from the Sustainable Committee because the agencies and labs are hazardous. Biosafety is highly regulated for workers but cities are ultimately responsible for the protection of their residents and the environment. Agents or the raw materials in bio science labs and DNA and -- so on. They can be hazardous to neighborhoods and they represent the less -- they represent the level of risk posed to lab workers and neighborhoods and the environment and BS1 is the lowest threat which are life-threatening deceases with no known cures and Ebola. Given the risk inherent with working with raw materials, the agents, zoning is used to isolate lab from neighborhoods and BS2 above are zoned industrial and commercial use. Considerations need to be given to lab workers as well as the community and the environment in the events of accidents, disaster or building failure. This should be a key component of the environmental impact review process. This is particularly important if proposed developments are in proximity to neighborhoods or delegate the ecosystems and risk of disruption from sea level and ground level rises high, and the good rule of thumb is outright prohibit BS3 and 4. When evaluating a site for consideration, should consider flooding such as sea level rise, ground water rise and storm levels, community, such as if it's near neighborhoods, transit hubs and shopping malls and the environment including waterways, areas under tidal influence and sensitive habitats and authority should require applicants to include the following plans of documentation as a part of the requirements and the proposed biosafety levels, biological risk assessment, the range of pathogens and agents used at the site and the emergency protocol for the labs and the surrounding environment and neighborhoods. Applicants should provide a monitoring and verification program incorporating a rigorous and routine assessment for any error of water or noise pollution and waste materials generated by the facility. Additionally, cities should adopt into their approval processes that any changes to the established biosafety level must first be approved by the City Council as it may trigger a new CEQA evaluation and it must be updated in the development agreement. In the case of a speculative development, require the developers include the allowed BSL in the entitlements and in the EIR and require each tentative or owner provide all BSL documents before a lease purchase is approved. Thank you very much.

> Public Comment by Brian Shields: My name is Brian Shields and I'm a field representative from Local 22, covering San Mateo County. I wanted to take this time as Anthony spoke on earlier to talk about the need for labor standards. Labor hand standards that will lead your residents into better paying jobs, be there for their kids, be able to show up financially with healthcare, wages and apprenticeship. Without a way forward through apprentice, most tradesmen are left in the dust. So, the accountability of having labor standards in Burlingame will keep developers and contractors, it will keep them honest. It will provide good paying jobs for your community.

> Public Comment by Gita Dev: Steve Goodale spoke before me from the Sierra Club and gave a quick overview about the different levels of biosafety for the different types of labs that are envisioned in Burlingame and in other cities. The reason that the Sierra Club is bringing this up is because biotech licenses is blossoming all over the bay, all over our peninsula and one of the things we realize is that while labs are very tightly restricted in terms of, very tightly governed in terms of safety for their workers, there really is not a good mechanism from the safety of the environment or neighborhood. So I would like to request that this item be agendized for a future meeting because Burlingame is hoping to go in big time for biotech and life sciences. So, we should know that there's a certain amount of transparency in what developers are planning to do when they build speculative buildings or not speculative buildings as to what level of safety we need to plan for the environment and for the neighborhood. I feel this is a very important issue for the whole of the Bayfront and the whole of the industrial area as we're rezoning it in Burlingame. that's our request. We are happy to provide a lot of information and research background, so that when the Planning Commission and staff, when the Council makes decisions on biotech that we do it with the knowledge of what we need, what we need to do as a community in order to make sure that the environment and the residents are safe. Thank you.

6. STUDY ITEMS

There were no Study Items.

7. CONSENT CALENDAR

There were no Consent Calendar items.

8. REGULAR ACTION ITEMS

a. 2313 Ray Drive, zoned R-1 - Application for Design Review and Hillside Area Construction Permit for a first and second story addition to an existing single-unit dwelling. This project is Categorically Exempt from review pursuant to the California Environmental Quality Act (CEQA), per Section 15301 (e)(1) of the CEQA Guidelines. (Jeff Alan Gard, applicant and architect; Ronan McConnell and Michele McKenna, property owners) (104 noticed) Staff Contact: 'Amelia Kolokihakaufisi

Attachments: 2313 Ray Dr - Staff Report
2313 Ray Dr - Attachments
2313 Ray Dr - Renderings
2313 Ray Dr - Plans

All Commissioners have visited the project site. Senior Planner Keylon provided an overview of the staff report.

Chair Gaul opened the public hearing.

Jeff Alan Gard, designer, represented the applicant and answered questions regarding the project.

Public Comments:

> *There were no public comments.*

Chair Gaul closed the public hearing.

Commission Discussion/Direction:

> *I like the project. The 3D rendering is helpful. I wish we could see it a little bit more because we didn't get it in our packet, so it's hard to evaluate it on screen. I hope that you actually do find a way to incorporate another tree further down the hill because it will provide shade in that back area. It's a good project.*
> *It looks really nice. It would have been nice to have the rendering with our packet. It looks lovely, good job. I would love to see another tree incorporated somewhere in there.*
> *I too, wanted to say that I like the design. It's not even discernible from the street, the addition is towards the rear and it's nicely tied into the rest of house. I also appreciate the renderings that were submitted.*

Commissioner Tse made a motion, seconded by Commissioner Schmid, to approve the application. The motion carried by the following vote:

Aye: 7 - Comaroto, Gaul, Horan, Lowenthal, Pfaff, Schmid, and Tse

9. DESIGN REVIEW STUDY

a. 1669/1699 Bayshore Highway and 810/821 Malcolm Road, zoned I-I: Second Review of Application for Environmental Review, Commercial Design Review, Special Permits for Building Height and for Community Benefits for Increased FAR, Parking Variance, and Tentative Parcel Map for a new research and development campus in one seven-story building, one eight-story building, and a parking garage. (King Bayshore Owner LLC, Peter Banzhaf, applicant and property owner; Perkins and Will, Derek Johnson, architect) (64 noticed) Staff Contact: Erika Lewit

Attachments: 1669-1699 Bayshore Hwy & 810-821 Malcolm Rd - Staff Report

1669-1699 Bayshore Hwy & 810-821 Malcolm Rd - Attachments

1669-1699 Bayshore Hwy & 810-821 Malcolm Rd - Community Benefits

1669-1699 Bayshore Hwy & 810-821 Malcolm Rd - TDM Plan

1669-1699 Bayshore Hwy & 810-821 Malcolm Rd - Plans

All Commissioners have visited the project site. Commissioner Horan had an ex-parte communication with Peter Banzhaf to discuss the design of the project. Community Development Director Gardiner provided an overview of the staff report.

Chair Gaul opened the public hearing.

Peter Banzhaf, Rene Bihan and Peter Pfau, represented the applicant and answered questions regarding the project.

Public Comments:

> Public Comment by Geta Dev: Good Evening, Commissioners. I really appreciate the questions raised. This is an extremely distinct project, I compliment the team and the thoughtfulness that has gone into this project. I do have a few questions, similar to what the commission was asking. One of the questions relates to lighting. I see that HG Harvey has been involved in the skin of the building and that it will be treated glass. For bird safe design, treated glass is one of the options. Less glass is really the best option so that the birds can actually see the building and they don't see a reflection. Even with a treated glass at this location they will tend to see the reflections very clearly. Given that, I am wondering, is there anything more that you can do in trying to make it less of a transparent reflective box? This building is in fact taller than the Marriot hotel that is behind, so lighting at night will be really important. If there is a way to turn the lights off after certain times at night so that the glare onto the bay is not a big issue. It is not like a hotel room, obviously it is a huge sheet of transparent glass box. If we can consider something about turning the lights down in the evening, turning them off at a certain time at night and during times when there is migration of birds that would really help. I noticed that there is a café and this is a life and sciences building with a lot of laboratories in it. Based on the bio safety level presentation that was given earlier, I wonder if we can include in the entitlements what levels of bio safety will be accommodated in this building. We know that if you go into bio safety, it has very infectious diseases like HIV, flu and so forth. But if you go to BSL-3, these are airborne diseases like plague, tuberculosis, anthrax, Covid. So, it will be really good if the entitlements include this in the interest of transparency, particularly since we are having the public in the café right there. Thank you.

> Public Comment by Peter Joseph Comaroto: Overall, I think this is a really cool project for the Bayshore. As I was listening and looked at the plans, I have a couple of questions and comments. One of them being the retail space, it's been talked about that the space will be activated for the public. With only 6,000 sf for the café, that basically is a Starbucks, assuming that Starbucks are about 1,500 sf to 2,000 sf. I don't know how much activation that would necessarily deal with the public. Along with that, just making sure that the space is open on the weekends for the bikers and the families who do decide to

walk over there near the Bayshore. Another comment is for the depth of the loading bay and getting the drivers in and out of the loading locks more efficiently. It looked a little bit short in the way they were backing up in the last few pages of the plans. The whole idea of where the structure is coming from and this may be a question for city staff, with the two-lane highway from Broadway and even from Millbrae Avenue coming in with the trucks that will create a lot of extra traffic. So thinking about how the infrastructure should be improved in that area to focus on providing a more efficient way in and out especially with all the demand and supply coming online with the office space over on the Bayshore. I like the idea of the bike racks, I know that the minimum is pretty low even if we are really trying to activate the space, maybe add another bike rack. The last thing, I know that we did talk about activating this for the public but an overall comment about limiting access of the public from the office and industrial space. This is probably more of a security issue and what that necessarily looks like. I know that this will go through entitlements but thinking about if there will be full time staff there to keep the place safe. Not only for the community but keep them out of the office and industrial part and not allow them wandering into places that they shouldn't be. Overall, it is a really great project. I am happy that we have life science and other bigger companies coming into Burlingame. I think that is good for all of us and the community in general. Just want to make sure that some of these small things are talked about.

> Public comment sent via email by Doug Bojack: Dear Planning Commission Staff, please provide the following comment for Design Review Study item 9a, 1669/1699 Bayshore Highway: I commend the Commission on focusing on the Bay Trail connection, increased wayfinding to and from the Bay Trail, and the opportunity for a mural to enliven the street-level façade during its previous discussion of this project. I also agree that a publicly-accessible conference room at the base of a commercial office building is not likely to produce much of a community benefit, and want to point out that an essentially corporate café is unlikely to provide much of a community benefit outside of the eventual tenant's employees, nor is the proposed community plaza likely to act as much more than a breezeway connecting the parking garage with the north parcel. In addition to these project features, I urge the City to commit the developer to funding off-site streetscape improvements through code section 25.12.040(C)(5) to help turn Bayshore Highway into a complete street. Addressing active transportation connectivity is especially important since the development is a six-minute bicycle ride from the Millbrae BART and future high-speed rail station. I would also like to see a much greater number of secure bicycle parking spaces included as a community benefit, up from the roughly 50 proposed, as well as a general reduction from the nearly 1,000 proposed car storage spots. In total, these community benefits would advance the City Council's transportation and sustainability priorities and would help the emerging life sciences development cluster in the area prioritize walking and bicycling around the eventual campus groupings. Thank you.

> Public comment sent via email by Athan Rebelos: Hi, I want to let you know that I'm excited about the new development along Bayshore Highway. I am excited about the public plaza, the public art, and the publicly accessible ground floor amenities. I am particularly enthusiastic about the proposed cafe or bistro, although I strongly encourage that we consider more of a full-service restaurant and bar on the site. Unfortunately, several excellent restaurants and bars in the area will be displaced by other construction projects throughout Burlingame. I want to point my comments to Community Benefits, CB6. First, I would like to see more than a crosswalk. I like to see pedestrian scale lighting and wide sidewalks along Bayshore Highway, flashing beacons at the crosswalk, and for the developer to submit a proposed plan to encourage bicycles with protected bicycle facilities. Finally, I strongly encourage a method for enhanced shuttle service between the facility, the Caltrain Stations, Broadway and Burlingame Avenue. Thank you.

Chair Gaul closed the public hearing.

Commission Discussion/Direction:

> Thank you for your presentation, it is very informative and nice to see. I'm very interested in the off-site infrastructure that you are doing, notably the access to the Bay Trail, I think that is fantastic. The Bay Trail is maintained by nonprofit organizations and I appreciate the access point but you're going to put more population on to the Bay Trail, which is very dear to the city of Burlingame and residents. Please

provide any investigations or data if you have looked into investments into the Bay Trail.

> Consider adding other food amenities because people are going to be there and want to go have lunch. The places out there are packed at lunch time. If it was available nearby, including this ground floor cafe which is really nicely done, I don't think you can go wrong by having a little more.

> Recommends to explore an opportunity to provide for some public parking in the parking structure. It would be important because there's been some comment about the parking in the area already on the street and anything would be helpful. We would encourage people to ride their bikes or walk out there but if you can find a place for some public parking, it would help this project and help the public benefit because it seems to be the key element of this project.

> I wanted to thank the team for doing quite a bit of work since the last time we saw this. When I saw it last, there were quite a few things that I was concerned about. You guys heard us and came back with a really successful presentation of the information and addressing many of our concerns. I was particularly concerned with the civil engineering aspect and how the street goes down because it seems a little steep now, but looking at the civil drawings and how you attach that crosswalk between the two buildings, it's actually going to work well. So, I'm happy that that was looked at and considered.

> The cafe concept without having a full restaurant there is actually a good idea. There's quite a few ways that you can bring food in without actually having all the kitchen equipment, serving full meals and being able to handle all the people that are there. I have been in many large buildings where we've built in kitchens and cafes and they are difficult to run. It's a lot of added stress on to the building people, by having it offsite and being able to bring it in, you'll still be able to manage a good opportunity. Also, in combination with the food trucks, you'll have an opportunity to do more than just one kind of food or cafe food.

> It was mentioned earlier that parking on the street was difficult and we are looking to take a few more of those public spaces away, it looks like. More than dedicating and looking at the programming, if your parking isn't fully utilized by the tenants, that you have an opportunity to allow for public parking to happen programmatically and not say you can't because of the way it's designed. So, it's just a look. But it's a great looking project and I'm looking forward to it and like to see it move forward.

> It is a nice project. There are little things that can be tweaked. One of the things I would like to bring up, possibly to staff as well, is the lighting. I don't know if staff has looked at this, but it would be nice to have a lighting plan for the Bayside so we can keep lighting similar throughout with all these new projects that are coming to the Bayfront, for pedestrian lighting especially. For all these new projects, they don't have to look the same but that they are similar and that we can all feel safe out there when walking around especially on the Bay Trail at night. Some of these European countries have some beautiful lights, so that people are walking on the shores and just take a look at the lighting, what we need out there as a city, which will activate it for everyone involved. I'm also very cautious about the traffic. We're going to see a lot more traffic especially with all these new projects and I'd like to see more safety issues addressed with the pedestrians and crosswalks. If we can have staff look at the safety issues with bikes and flashing lights so cars, and bikes as well, know when to stop.

> I agree with my fellow commissioners. I do want to thank you, you did a stellar job. It looks like you looked at everything and it's going in the right direction. I'm out of sorts with the public comments regarding the bird issue as well as the biohazards, it's not my expertise and I don't know if we should just let it go. I'm not really sure how this is supposed to work. It may depend on the tenant but some of these issues are really quite important. Honestly, I haven't thought about the biohazard issues, BSL-3 the two public speakers mentioned, I don't know if that's our place or the City Council to direct but I think it's important. I did want to acknowledge that as well as the complete street comments by the recent speaker and agree that we definitely need to pay attention there because people just get zipping along and the area generally would be really great with the development.

> It's not a must do but it is a request on your tree assessment. You did an absolutely gorgeous landscape and it's layered and it has a lot of variation and type and scale. It's beautiful and you have nice specimen trees, however on your tree removal plan, there are five Mexican fan palms that were rated as high and very good condition and that happens to be trees that your landscaper probably knows are very readily transplanted and you don't plan to have those on your site. I understand that, although I have recently seen the same trees planted all over San Francisco and Mission Bay developments, it looks very cool and really similar but since those are on sidewalk, it would be really nice if you would offer them to

palm companies or other developers. I remember as an aside a number of years ago, there was some development in Burlingame were many of the same palms and many dozens were offered up and given to Millbrae, I think that's their street tree now. They have beautiful Mexican fan palms that came from elsewhere and they take forever to grow to that height and these are in good condition. It would be really nice, since they are accessible on the sidewalk, to offer them up to a company or sell them. But good job, thank you.

> I wholeheartedly agree with my fellow commissioners. A great presentation, very thoughtful and helpful to understand the vision. I also think it fits very well in that area. The scale and the sizing fits within the other buildings there and it will be an attractive set of buildings when people are flying into the Bay and of course on the Bay Trail. I also like the community improvements they are doing. I do agree that a 4,000 square foot cafe really doesn't do much for me. It would be nice if they can do more. I don't quite understand the ventilation and things like that that they are complaining about because a biotech building has more ventilation than a standard building so it doesn't quite register of that request or that description. It would be nice to see a little more there especially when you have such a vast community plaza planned. It's really all going to be maintained by food trucks, which there is no way we can require food trucks to come. Maybe we can ask for some sort of permit provision that they are going to guarantee certain permits, I don't know how that would work, but how are we going to require food trucks to go there? I'm really concerned about the Bay Trail. We're going to look at life science along the Bay Trail. Two projects are in the agenda tonight and many more to come. You're talking about a significant population influx on the Bay Trail especially when we're adding pedestrian crossings, bike racks and things like that, the Bay Trail is going to get a lot of work. I don't know the financial well-being of the Bay Trail project in the nonprofits but I do feel like we should obligate some of these developers to do more than build a crosswalk. The Bay Trail needs improvements, certainly the project we're going to be looking at after this is adding to the Bay Trail, but again they don't have any proposal to add to the Bay Trail project in any physical way. I don't know how you do that and I'm certainly open to ideas there. That's where my biggest concern is, on the Bay Trail and those kind of community inputs.

> I concur with all my commissioners and a wonderful collection of comments that everyone has brought to the table here. I, too, want to commend the team on a wonderful design that has been very carefully and thoughtfully considered of our comments from our last go around. The development of the design has improved greatly and there's a lot of care to it. I really do like the street level podium and how it separates itself from the upper levels of the buildings and does create that pedestrian scale for those who will be utilizing the public plaza and the spaces around. That's been nicely achieved. Very beautiful landscape design. I also appreciate the attention to one of our comments from the last meeting about the location of the ADA ramp and how that was potentially a dangerous position for those who are not ADA users, skateboarders and others so I appreciate the attention that you put to that and relocating the ramp. I do have some concerns about parking, public access parking especially with community space that can accommodate up to one hundred people. I believe it is in multiple groups and adding up to one hundred. If one would use the spaces for a community event or conference and they are not regular employees in these buildings, where would all these people park? They certainly are not going to all ride their bicycles here, some may, but we would have to think through the program carefully if this is really going to be a successful community space. Attention to parking needs to be addressed.

> I, too, am questioning why we can't have one or more kitchens and a restaurant type space here or a variety of cafes and other kind of food and beverage type outlets to support what, hopefully, is a very burgeoning public plaza to give people a variety of foods and types of treats to enjoy and use of space. I don't feel confident that we can rely on a food truck system to make this happen. Something that's thought through now and built into the space would make this a much more successful program. But otherwise, thank you very much for a wonderful design and I, too, look forward to seeing this come to fruition.

> Parking and the restaurant are the two main concerns I have.

> I'm going to echo that. The food trucks are a good way to mitigate some of that if we can guarantee that but I don't know that's going to happen. I know that restaurants will work out there. Prepared food could work but made to order things would be a good option as well. It doesn't have to be a bigger space. It could be another one and give people options like when you get a bunch of food trucks together, people like it because they have a few things to choose from. So if you have a few cafes it could help out. To the

parking issue, you have to have a place for the public to park especially if we're going to have public meeting spaces there and if people want to have lunch if they like it as a food opportunity.

> Gardiner: I did want to add information about the streetscape because I know there were a number of comments. As I am listening to the comments, I've been thinking about whether it would make sense to mention that there's a Bayshore Highway beautification project that Public Works has been working on which has standards for trees, sidewalks and lighting, things like that. I realize the Planning Commission hasn't seen that in a formal way, so perhaps that's something we can put on the upcoming agenda. I can't promise. I have to talk to Public Works and see if that could be arranged. Given that it's a common thread through the various projects on the Bayfront and some of them will be building those improvements so they are consistent with the plan as the applicant alluded to. It's a little trickier on the Bay Trail, because it is mostly on private property. There are some segments on public property which the city is able to control a little better. For example, if you're somebody wanting to coordinate a lighting standard on the Bay Trail, you need to get the cooperation of the different property owners along the way. It's not impossible, but it's a unique situation in Burlingame and that's also why we have the stop and start pattern in the Bay Trail as we are filling in the gaps but it is all private property.

> Would this be something that my fellow commissioner had brought up, that maybe these developers can put some money in a bucket where we can put some lighting because that would be much more advantageous for everyone throughout. So just a thought. Maybe if we can look if these developers are doing some big projects and we can do some funds and get an idea of what that might look like if the private ownership might be interested in doing something like that.

> Gardiner: That's certainly an initiative. We can't promise, but there has been interest among property owners to start developing more consistent standards, even things like trash cans and things like that. So, it is a discussion that is floating around, but it does require a level of coordination that a typical public works project wouldn't have, not to say it's impossible, but just wanted to let you know how it worked.

This application will return on the Regular Action Calendar, as it includes environmental review.

b. 1200-1340 Bayshore Highway, zoned BFC - Environmental Scoping to solicit input on a Notice of Preparation (NOP) for an Environmental Impact Report (EIR) for redevelopment of a 12 acre site with three, 11-story life science/office buildings totaling 1.46 million square feet with two, 10-story parking structures each with two levels of below grade parking. (DivcoWest, Burlingame Venture LLC, applicant and property owner; WRNS Studio, architect) (31 noticed) Staff Contact: Kelly Beggs/Catherine Keylon

Attachments: 1200-1340 Bayshore Hwy - Staff Report
1200-1340 Bayshore Hwy - Attachments
1200-1340 Bayshore Hwy - Plans - Part 1
1200-1340 Bayshore Hwy - Plans - Part 2
1200-1340 Bayshore Hwy - Plans - Part 3

All Commissioners have visited the project site. Senior Planner Keylon provided an overview of the staff report.

Chair Gaul opened the public hearing.

Seth Bland and Virginia Calkins, represented the applicant and answered questions regarding the project.

Public Comments:

> Leslie Flint: I'm a member of Sequoia Audubon Society which is the San Mateo County chapter of the National Audubon Society. We have approximately 1,400 members in San Mateo County. I wanted to speak about two issues; one is dealing with bird safety building practices. I wanted to mention that there are 136 species of birds that have been documented along the Bay Trail in Burlingame. Most during the winter months and during the spring and fall migration. It's to be noted that birds attempt to reach shelter,

food and migratory paths through reflected glass and it has been shown that over 100 million birds die annually from striking buildings with reflective transparent materials that cause collisions. I'm looking at the plans for these buildings and you do have a plan for treated and untreated glass on the surfaces. However, it wasn't exactly clear what the proportions would be. And so, it would be important to perhaps engage a qualified ornithologist to help you figure out how best to achieve bird friendly design as Burlingame's General Plan has indicated. One of the agencies that Burlingame has suggested to other developers look at as guidance is the San Francisco's bird safe standards and they require no more than ten percent of untreated glazing beginning at the grade and upwards for 60 feet. This project seems to have a lot more than ten percent glass but it's not clear how much so, it would be good to have that defined. I would also like to see more stringent requirements for those areas facing the Bay and Easton Creek. The second is lighting. I know you've talked about lighting in the last project you've discussed but it's important for birds because they are attracted to light at night. I did notice you did indicate downward facing lighting on the outside of the building which is good, but we would encourage you to have this building lights out program from dusk or 10:00 p.m. to dawn, having window blinds in areas requiring light at night and motion sensors to light only areas being actively used at night. Those are my suggestions and I encourage you to take a look at whatever cities in the bay area have done for bird safe building practices. Thank you.

> Geta Dev: Good evening, I'm with the Sierra Club Loma Prieta chapter. I also wanted to bring up some impacts that I hope the EIR can look into. These might be a bit unusual, but from the aesthetic point of view, I would like to be reassured about the parking garages that are blocking views of the Bay. I'm wondering if there's something that can be done to make them not as offensive as they might end up being? I don't think when we envisioned additional buildings along the Bayfront that we envisioned multi-story parking garages. So I'm wondering if there's a way the parking garages can be treated so they present more green surfaces, that they are not lit at night and they only light up when somebody moves through them. It also brings up the issue of complete streets and bike lanes. This is yet another example of why it is important that Bayshore become a complete street for all the buildings that are going to go up along here. Another item I would like to bring up once again is the BSL levels. There are safety issues in the biological section, these are extremely sensitive habitats along the Bay. In the event of liquefaction and seismic events, this is all on uncompacted bay fill, the building structures can fail and certainly the buried infrastructure can fail. If we have BSL-3 where we have extremely infectious airborne diseases such as anthrax for example. If the systems were to fail and we don't have positive pressure, then these are extremely important emergencies that we need to plan for. Therefore, once again, transparency for the biosafety levels of the laboratories that are incorporated is really important for all of us. The third item is the trees. From an environmental point of view, for the bird safety, it's important not to have trees along the Bayfront where predators can perch while birds are feeding. So I just urge you in your landscape design to look at the environmental impact of putting all those trees along the waterfront. And lastly, I'm somewhat concerned, I realized you have talked to the Sierra Club about the one hundred foot setback and I'm concerned I don't really see the extent of the ecotone levies on the bay shore side of the levies, so I'm wondering about the natural adaptation. Thank you.

> Public comment sent via email by Jane: Burlingame resident for 35 years. EGADS!! No, No, No to the proposed development of 1.5 million square feet of new building at the intersection of Broadway, Highway 101, and Bayshore Highway. Eleven and ten story buildings. Are you crazy to allow this to even be in review? We went thru this at the new Facebook development and it is still too big at 6 stories. Please, please, please consider our community and not the tax dollars. The City of Burlingame does not need this huge development for some of the following reasons:

Traffic, Traffic, Traffic - Broadway is already too busy and we will never be able to handle the traffic from the scale of this development.

Utilities - Where is all the water, sewer, electric, etcetera going to come from? We are in a drought and do not have enough now to meet our needs. The sewer treatment plant is at capacity and sometimes flows into the Bay. This is going to aggravate the problem.

Environmental - Impacts to the Bay and beyond with more carbon emissions, Bay pollution from all the activity, cars and people at this development. Damage to the creek flows that drain into the Bay through this site at two locations. These creeks should be opened up and expanded as environmental features not buried in the concrete.

Earthquake Impacts - This area is all landfill and we know what happened in 1989 when the Hyatt crashed into the lobby of the hotel. The area is sinking and no more development of this scope will only make it worse.
Scenic - Views will be obstructed of the Bay for many, many folks.
Community Character - The scale and scope of this development is not in keeping with the character for the City of Burlingame. It will only be a modern monstrosity that will deflect from the historic character of our community. Please do not approve this development. The City of Burlingame does not need this project now or ever! Thank you.

> *Public comment sent via email by Robert Mead: Please do not approve this project. The city of Burlingame and surrounding areas do not have available housing for the workers that would be employed there. Furthermore, this will aggravate the traffic jams on highway 101. We already have the new 500,000 sq ft Facebook development at Coyote Point to somehow accommodate. Burlingame doesn't need this. It needs to be located in an area where reasonably priced housing can be provided and the associated traffic won't be a problem. Build some housing there instead. Thank you for listening.*

> *Public comment sent via email by Mark Goan: May I start off by saying I think this is a very well designed and beneficial project for the city. One concern I have that I'd like to see the EIR address is the integration of solar/renewables. Looking at the renderings I don't see any obvious solar installation. I'd like the project to possibly consider shaded solar on the parking garages such as the city of Millbrae Alexandria life sciences campus project is having installed. I feel if we are to really embrace these projects and there benefits it is only right where possible we try and offset the demand on the electricity grid. Thanks.*

> *Public comment sent via email by Joan Renson: Greetings, I just want to voice my opinion on this huge proposed new building at the Bayfront at Broadway. I say "NO" to this building and I just have a few reasons: That area is already heavily congested and a mess at peak commute times, and this building will just put it over the top. The current infrastructure does not support this size of a building at this location. The Train Tracks at Broadway are a joke and already and I can't even imagine the traffic at lunch time if anyone from this building wants to go to lunch. Broadway can't take this kind of traffic, car or people. There are also multiple buildings proposed for that road down the street anyway.*
Burlingame is not geared for such fast big building development and we just don't want to lose our town to these big developers who don't care a less about the rest of us who have to live and get around here.
If we already do not have enough water for the current population, we certainly do not have the extra water to accommodate this buildings needs not to mention the load this will put on our sewer system.
Taking it down to 3 stories would be a much better idea for this location
No, No, No, No, No and No thank you!

> *Public comment sent via email by Athan Rebelos: As I mentioned earlier tonight, I'm excited about the new development along Bayshore Highway. My asks for this project are similar but more significant than those for item 9A. Because of its location and scale, I expect lots of engaging outdoor space. Many large-scale public arts and publicly accessible amenities for community meetings, a cafe, and a full-service restaurant - bar. This development will displace some well-known and loved Burlingame businesses, and I ask that they be provided an opportunity to reopen at this new development. This location is reachable by pedestrians and bicyclists from the Broadway Caltrain Station, the shopping and dining district, and the surrounding neighborhoods. We need attractive, pedestrian-scale lighting and wide sidewalks with shade trees along the street (uplit trees would be great). The developer should submit a proposed plan to encourage bicycles with protected bicycle facilities. Of course, I strongly encourage a method for enhanced shuttle service between the facility, the Caltrain Stations, Broadway, and Burlingame Ave. Thank you.*

> *Public comment sent via email by Nina Goodale: Thank you Commissioners for this opportunity to participate. I'm a Sierra Club Loma Prieta Chapter member involved in environmental conservation as a vital way for all to enjoy nature. It's great that the Bayfront Commercial zoning district includes as its*

purpose the enjoyment of nature and public access to the bay. In that regard, I'd like to note that the applicant met with a number of us some time ago and expressed a willingness to collaborate to protect the wetlands ecosystem by eliminating the bridge shown as Site Feature 4 in Volume 2 of the project design plans. Perhaps the fact that this bridge remains in the current project plans is simply an oversight. Therefore, it would be great to see this bridge eliminated as an essential environmental protection and conservation measure. Thanks again for your consideration and dedicated public service.

> Public comment sent via email by Zack: Hello Commissioners, I am excited about the enhancements to the bay trail. The area is already one of my favorite parts of our city and I love the new public spaces. A few things stick out about the 1200-1340 Bayshore project: Parking; 2 10-story parking garages seems excessive for how much office space there is. I'm not sure what the standard ratio is, but this is a lot of space right next to our beautiful bay trail being used for car storage. This location is very close to Broadway station, which already has a commute.org shuttle stop from Millbrae. Maybe some of the money going towards parking can instead go towards increased service for another shuttle from Millbrae? Or perhaps they can share some parking with the nearby hotels. Bay Trail Maintenance;
More people enjoying the Bay Trail is certainly a good problem, but I think it would be a small drop in the bucket for the developer to help this financially and would go a long way for our city.
This project specifically is right on a patch of the bay trail with a discontinuation of the trail where some improvements could be made. Jobs/Housing Imbalance: These projects are adding a lot of high-paying jobs to our area and increasing demand for housing in an area without considering how it will affect the already-worsening housing affordability crisis. I understand we can't currently build residences on east of 101, but think we need to address housing supply as we're adding demand for housing. Thank you for your time.

Chair Gaul closed the public hearing.

Commission Discussion/Direction:

> Study impacts on creek habitat, design to reflect and mitigate any impacts.
> Regarding traffic, look at impacts on Broadway, consider connection to Bayside Park if that will just be on the surface or a pedestrian walkway/bridge and incorporate this into TIA.
> Concerned about the water demand of the building. Study if we have adequate water allocation for a project of this size.
> I would find it important to look into the liquefaction risk given that this is fill. I would like to know about the wind effect. These are really tall buildings, so the wind effect generally and then on the recreational area, a few people asked me specifically about the baseball field, how the wind patterns might or might not affect the baseball games or whatever is happening over there. I would also like to ask about the view corridor. The plans show view corridors as they look towards the Bay, I'm wondering, isn't there a study of the view from the Bay to the mountain and the opposite direction. So I would find that important because I think there's blockage there more than what we have now.
> I see there's historical and cultural in the vicinity of Broadway, there was a Chinese fishing village, probably some Indian fishing villages there and there are documents from the county, if the applicant would like to have a reference. I think that would be important and perhaps something should be called out in your project if it goes ahead that these activities happened there. Additionally, there is a Hyatt theater and around, the building probably would no longer qualify as historic because it has been changed a lot but it should be looked into. It's cultural, it has the same importance as an architect, and it was an effort to bring some culture and activity to Burlingame in the Peninsula and sort of a trend of having something available to tourist from SFO and at the time we didn't have much around here in the way of restaurants and entertainment, so I would like that at least looked into.
> I understand, we're not supposed to talk about parking but there's a crossover. There are 20 spots called out for Bay Trail visitors. I'm not understanding how the flow and everything will work. I don't want to go the wrong direction on that.
> Shadow patterns. These are very large buildings and they are close to the trails that you are

completing and so I wanted to ask what those patterns are exactly during the day?

> *I see that you're suggesting some benefits, which we're not talking about that right now, but it mentions that this is a phased project. So I'm curious with the things that you're planning, how does that work in a phased project, if it's taking three years to complete this, is there a way to phase it so we get some benefits, to have a real program in the case that this would only be partially realized. I don't know if that's right way to put it, but thank you for being patient with my questions.*

> *I would like to include, if there will be piles driven on this project or how the foundation is going to be done. I remember at the Facebook project, I got comments from the neighbors businesses about how long that had been going on, so if we can look at that.*

> *Gardiner: There is one thing I want to mention for the public, this will come back for design review at a later date and ultimately for action when the EIR is completed. We do want to emphasize that we're in the midst of a comment period for the EIR. That comment period ends on September 12th at 5:00 p.m. So, if people do want to submit comments related to the EIR scope, they have up until 5:00 p.m. on September 12th. Information can be found in the staff report as well as on the project page on the city's website.*

> *Spansail: Director Gardiner, just to add to that, this is the comment period for the NOP, the Notice of Preparation, and there will be an additional public comment period when the draft EIR comes out.*

> *Gardiner: Important to clarify that the EIR hasn't been produced yet.*

10. COMMISSIONER'S REPORTS

There were no Commissioner's Reports.

11. DIRECTOR REPORTS

Director Gardiner mentioned that at the City Council meeting on August 15th, there was an update of the town square project and that project is moving along in the design phases. The schematic design phase has been completed and they are moving into design development. From there, the next phase is construction documents and hopefully construction. If people are curious to see the schematic design, the slides are on the web page at burlingame.org/townsquare. The commission looked at the design in a joint meeting with the City Council in 2021, and you'll see the schematic design looks very similar, just with CAD base drawings as opposed to hand drawing but the same idea of rows of trees and different activity areas and terrace seating.

12. ADJOURNMENT

The meeting was adjourned at 9:20 p.m.

Notice: Any individuals who require special assistance or a disability-related modification or accommodation to participate in this meeting, or who have a disability and wish to request an alternative format for the agenda, meeting notice, agenda packet or other writings that may be distributed at the meeting, should contact Ruben Hurin, Planning Manager, by 10:00 a.m. on Monday, August 22, 2022 at rhurin@burlingame.org or (650) 558-7256. Notification in advance of the meeting will enable the City to make reasonable arrangements to ensure accessibility to this meeting, the materials related to it, and your ability to comment.

Any writings or documents provided to a majority of the Planning Commission regarding any item on this agenda will be made available for inspection via www.burlingame.org/planningcommission/agenda or by emailing the Planning Manager at rhurin@burlingame.org. If you are unable to obtain information via the City's website or through email, contact the Planning Manager at 650-558-7256.

An action by the Planning Commission is appealable to the City Council within 10 days of the Planning Commission's action on August 22, 2022. If the Planning Commission's action has not been appealed or called up for review by the Council by 5:00 p.m. on September 1, 2022, the action becomes final. In order to be effective, appeals must be in writing to the City Clerk and must be accompanied by an appeal fee of $745.00, which includes noticing costs.

Appendix AQ-GHG

Air Quality and Greenhouse Gas Technical Report

Prepared for
DivcoWest
San Francisco, California

Prepared by
Ramboll U.S. Consulting, Inc.
Emeryville, California

Project Number
1690025433

Date
February 3, 2023

PENINSULA CROSSING: AIR QUALITY AND GREENHOUSE GAS TECHNICAL REPORT

1200-1340 OLD BAYSHORE HIGHWAY BURLINGAME, CALIFORNIA

CONTENTS

TABLES

FIGURES

ACRONYMS AND ABBREVIATIONS

AERMOD:	American Meteorological Society/Environmental Protection Agency Regulatory Model
AERMAP:	AERMOD Terrain Preprocessor
ASF:	Age Sensitivity Factor
AT:	Averaging Time
BAAQMD:	Bay Area Air Quality Management District
BACT:	Best Available Control Technology
CalEEMod:	California Emission Estimator Model
CAP:	Criteria Air Pollutant
CARB:	California Air Resources Board
CEC:	California Energy Commission
CEQA:	California Environmental Quality Act
CF:	Conversion Factor
C_i:	Chemical Concentration in Air
CO:	Carbon Monoxide
CO_2:	Carbon Dioxide
DBR:	Daily Breathing Rate
DPM:	Diesel Particulate Matter
ED:	Exposure Duration
EF:	Exposure Frequency
EMFAC:	On-road Emission Factor Model
FAH:	Fraction of Time at Home
FY:	Fraction of Year
GHG:	Greenhouse Gas
HO:	Hazard Quotient
HI:	Hazard Index
IF_{inh}:	Intake Factor for Inhalation
MEI:	Maximally Exposed Individual
NED	National Elevation Dataset
NO_x:	Oxides of Nitrogen
OEHHA:	California Office of Environmental Health Hazard Assessment
PM_{10}:	Particulate Matter less than 10 microns in Diameter

$PM_{2.5}$:	Particulate Matter less than 2.5 microns in Diameter
REL:	Reference Exposure Level
ROG:	Reactive Organic Gas
SCAQMD:	South Coast Air Quality Management District
TAC:	Toxic Air Contaminant
USEPA:	United States Environmental Protection Agency
VOC:	Volatile Organic Compounds
WWTP:	Wastewater Treatment Plant

1. INTRODUCTION

Ramboll US Consulting, Inc. (Ramboll) conducted California Environmental Quality Act (CEQA) air quality, health risk, and greenhouse gas (GHG) analyses for the proposed Peninsula Crossing project at 1200-1340 Old Bayshore Highway in Burlingame, California, California (the "Project"). The Project site is shown in **Figure 01**.

According to the Project sponsor, the Project would demolish the existing eight buildings of approximately 247,466 square feet on site, and construct three 11-story life science/office buildings[1] totalling approximately 1.42 million gross square feet, which would include approximately 5,000 square feet of amenity space (on-site cafe/restaurant) in two of the proposed buildings. The Project would also construct two parking garages (north and south parking structures). Construction of the project is anticipated to begin in August 2023. Phase 1 would include demolition of all existing structures on the project site, grading, site preparation, and construction of the proposed Center Building and the south parking structure. Phase 2 would include construction of the proposed South Building. Phase 3 would include construction of the North Building and the north parking structure. The Project is anticipated to start full build-out operations as early as March 2027. Up to two emergency generators are anticipated at each life science/office buildings, and one emergency generator is anticipated at each parking garage. The proposed land uses at the Project site are listed in **Table 1**.

The Project site is bounded by a privately owned, partially submerged parcel abutting San Francisco Bay to the east, a commercial office building and associated parking lots to the north, Old Bayshore Highway to the west, and Airport Boulevard to the south. The Project site is an area primarily occupied by commercial and office buildings. Bayside Park is located across Airport Boulevard to the southeast of the Project site. U.S. Highway 101 is located approximately 250 feet west of the Project site and Caltrain line is located approximately 1,500 feet west of the Project site.

2. CEQA THRESHOLDS OF SIGNIFICANCE

The City of Burlingame is the lead agency responsible for Project approval. Per City of Burlingame requirements, Ramboll evaluated the Project in accordance with the current Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines, which were updated in May 2017 and 2022.[2,3] These guidelines present methods for evaluating compliance with CEQA as well as thresholds for determining significance. With respect to the Project, the BAAQMD thresholds of significance are as follows:

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[1] A life science tenancy typically would consist of approximately 60 percent laboratory/research and development space and 40 percent administrative office space.
[2] BAAQMD, 2022. Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans. April.
BAAQMD, 2017. California Environmental Quality Act Air Quality Guidelines. May.
[3] BAAQMD, 2017. California Environmental Quality Act Air Quality Guidelines. May.

BAAQMD CEQA Thresholds of Significance			
Pollutant	**Construction-Related**	**Operational**	
Criteria Air Pollutants (and Precursors)	**Average Daily Emissions (lbs/day)**	**Average Daily Emissions (lbs/day)**	**Maximum Annual Emissions (tpy)**
ROG	54	54	10
NO_X	54	54	10
PM_{10}	82 (exhaust only)	82	15
$PM_{2.5}$	54 (exhaust only)	54	10
PM_{10}/$PM_{2.5}$ (fugitive dust)	Best Management Practices	None	None
CO (local concentration)	None	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
Risk and Hazards for new sources and receptors (Individual Project)	Compliance with Qualified Community Risk Reduction Plan OR Increased cancer risk of >10.0 in a million Increased non-cancer risk of > 1.0 HI (chronic or acute) Ambient $PM_{2.5}$ increase: > 0.3 µg/m^3 annual average Zone of Influence: 1,000-foot radius from fence line of source or receptor		
Risk and Hazards for new sources and receptors (Cumulative Threshold)	Compliance with Qualified Community Risk Reduction Plan OR Increased cancer risk of >100 in a million (from all local sources) Increased non-cancer risk of >10 HI (from all local sources) (chronic) Ambient $PM_{2.5}$ increase: > 0.8 µg/m^3 annual average (from all local sources) Zone of Influence: 1,000-foot radius from fence line of source or receptor		
Odors	None	5 confirmed complaints per year averaged over three years	
GHG	Must include A or B A. Project must include, at a minimum, the following project design elements: 1. Buildings a. The project will not include natural gas appliances or natural gas plumbing. b. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis		

BAAQMD CEQA Thresholds of Significance		
Pollutant	**Construction-Related**	**Operational**
	required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines. 2. Transportation a. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA: 15 percent below the existing VMT per employee for office projects. b. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2. B. Project must be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).	
Abbreviations: CO = Carbon Monoxide Lbs = pounds MT of CO_2e/yr = metric tons of carbon dioxide equivalent per year MT CO_2e/SP/yr = metric tons carbon dioxide equivalent per service population per year NOx = oxides of nitrogen $PM_{2.5}$ = Particulate Matter less than 2.5 microns PM_{10} = Particulate Matter less than 2.5 microns ROG = Reactive Organic Gas μg/m^3 = micrograms per cubic meter. GHG = Greenhouse Gas VMT = Vehicle Miles Travelled		

This Technical Memorandum evaluates the Project's Criteria Air Pollutants (CAP) emissions and health effects of Toxic Air Contaminants (TACs). In addition, the technical memorandum also discloses the estimated Project's GHG emissions and energy consumption during construction and operation.

3. SUMMARY OF RESULTS

Summaries of unmitigated and mitigated construction, interim, and full build-out operational emissions of CAPs and GHGs are presented in **Table 2** through **Table 5**, respectively. As shown in the tables, unmitigated ROG and NOx emissions for construction, interim, and full build-out operations exceed the applicable BAAQMD's thresholds of significance; However, mitigated CAP emissions are below the applicable BAAQMD's thresholds. Project-level and cumulative health risk impacts of the unmitigated Project's emissions are shown in **Table 6** and **Table 7**. Excess lifetime cancer risk, chronic hazard index and annual average $PM_{2.5}$ concentrations are below the BAAQMD's thresholds of significance for the unmitigated scenario, and were thus not evaluated for the mitigated scenario. Construction energy consumption from off-site equipment and on-road vehicles are presented in **Table 8** through **Table 10**. Project build-out operational energy use are presented in **Table 11**.

4. DATA SOURCES AND EMISSIONS METHODOLOGIES

The following sections describe the input data and methodologies used in the construction and operational emissions analysis. Detailed information for each section can be found in the referenced tables, figures, and appendices.

4.1 General Emissions Methodology

Ramboll utilized California Emission Estimator Model version 2022.1.0 (CalEEMod)[4] equivalent methodologies in a proprietary program to quantify construction and operational CAP emissions. CalEEMod is a statewide program designed to calculate both CAP and GHG emissions for development projects in California. CalEEMod provides a simple platform to calculate both construction emissions and operational emissions from a land use project. It calculates both the daily maximum and annual average for CAPs as well as total or annual GHG emissions.

CalEEMod utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available. CalEEMod uses sources such as the US Environmental Protection Agency (USEPA) AP-42 emission factors,[5] CARB on-road and off-road equipment emission models such as the EMission FACtor model (EMFAC) and the Emissions Inventory Program model (OFFROAD), and studies commissioned by California agencies such as the California Energy Commission (CEC) and CalRecycle.

4.2 Updates to CalEEMod Default Assumptions for Construction Emissions

Construction emissions from the Project include on-site, off-road heavy equipment, off-site, on-road vehicle travel, architectural coating, paving, and fugitive dust. As described below, Ramboll updated several default assumptions to Project-specific information to generate emission estimates with CalEEMod equivalent methodologies. Where project-specific data were not available, Ramboll used CalEEMod defaults for the land uses shown in **Table 1**. A summary of emission quantification methodologies is presented in **Table 12**. The construction schedule is shown in **Table 13**. Per the Project sponsor, interim operations would occur in year 2026 and 2027, and the first full year of buildout operation would occur in 2028. The off-road equipment list is shown in **Table 14**. On-road trips rates are shown in **Table 15**. Fugitive dust emissions were calculated for on-road travelling of construction vehicles in **Table 16** through **Table 18**). Construction emissions are also generated from architectural coating, as shown in **Table 19**. Because all parking spaces proposed by the Project would be located in parking garages, ROG off-gassing emissions from asphalt paving is not anticipated for this Project. Summarized CAP and GHG emissions are presented in **Tables 2** and **3**, for the unmitigated and mitigated scenarios, respectively**.** The Project will commit to mitigation measures described in **Section 6**, which are incorporated in the emission estimation.

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[4] California Air Pollution Control Officers Association (CAPCOA). 2022. California Emissions Estimator Model (CalEEMod®), Version 2022.1.0. Available online at: http://www.CalEEMod.com/.

[5] The USEPA maintains a compilation of Air pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. Available at: http://epa.gov/ttnchie1/ap42/.

In calculating Project construction emissions, several updates were made to the CalEEMod default factors and assumptions. Details are provided below:

- Construction schedule by phase provided by Project sponsor (see **Table 13**).
- Off-road equipment quantities, horsepower, utilization factors, engine tiers and fuel types were provided by Project sponsor (see **Table 14**).
- All worker vehicles are assumed to be fueled by gasoline, and all vendor vehicles and haul trucks are assumed to be fueled by diesel. On-road emissions were calculated using emission factors from EMFAC2021. (see **Table 15**).
- Haul truck trip rates were calculated based on the amount of material to be moved, as provided by the Project sponsor, and the CalEEMod default truck capacity of 20 tons (or 16 cubic yards) per truck. (See **Table 15**)
- Under both the unmitigated and mitigated scenarios, the exteriors of the life science/office buildings will not be painted because the façades of these buildings would entirely consist of glass, concrete or coated materials painted at the time of fabrication at an offsite facility. This is summarized in **Section 6**.
- Under the mitigated scenario, the interiors of the buildings will be painted using super-compliant coatings during construction. These are paints that have been reformulated to exceed the South Coast Air Quality Management District's (BAAQMD's) Rule 1113 (Architectural Coatings) requirements. This is summarized in **Section 6**.
- Under the mitigated scenario, on-road haul trucks will be equipped with 2010 or newer model year engines. This is summarized in **Section 6**.

4.3 Updates to CalEEMod Default Assumptions for Operational Emissions

Operational CAP emissions from the Project include on-road mobile sources, area sources such as consumer product use, landscaping, and architectural coating, natural gas use, and emergency generators. Additional sources that would only contribute to the Project's operational GHG emissions are electricity use, water use and solid waste generation. Interim operation would occur in 2026 and 2027. The Project's 2026 interim emissions include a full year of Phase 1 operations, 10 months of Phase 2 construction and 2 months of Phase 2 operations, and Phase 3 construction that would occur in that year; The Project's 2027 interim emissions include a full year of Phase 1 and Phase 2 operations, 2 months of Phase 3 construction, and 10 months of Phase 3 operations. Full buildout emissions of the Project were evaluated for 2028, the first calendar year that all three phases of the Project would be operational for a full year. Methodology descriptions are provided below. Summarized interim and buildout operational CAP and GHG emissions for the unmitigated and mitigated scenarios are presented in **Table 4** and **Table 5**, respectively. The mitigation measures that the Project will commit to are summarized in **Section 6**.

- Daily trips generated by the Project at full build-out were provided by the Project Sponsor and assigned to the general office land use. Daily trips generated by each phase of the Project were obtained by scaling the full build-out trips by the sizes of the life science/office land uses. Trip calculation were presented in **Table 20**.
- CalEEMod provides a statewide consumer products emission factor based on the ARB 2008 emissions inventory. A San Mateo County-specific emission factor was developed based on

the emissions from consumer products from the ARB 2020 emissions inventory for San Mateo County and the building square footage in the county using the same methodologies utilized in CalEEMod, as shown in **Table 21**.

- Even though the Project would not consume natural gas except when necessary for research and development uses and the cafe/restaurant land use, this analysis conservatively relied on CalEEMod's default natural gas consumption. In reality, natural gas consumption and CAP and GHG emissions from this source would be lower than what was presented in **Table 11**, **Table 4**, and **Table 5**.
- Emergency generator emissions were quantified using the manufacturer-specified engine rating provided by the Project Sponsor. It was assumed that all emergency generators would be powered by diesel, and that those that are rated equal to or more than 1,000 horsepower would be equipped with Tier 4 engines, per BAAQMD's best available control technology (BACT) requirements. The emergency generators are assumed to operate up to 50 hours per year for routine testing and maintenance purposes, consistent with the maximum allowed testing time from the ARB's Airborne Toxic Control Measure for Stationary Compression Ignition Engines.[6] Emissions from the emergency generators are shown in **Table 22**.
- Under the mitigated scenario, the interiors of the buildings will be painted using super-compliant coatings during Project operation. These are paints that have been reformulated to exceed the South Coast Air Quality Management District's (BAAQMD's) Rule 1113 (Architectural Coatings) requirements. This is summarized in **Section 6**.
- Under the mitigated scenario, all landscaping equipment used during Project operation will be required to be equipped with zero-emission engines, such as those powered by electricity. This is summarized in **Section 6**.

4.4 Local Carbon Monoxide (CO) Impacts

According to the 2017 BAAQMD CEQA Guidelines, the Project would result in less-than-significant localized CO concentrations if the following criteria are met:

1. Project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans.
2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
3. The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

Peak-hour traffic volumes from the project were analyzed to determine whether the Project would meet BAAQMD screening criteria. Maximum traffic volumes at the intersections under all scenarios would be well below the 44,000-vehicle-per-hour screening threshold. Also, intersection traffic volumes under all scenarios would be below the 24,000-vehicle- per-hour

[6] 17 California Code of Regulation §93115

screening threshold for areas where vertical and/or horizontal mixing is substantially limited; therefore, there would be no exceedance of either the non-limited mixing threshold (44,000 vehicles per hour) or the limited vertical/horizontal mixing threshold (24,000 vehicles per hour). Furthermore, none of the intersections are designated as a congestion management program intersection. The project would not result in an exceedance of the BAAQMD screening criteria, and would have a less-than-significant impact related to CO emissions.

5. HEALTH RISK ASSESSMENT

5.1 Toxic Air Contaminant (TAC) Emissions

Project construction and operations would generate TAC emissions, specifically diesel particulate matter (DPM). Per the Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values,[7] DPM can cause cancer and non-cancer chronic health impacts and should be evaluated in a health risk assessment. Modeled DPM emissions during construction and operation are summarized in **Table 23**. The modeled emissions methodology is described in more detail below.

5.2 Dispersion Modelling

Ramboll analyzed Project construction and operation-related risks by estimating ambient air concentrations of DPM. The construction and operational source set up is shown in **Figure 2**.

To estimate air concentrations of DPM, Ramboll used AERMOD v22112, a steady-state Gaussian plume model developed by USEPA for regulatory applications, along with AERMAP v18081. AERMOD requires emission source locations and release parameters, receptor locations, and processed meteorological data. An overview of AERMOD input parameters is provided in **Table 24**.

Ramboll used five years (2009-2014) of meteorological data from the San Francisco International Airport with upper air data collected at the Oakland Airport for the same time period. Elevation and land use data were imported from the National Elevation Dataset (NED) maintained by the United States Geological Survey at a resolution of 1/3 arc-second (10m). Another important consideration in an air dispersion modeling analysis is the selection of whether to model an urban area. Here the model assumes an urban land use with representative population as has been done for similar projects in the area.

Emissions from each source group were modeled using the χ/Q ("chi over q") method, such that each source has unit emission rates (i.e., 1 gram per second [g/s]), and the model estimates dispersion factors with units of [µg/m^3]/[g/s]. For annual average ambient air concentrations, the estimated annual average dispersion factors were multiplied by the annual average emission rates. The emission rates will vary day to day, with some days having no emissions, for example, the days when emergency generator testing is not conducted. For simplicity, the model assumed a constant emission rate during the entire year.

For the health risk assessment, nearby sensitive receptor populations were identified within a 1,000-foot of the Project site. The only sensitive receptors in this area are recreational receptors. All off-site receptors were modeled at the breathing height of 1.5 meters, consistent with the BAAQMD's CEQA Air Quality Guidelines. Maximum average annual dispersion factors were estimated for each receptor location. The receptors modeled are shown in **Figure 3**.

[7] ARB/OEHHA. 2022. Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values. September 8. Available online at: https://ww2.arb.ca.gov/sites/default/files/classic/toxics/healthval/contable.pdf

5.3 Exposure Parameters and Project-Level Risk Results

The health risk assessment was conducted consistent with OEHHA's 2015 Guidance Manual for Preparation of Health Risk Assessment[8] and BAAQMD's Health Risk Guidelines.[9] Ramboll conservatively evaluated Project impacts due to construction and operational emissions using default exposure assumptions from OEHHA (2015). Two cancer exposure scenarios were evaluated to identify the most conservative excess lifetime cancer risk. Scenario 1 begins at the start of construction (August 2023) and includes overlapping construction and operational emissions. Scenario 2 begins at the start of full build-out operations. The exposure parameters based on the OEHHA 2015 guidelines for sensitive receptors are presented in **Table 25**. Age sensitivity-weighted intake factors used to estimate excess lifetime cancer risks for both cancer exposure scenarios are presented in **Table 26** and **Table 27**.

The dose estimated for each exposure pathway is a function of the concentration of a chemical and the intake of that chemical. The intake factor for inhalation, IF_{inh}, can be calculated as follows:

$$IF_{inh} = \frac{DBR * FAH * EF * ED * CF * ASF * FY}{AT}$$

Where:

IF_{inh}	=	Intake Factor for Inhalation (m^3/kg-day)
DBR	=	Daily Breathing Rate (L/kg-day)
FAH	=	Fraction of Time at Home (unitless)
EF	=	Exposure Frequency (days/year)
ED	=	Exposure Duration (years)
AT	=	Averaging Time (days)the
CF	=	Conversion Factor, 0.001 (m^3/L)
ASF	=	Age Sensitivity Factor (unitless)
FY	=	Fraction of Year, to correct annualization of partial year emissions

The chemical intake or dose is estimated by multiplying the inhalation intake factor, IF_{inh}, by the chemical concentration in air, C_i. When coupled with the chemical concentration, this calculation is mathematically equivalent to the dose algorithm given in the OEHHA 2015 guidance.

The toxicity assessment characterizes the relationship between the magnitude of exposure and the nature and magnitude of adverse health effects that may result from such exposure. This HRA evaluated theoretical exposures to TACs for two categories of potential adverse

[8] OEHHA. 2015. Air Toxics Hot Spot Program. Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February. Available online at: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

[9] BAAQMD, 2020. Health Risk Assessment Modelling Protocol. December.

BAAQMD, 2012. Recommended Methods for Screening and Modeling Local Risks and Hazards. May.

health effects: cancer and non-cancer chronic endpoints. Toxicity values for DPM (OEHHA 2022 Consolidated Table) are presented in **Table 28**.

OEHHA recommends applying an adjustment factor to the annual average concentration modeled assuming continuous emissions (i.e., 24 hours per day, seven days per week), when the actual emissions are less than 24 hours per day and exposures are concurrent with activities occurring as part of the Project. For construction and operational activities, emissions only impact receptors during certain hours of the day when activities are occurring. However, the TAC concentrations modeled during those hours are annualized assuming 24 hour per day in the modeling outputs. Thus, a model adjustment factor (MAF) was applied to the annual average concentration used in the evaluation to account for an emissions schedule that is not occurring 24 hours per day, seven days per week if the exposure takes place preferentially during hours during which recreational activities are occurring. MAFs for the recreational receptors are summarized in **Table 29**.

The potential for exposure to result in adverse chronic noncancer effects is evaluated by comparing the estimated annual average air concentration (which is equivalent to the average daily air concentration) to the noncancer chronic reference exposure level (cREL) for each chemical. When calculated for a single chemical, the comparison yields a ratio termed a hazard quotient (HQ). To evaluate the potential for adverse chronic noncancer health effects from simultaneous exposure to multiple chemicals, the chronic HQs for all chemicals are summed, yielding a chronic HI.

$$HQ_i = C_i \,/\, cREL$$

Where:

HQ_i	=	Chronic hazard quotient for chemical i
HI	=	Hazard index
C_i	=	Annual average concentration of chemical i ($\mu g/m^3$)
$cREL_i$	=	Chronic noncancer reference exposure level for chemical i ($\mu g/m^3$)

As shown in **Table 6,** all health risk results are all below the BAAQMD's thresholds of significance; thus, health risk impacts associated with the Project are less than significant. The location of the off-site Maximally Exposed Individuals (MEIs) under the construction and operation scenario and the operation-only scenario are shown in **Figure 3**.

5.4 Cumulative Health Risk Results

According to BAAQMD's CEQA Guidelines, the health risks should be evaluated from all sources of TAC within a 1,000-foot radius from a project site, and the combined impact compared to BAAQMD's cumulative health risk thresholds.

Nearby sources of TAC, as well as Project-related activities including construction and operation, could contribute to a cumulative health risk for sensitive receptors near the Project site. BAAQMD's inventory of stationary sources health risks and the distance multiplier approach were used to estimate excess impacts from existing stationary sources at the maximum impacted sensitive receptor. Geographic information system (GIS) raster files provided by BAAQMD were used to estimate impacts due to nearby railway and roadways. The results of the cumulative impact assessment are summarized in **Table 7**, which shows estimated project impact at the most affected sensitive receptor and contributions of the existing sources at the same location. The sum of the health risk impacts including cancer risk, non-cancer chronic hazard index, and annual average $PM_{2.5}$ concentration were compared to their respective BAAQMD cumulative thresholds. In both exposure scenarios, the cumulative cancer risk and chronic HI are below the BAAQMD's thresholds of significance; however, the annual average $PM_{2.5}$ concentrations would exceed the threshold and would be considered a significant cumulative impact.

The primary contributor to the cumulative $PM_{2.5}$ concentration at the maximally exposed receptor is background $PM_{2.5}$ emitted from highways due to the receptor's vicinity to the nearest highway (U.S. Highway 101). This is beyond the Project's control and since the Project's impacts are all below individual project-level thresholds, there is not a cumulatively considerable impact. Additionally, BAAQMD provides generalized risk estimates and estimated $PM_{2.5}$ concentrations for the existing mobile sources, which represents a screening-level analysis based on the historical traffic volumes and EMFAC 2014. ARB has since updated the model to EMFAC 2021, which results in lower mobile emissions compared to EMFAC 2014. Therefore, the identified $PM_{2.5}$ concentrations from highways, major roadways, and railways based on EMFAC 2014 are conservative. Furthermore, recreational users would only be exposed to the mobile-generated $PM_{2.5}$ concentrations for limited hours on any given day and would be less affected by health risk impacts of nearby roadways and highways compared to a residential receptor, for which the BAAQMD's cumulative health risk thresholds were derived. This reinforces that the Project would not result in a cumulatively considerable contribution to the significant impact that may affect the recreational receptors.

6. PROJECT DESIGN FEATURES AND MITIGATION MEASURES RELATED TO CAP EMISSIONS

As discussed in **Section 4**, the Project is committed to a range of design features and mitigation measures that would contribute to CAP emission reductions. These reduction measures are summarized below.

Project design features:

- Off-Road equipment tiers: All construction equipment above 50 horsepower will either be powered by electricity, or meet or exceed either EPA or ARB Tier 4 Final off-road emission standards if they are powered by diesel.
- Exterior paint: The exteriors of the life science/office buildings will not be painted; the exteriors would entirely consist of glass, concrete or coated materials painted at the time of fabrication at an offsite facility.
- Emergency generators: The Project will comply with the BAAQMD's regulatory requirement to use BACT for emergency backup engines greater than or equal to 1,000 horsepower.

Mitigation measures:

- Interior paint: During Project construction and operation, the Project Sponsor shall use super-compliant architectural coatings during construction and during operation occurring concurrently with construction for all buildings, which shall have VOC content that meet SCAQMD Rule 1113 Architectural Coatings as revised on February 5, 2016.
- Haul truck tiers: During Project construction, on-road haul trucks shall be equipped with 2010 or newer model year engines.
- Zero-emission landscaping equipment: During Project Operation, the Project Sponsor shall use zero-emission landscaping equipment over conventional gasoline-fueled counterparts.

Other project design features that could reduce CAP or GHG emissions but were not quantified in the emission calculation are summarized below.

Additional Project design features not incorporated into calculations:

- Best management practices for fugitive dust: During Project construction, the Project Sponsor shall comply with the BAAQMD's current basic control measures for reducing construction emissions of fugitive PM_{10} and $PM_{2.5}$ (Table 8-2, Basic Construction of the BAAQMD's CEQA Guidelines).
- Limited use of natural gas: The Project would not use natural gas for space heating, water heating, clothes drying, and cooking, consistent with the City of Burlingame's Ordinance 1981. However, the Project may apply for modification if the Project Sponsor establishes that an all-electric building is infeasible due to outstanding circumstances, such as the required use of natural gas for research and development purposes and the natural gas hook-ups for the cafe/restaurant land use.

- Electricity's GHG intensity factor: The Project would procure energy from Peninsula Clean Energy, which is at least 50% renewable and has lower GHG intensity factors compared to the CalEEMod-default GHG intensity factor of electricity sourced from Pacific Gas and Electric.

7. ODOR ASSESSMENT

Although offensive odors rarely cause physical harm, they can be unpleasant, leading to considerable distress among the public. In addition, they often generate citizen complaints to local governments and air districts. Odor impacts on residential areas and other sensitive receptors, such as hospitals, day-care centers, and schools, warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, work sites, and commercial areas.

According to BAAQMD's 2017 CEQA guidelines, examples of land uses that have the potential to generate considerable odors include, but are not limited to, wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries and chemical plants. The Project does not include any of these potential land uses.

Odors during construction could be emitted from diesel exhaust, asphalt paving, and architectural coatings. However, construction activities near existing receptors would be temporary and would not result in nuisance odors that would violate BAAQMD Regulation 7. During operation, odors could emanate from vehicle exhaust, intermittent use of the backup generator during emergencies and maintenance testing, and the reapplication of architectural coatings. However, odor impacts would be limited to circulation routes, parking areas, and areas immediately adjacent to recently painted structures. Although such brief exhaust- and paint-related odors may be considered adverse, they would not affect a substantial number of people. For these reasons the Project is not anticipated to result in substantial or long-term odors.

Additionally, the BAAQMD provided a list of permitted sources in the vicinity of the Project and there is only one source that could be considered to generate considerable odors is the City of Burlingame Wastewater Treatment Plant (WWTP) at 1103 Airport Boulevard, Burlingame, which is approximately 800 feet east of the easternmost portion of the project. As the winds in the region are predominantly from the west and north, the WWTP is downwind of the facility. Additionally, there are existing businesses at the project site that have not experienced significant or recurring odors from the WWTP. For these reasons, it is not expected that the project will be subject to recurring odors in excess of the BAAQMD threshold.

8. ENERGY CONSUMPTION

8.1 Energy Used During Project Construction

Construction of the project would require energy for the manufacture and transportation of construction materials, preparation of the project site for demolition and building foundation, and construction of the proposed project. Fossil fuels would be the primary sources of energy during project construction. Fuel assumptions for off-road construction equipment and on-road vehicles are presented in **Table 14** and **Table 15**, respectively. Off-road construction equipment would primarily consume diesel and a small amount of electricity, which are presented in detail in **Table 8**. On-road construction vehicles would consume gasoline and diesel, presented in **Table 9**. Construction energy consumed for each of the three Project phases is summarized in **Table 10**.

Energy use on the project site during construction would be temporary in nature and would be small in comparison to project operation. Further, contractors hired for project construction would have a disincentive to waste fuels through inefficient construction practices, due to fuel costs. Pursuant to the California Green Building Standards Code law and City Code Chapters 8.17, 60 percent of the anticipated construction debris must be diverted and recycled or salvaged for reuse; this does not include excavated soil and debris from land clearing. Therefore, construction of the Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources.

8.2 Energy Used During Project Operation

Operation of the project would include direct energy use through building heating, lighting, emergency generator use, project users' vehicle trips, and use of landscaping equipment. Project operation would also include indirect energy use through solid waste disposal, water consumption, and wastewater generation. The project's energy consumption would primarily come from electricity, some limited natural gas use for laboratory and culinary needs, and fuel used for emergency generators and vehicle trips associated with the project.

Operational consumption of electricity and natural gas was conservatively estimated in CalEEMod 2022.1.0 under Phase 1, Phase 2 and Phase 3 operations and full build-out operations. Build-out non-irrigation water consumption was estimated in a report prepared by BKF,[10] and initial water usage for irrigation was estimated in a Water Supply Assessment Request for Information Form.[11] Total water demand of the Build-out scenario was assigned to each phase of the Project based on the size of each phase. Fuel quantities consumed by operational mobile sources are based on EMFAC 2021 and are summarized in **Table 30**. Gasoline consumption by landscaping equipment under the unmitigated scenario is summarized in **Table 31**. Gasoline, diesel, electricity, natural gas, and water consumption are summarized in **Table 11**, below. However, the information presented in **Table 11** is reflective of a CalEEMod-default building and does not take into account use of natural gas only for research and development uses. As building energy modeling has not been completed at this stage of the Project's design, this is an appropriate approximation as natural gas usage will decrease and electricity use will increase compared to that presented in **Table 11**. In addition, the Project complies with the applicable requirements of the City's Climate Action Plan Consistency Checklist and would implement energy efficiency measures such as green building practice, trip reduction through a transportation demand management plan, and provision of electric vehicle infrastructure, recycling and composting facilities. These additional energy efficiency measures were not included in the CalEEMod energy use estimates. Therefore, energy consumption presented in **Table 11** is conservative. With implementation of these energy-efficiency measures, project operation would not result in wasteful, inefficient, or unnecessary consumption of energy resources.

[10]BKF, 2022. Peninsula Crossing: 1200-1340 Old Bayshore Highway, Burlingame. Wastewater Generation and Water Demand Estimates. August 18.
[11] City of Burlingame, 2022. Water Supply Assessment Request for Information Form, Email Attachment of Email titled "RE:PX - Water Supply Assessment" from Ben Mickus at WRNS Studio to Virginia Calkins at DivcoWest. August 23.

9. SUMMARY

The analysis presented above represents CAP and GHG emissions, health risk impacts, and energy consumption from construction and operation of the proposed Project. With the implementation of Project design features and relevant mitigation measures, the Project would not exceed any BAAQMD's CEQA significance thresholds.

TABLES

Table 1
Land Use Summary
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Land Uses				
Project Phase	**CalEEMod® Land Use Type[1,2]**	**Size units**	**Value**	**Acreage[3]**
Phase 1	Office Spaces	1000sqft	175	7.3
	Research and Development Spaces	1000sqft	262	
	Parking	Spaces	1,783	
		1000sqft	617	
	Recreational Space	1000sqft	3	
	Landscaping	1000sqft	133	
Phase 2	Office Spaces	1000sqft	145	3.7
	Research and Development Spaces	1000sqft	217	
	Recreational Space	1000sqft	3	
	Landscaping	1000sqft	66	
Phase 3	Office Spaces	1000sqft	246	7.6
	Research and Development Spaces	1000sqft	370	
	Parking	Spaces	1,642	
		1000sqft	563	
	Landscaping	1000sqft	101	

Notes:

1. Land uses analyzed based on information provided by the Project Sponsor.
2. For a life science tenancy split, 40% of the building square footage is assumed to be general office spaces and 60% for research & development spaces, as provided by the Project Sponsor.
3. Total project acreage based on updated phasing information and project site plan provided by the Project Sponsor.

Abbreviations:

CalEEMod® - California Emissions Estimator Model®
sqft - square feet
Spaces - number of parking spaces

Table 2
Summary of Unmitigated Construction CAP and GHG Emissions
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Summary of Default Construction Emissions by Source

Construction Area	Construction Activity	Year	Source	Default Construction CAP Emissions[1]				Default Construction GHG Emissions[2]
				ROG	NOx	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)	CO_2e
				lb/yr				MT/yr
Phase 1	Demolition	2023	On-Site Exhaust	11	116	2	2	47
			Mobile Exhaust	10	581	5	5	162
	Site Preparation	2023	On-Site Exhaust	6	31	1	1	29
			Mobile Exhaust	88	6,321	52	50	1,740
	Building Construction	2023	On-Site Exhaust	7	53	2	2	9.4
			Mobile Exhaust	127	642	6	6	271
		2024	On-Site Exhaust	24	197	5	5	36
			Mobile Exhaust	447	2,304	22	20	1,012
		2025	On-Site Exhaust	23	191	5	5	35
			Mobile Exhaust	409	2,143	20	19	979
	Architectural Coating	2025	On-Site Exhaust	0	0	0	0	--
			Mobile Exhaust	7	5	0	0	8.5
			Architectural Coating	3,306	0	0	0	--
	Grading	2025	On-Site Exhaust	6	44	1	1	29
			Mobile Exhaust	12	697	6	6	204
	Paving	2025	On-Site Exhaust	8	97	1	1	34
			Mobile Exhaust	2	2	0	0	3.0
	Landscaping	2025	On-Site Exhaust	1	4	0	0	3.3
			Mobile Exhaust	1	1	0	0	1.0
Phase 2	Site Preparation	2024	On-Site Exhaust	6	31	1	1	29
			Mobile Exhaust	3	2	0	0	2.9
	Building Construction	2024	On-Site Exhaust	15	124	3	3	22
			Mobile Exhaust	98	501	5	4	220
		2025	On-Site Exhaust	23	193	5	5	36
			Mobile Exhaust	144	748	7	7	342
		2026	On-Site Exhaust	16	143	3	3	27
			Mobile Exhaust	101	534	5	5	254
	Architectural Coating	2026	On-Site Exhaust	0	0	0	0	--
			Mobile Exhaust	2	2	0	0	2.9
			Architectural Coating	2,535	0	0	0	--
	Grading	2026	On-Site Exhaust	6	44	1	1	29
			Mobile Exhaust	2	1	0	0	2.3
	Paving	2026	On-Site Exhaust	4	55	1	1	18
			Mobile Exhaust	2	1	0	0	2.0
	Landscaping	2026	On-Site Exhaust	1	3	0	0	2.6
			Mobile Exhaust	1	0	0	0	0.78
Phase 3	Site Preparation	2024	On-Site Exhaust	6	31	1	1	29
			Mobile Exhaust	3	2	0	0	2.9
	Building Construction	2024	On-Site Exhaust	5	42	1	1	7.6
			Mobile Exhaust	107	549	5	5	241
		2025	On-Site Exhaust	23	193	5	5	36
			Mobile Exhaust	463	2,417	22	21	1,105
		2026	On-Site Exhaust	22	189	4	4	36
			Mobile Exhaust	433	2,287	21	20	1,086
		2027	On-Site Exhaust	2	19	0	0	3.5
			Mobile Exhaust	41	216	2	2	106
	Architectural Coating	2027	On-Site Exhaust	0	0	0	0	--
			Mobile Exhaust	7	5	0	0	9.1
			Architectural Coating	4,520	0	0	0	--
	Grading	2026	On-Site Exhaust	6	44	1	1	29
			Mobile Exhaust	2	1	0	0	2.3
	Paving	2026	On-Site Exhaust	6	77	1	1	28
			Mobile Exhaust	2	1	0	0	2.3
	Landscaping	2026	On-Site Exhaust	1	3	0	0	2.6
			Mobile Exhaust	1	0	0	0	0.78

Table 2
Summary of Unmitigated Construction CAP and GHG Emissions
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Default Construction Emissions by Year

Year	Summary of Unmitigated Construction Emissions by Year[3]				
	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	CO_2e
	lbs/day				MT/yr
2023	2.2	**71**	0.55	0.55	2,259
2024	2.7	14	0.15	0.15	1,604
2025	17	26	0.31	0.23	2,816
2026	12	13	0.15	0.15	1,525
2027	**176**	9.2	0.00	0.00	119
BAAQMD threshold	**54**	**54**	**82**	**54**	--
Exceed threshold?	**Yes**	**Yes**	**No**	**No**	--

Notes:

1. Emissions were estimated using off-road construction equipment emission factors from CalEEMod and on-road emission factors from EMFAC2021. The emissions above include emissions from offroad equipment, emissions from worker, vendor, and hauling trucks, and off-gassing emissions from architectural coating. Default emissions use the default construction equipment Tier. BAAQMD construction thresholds for PM_{10} and $PM_{2.5}$ evaluate only exhaust emissions.
2. Carbon dioxide equivalent emissions were determined using IPCC 5th Assessment Report Global Warming Potentials for CH_4 and N_2O.
3. Emissions are averaged over 919 working days during a 43-month construction period starting in August 2023.

Abbreviations:

BAAQMD - Bay Area Air Quality Management District
CalEEMod® - California Emissions Estimator Model®
CAP - Criteria Air Pollutants
CO_2e - carbon dioxide equivalents
lb - pounds
MT - metric ton
NOx - nitrogen oxides
PM_{10} - particulate matter less than 10 microns
$PM_{2.5}$ - particulate matter less than 2.5 microns
ROG - Reactive Organic Gas
yr - year

References:

The California Emissions Estimator Model (CalEEMod). Available at: http://www.caleemod.com/
California Air Resources Board (ARB) 2021. EMFAC2021. Available at: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-modeling-tools

Intergovernmental Panel on Climate Change (IPCC). 2014. 5th Assessment Report (AR5). Available at: https://www.ipcc.ch/report/ar5/syr/

Table 3
Summary of Mitigated Construction CAP and GHG Emissions
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Summary of Default Construction Emissions by Source

Construction Area	Construction Activity	Year	Source	Default Construction CAP Emissions[1]				Default Construction GHG Emissions[2]
				ROG	NOx	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)	CO_2e
				lb/yr				MT/yr
Phase 1	Demolition	2023	On-Site Exhaust	11	116	2	2	47
			Mobile Exhaust	8	388	4	4	155
	Site Preparation	2023	On-Site Exhaust	6	31	1	1	29
			Mobile Exhaust	66	4,218	44	42	1,671
	Building Construction	2023	On-Site Exhaust	7	53	2	2	9.4
			Mobile Exhaust	126	535	6	5	268
		2024	On-Site Exhaust	24	197	5	5	36
			Mobile Exhaust	447	2,304	22	20	1,012
		2025	On-Site Exhaust	23	191	5	5	35
			Mobile Exhaust	409	2,143	20	19	979
	Architectural Coating	2025	On-Site Exhaust	0	0	0	0	--
			Mobile Exhaust	7	5	0	0	8.5
			Architectural Coating	555	0	0	0	--
	Grading	2025	On-Site Exhaust	6	44	1	1	29
			Mobile Exhaust	12	697	6	6	204
	Paving	2025	On-Site Exhaust	8	97	1	1	34
			Mobile Exhaust	2	2	0	0	3.0
	Landscaping	2025	On-Site Exhaust	1	4	0	0	3.3
			Mobile Exhaust	1	1	0	0	1.0
Phase 2	Site Preparation	2024	On-Site Exhaust	6	31	1	1	29
			Mobile Exhaust	3	2	0	0	2.9
	Building Construction	2024	On-Site Exhaust	15	124	3	3	22
			Mobile Exhaust	98	501	5	4	220
		2025	On-Site Exhaust	23	193	5	5	36
			Mobile Exhaust	144	748	7	7	342
		2026	On-Site Exhaust	16	143	3	3	27
			Mobile Exhaust	101	534	5	5	254
	Architectural Coating	2026	On-Site Exhaust	0	0	0	0	--
			Mobile Exhaust	2	2	0	0	2.9
			Architectural Coating	254	0	0	0	--
	Grading	2026	On-Site Exhaust	6	44	1	1	29
			Mobile Exhaust	2	1	0	0	2.3
	Paving	2026	On-Site Exhaust	4	55	1	1	18
			Mobile Exhaust	2	1	0	0	2.0
	Landscaping	2026	On-Site Exhaust	1	3	0	0	2.6
			Mobile Exhaust	1	0	0	0	0.78
Phase 3	Site Preparation	2024	On-Site Exhaust	6	31	1	1	29
			Mobile Exhaust	3	2	0	0	2.9
	Building Construction	2024	On-Site Exhaust	5	42	1	1	7.6
			Mobile Exhaust	107	549	5	5	241
		2025	On-Site Exhaust	23	193	5	5	36
			Mobile Exhaust	463	2,417	22	21	1,105
		2026	On-Site Exhaust	22	189	4	4	36
			Mobile Exhaust	433	2,287	21	20	1,086
		2027	On-Site Exhaust	2	19	0	0	3.5
			Mobile Exhaust	41	216	2	2	106
	Architectural Coating	2027	On-Site Exhaust	0	0	0	0	--
			Mobile Exhaust	7	5	0	0	9.1
			Architectural Coating	665	0	0	0	--
	Grading	2026	On-Site Exhaust	6	44	1	1	29
			Mobile Exhaust	2	1	0	0	2.3
	Paving	2026	On-Site Exhaust	6	77	1	1	28
			Mobile Exhaust	2	1	0	0	2.3
	Landscaping	2026	On-Site Exhaust	1	3	0	0	2.6
			Mobile Exhaust	1	0	0	0	0.78

Table 3
Summary of Mitigated Construction CAP and GHG Emissions
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Default Construction Emissions by Year

Year	Summary of Mitigated Construction Emissions by Year				
	ROG	**NOx**	**PM_{10} Exhaust**	**$PM_{2.5}$ Exhaust**	**CO_2e**
	lbs/day				**MT/yr**
2023	2.0	49	0.55	0.55	2,180
2024	2.7	14	0.15	0.15	1,604
2025	6	26	0.31	0.23	2,816
2026	3	13	0.15	0.15	1,525
2027	28	9.2	0.00	0.00	119
BAAQMD threshold	**54**	**54**	**82**	**54**	--
Exceed threshold?	**No**	**No**	**No**	**No**	--

Notes:

1. Emissions were estimated using off-road construction equipment emission factors from CalEEMod and on-road emission factors from EMFAC2021. The emissions above include emissions from offroad equipment, emissions from worker, vendor, and hauling trucks, and off-gassing emissions from architectural coating. Default emissions use the default construction equipment Tier. BAAQMD construction thresholds for PM_{10} and $PM_{2.5}$ evaluate only exhaust emissions.
2. Carbon dioxide equivalent emissions were determined using IPCC 5th Assessment Report Global Warming Potentials for CH_4 and N_2O.

Abbreviations:

BAAQMD - Bay Area Air Quality Management District
CalEEMod® - California Emissions Estimator Model®
CAP - Criteria Air Pollutants
CO_2e - carbon dioxide equivalents
lb - pounds
MT - metric ton
NOx - nitrogen oxides
PM_{10} - particulate matter less than 10 microns
$PM_{2.5}$ - particulate matter less than 2.5 microns
ROG - Reactive Organic Gas
yr - year

References:

The California Emissions Estimator Model (CalEEMod). Available at: http://www.caleemod.com/
California Air Resources Board (ARB) 2021. EMFAC2021. Available at: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-modeling-tools
Intergovernmental Panel on Climate Change (IPCC). 2014. 5th Assessment Report (AR5). Available at: https://www.ipcc.ch/report/ar5/syr/

Table 4
Summary of Unmitigated Interim and Full Build-Out Emissions
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Unmitigated Emissions by Year

Year[1]	Construction Emissions Only					Operational Emissions Only					Construction and Operational Emissions				
	ton/year				MT/year	ton/year				MT/year	ton/year				MT/year
	ROG	NOx	PM_{10}	$PM_{2.5}$	CO_2e	ROG	NOx	PM_{10}	$PM_{2.5}$	CO_2e	ROG	NOx	PM_{10}	$PM_{2.5}$	CO_2e
2026	1.6	1.7	0.020	0.020	1,525	4.3	2.1	0.33	0.16	6,218	5.9	3.8	0.35	0.18	7,743
2027	2.3	0.12	0	0	119	**11**	5.5	0.87	0.41	16,034	**13.2**	5.6	0.87	0.41	16,154
2028 buildout	--	--	--	--	--	**12**	5.9	0.94	0.45	17,275	**11.8**	5.9	0.94	0.45	17,275
BAAQMD Significance Threshold	--	--	--	--	--	**10**	**10**	**15**	**10**	--	**10**	**10**	**15**	**10**	--

Unmitigated Emissions by Year

Year[1]	Construction Emissions Only[2]					Operational Emissions Only					Construction and Operational Emissions				
	lb/day				MT/year	lb/day				MT/year	lb/day				MT/year
	ROG	NOx	PM_{10}	$PM_{2.5}$	CO_2e	ROG	NOx	PM_{10}	$PM_{2.5}$	CO_2e	ROG	NOx	PM_{10}	$PM_{2.5}$	CO_2e
2026	8.6	9.3	0.11	0.11	1,525	24	12	1.8	0.89	6,218	32	21	1.9	1.0	7,743
2027	12.5	0.66	0	0	119	**60**	30	4.8	2.3	16,034	**72**	31	4.8	2.3	16,154
2028 buildout	--	--	--	--	--	**64**	32	5.1	2.5	17,275	**64**	32	5.1	2.5	17,275
BAAQMD Significance Threshold	**54**	**54**	**82**	**54**	**--**	**54**	**54**	**82**	**54**	**--**	**54**	**54**	**82**	**54**	--

Notes:

[1] The annual interim and buildout emission were calculated based on the construction schedule for each phase.

[2] To obtain interim average daily construction emissions, annual total construction emissions are divided by 365 days.

Abbreviations:

CO_2e - carbon dioxide equivalents
lb - pound
MT - metric tons per capita
NOx - nitrogen oxides
PM_{10} - particulate matter less than 10 microns
$PM_{2.5}$ - particulate matter less than 2.5 microns
ROG - reactive organic gases

References:

BAAQMD Air Quality Guidelines. https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

Table 5
Summary of Mitigated Interim and Full Build-Out Emissions
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Mitigated Emissions by Year

Year[1]	Construction Emissions Only					Operational Emissions Only					Construction and Operational Emissions				
	ton/year				MT/year	ton/year				MT/year	ton/year				MT/year
	ROG	NOx	PM_{10}	$PM_{2.5}$	CO_2e	ROG	NOx	PM_{10}	$PM_{2.5}$	CO_2e	ROG	NOx	PM_{10}	$PM_{2.5}$	CO_2e
2026	0.43	1.7	0.020	0.020	1,525	3.5	2.1	0.32	0.15	6,204	3.9	3.8	0.34	0.17	7,729
2027	0.36	0.12	0	0	119	8.8	5.4	0.86	0.40	16,002	9.2	5.5	0.86	0.40	16,121
2028 buildout	--	--	--	--	--	9.5	5.8	0.93	0.43	17,239	9.5	5.8	0.93	0.43	17,239
BAAQMD Significance Threshold	--	--	--	--	--	**10**	**10**	**15**	**10**	**--**	**10**	**10**	**15**	**10**	--

Mitigated Emissions by Year

Year[1]	Construction Emissions Only[2]					Operational Emissions Only					Construction and Operational Emissions				
	lb/day				MT/year	lb/day				MT/year	lb/day				MT/year
	ROG	NOx	PM_{10}	$PM_{2.5}$	CO_2e	ROG	NOx	PM_{10}	$PM_{2.5}$	CO_2e	ROG	NOx	PM_{10}	$PM_{2.5}$	CO_2e
2026	2.4	9.3	0.11	0.11	1,525	19	12	1.8	0.84	6,204	22	21	1.9	0.95	7,729
2027	2.0	0.66	0	0	119	48	29	4.7	2.2	16,002	50	30	4.7	2.2	16,121
2028 buildout	--	--	--	--	--	52	32	5.1	2.3	17,239	52	32	5.1	2.3	17,239
BAAQMD Significance Threshold	**54**	**54**	**82**	**54**	**--**	**54**	**54**	**82**	**54**	**--**	**54**	**54**	**82**	**54**	**--**

Notes:

[1] The annual interim and buildout emission were calculated based on the construction schedule for each phase.

[2] To obtain interim average daily construction emissions, annual total construction emissions are divided by 365 days.

Abbreviations:

CO_2e - carbon dioxide equivalents
lb - pound
MT - metric tons per capita
NOx - nitrogen oxides
PM_{10} - particulate matter less than 10 microns
$PM_{2.5}$ - particulate matter less than 2.5 microns
ROG - reactive organic gases

References:

BAAQMD Air Quality Guidelines. https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

Table 6
Summary of Project-Level Health Risk Impacts at Maximally Exposed Sensitive Receptors
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

	Project Construction + Operation		
Scenario[1]	**Off-Site Recreational**		
	Excess Lifetime Cancer Risk[2,3]	**Chronic HI[2,4]**	**Annual average $PM_{2.5}$**
	in a million	**unitless ratio**	**$\mu g/m^3$**
Construction and Operation	1.5	0.0010	0.070
Operation Only	0.36	0.00032	0.0016
Significance Threshold	10	1	0.3

Note:

1. Both scenarios assumed unmitigated construction and operational emissions.
2. Excess lifetime cancer risk and chronic HI from construction sources represent the incremental increase in activity expected as a result of the Project.
3. Excess lifetime cancer risks were estimated using the following equation:

   $Risk_{inh} = \Sigma C_i \times CF \times IF_{inh} \times CPF_i \times ASF$

   Where:

   $Risk_{inh}$ = Cancer Risk for the Inhalation Pathway (unitless)
   C_i = Annual Average Air Concentration for Chemical "i" ug/m^3
   CF = Conversion Factor (mg/ug)
   IF_{inh} = Intake Factor for Inhalation (m^3/kg-day)
   CPF_i = Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$
   ASF = Age Sensitivity Factor (unitless)
4. Chronic HI for each receptor was estimated using the following equation:

   $HI_{inh} = \Sigma C_i / cREL$

   Where:

   HI_{inh} = Chronic HI for the Inhalation Pathway (unitless)
   C_i = Annual Average Air Concentration for Chemical "i" (ug/m^3)
   cREL = Chronic Reference Exposure Level (ug/m^3)

Abbreviations:

µg - microgram
PM - particulate matter
MEI - maximally exposed individual
m^3 - cubic meter
OEHHA - Office of Environmental Health Hazard Assessment

Reference:

BAAQMD. 2017. California Environmental Quality Act Air Quality Guidelines. May. Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Table 7
Summary of Cumulative Health Risk Impacts at Maximally Exposed Sensitive Receptors
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Receptor Type	Receptor Type	Source	Lifetime Excess Cancer Risk[1] (in a million)	Noncancer Chronic HI[1]	$PM_{2.5}$ Concentration[1] ($\mu g/m^3$)
Scenario 1 (Construction + Operation)	Off-Site Recreational	Existing Stationary Sources	6.0	0.032	0.0042
		Highway[2]	46	--	0.89
		Major Streets[2]	0.13	--	0.0032
		Roadway Total	46	--	0.90
		Railways[2]	16	--	0.031
		Existing Total	68	0.032	0.93
		Project Construction + Operation	1.5	0.0010	0.070
		Total	**70**	**0.033**	**1.0**
		Exceeds Threshold?	**NO**	**NO**	**YES**
Scenario 2 (Operation)	Off-Site Recreational	Existing Stationary Sources	6.0	0.032	0.0042
		Highway[2]	46	--	0.89
		Major Streets[2]	0.13	--	0.0032
		Roadway Total	46	--	0.90
		Railways[2]	16	--	0.031
		Existing Total	68	0.032	0.93
		Operation	0.36	3.2E-04	0.0016
		Total	**68**	**0.033**	**0.9**
		Exceeds Threshold?	**NO**	**NO**	**YES**
		Threshold	**100**	**10**	**0.8**

Notes:

[1] If the cell is marked with "--", no risk was calculated. For existing stationary sources, this is because the source was more than 1,000 feet from the onsite MEIR. For roadways, the chronic HI is not calculated in the BAAQMD screening tool.

[2] Cancer risk and $PM_{2.5}$ concentration values were determined using BAAQMD screening tools and are based on the maximum impact of a raster cell located on the MEIR.

Abbreviations:

HI - hazard index
m^3 - cubic meter
MEIR - maximum exposed individual receptor
$PM_{2.5}$ - particulate matter less than 2.5 microns
µg - microgram

References:

Bay Area Air Quality Management District (BAAQMD). 2020. Permitted Sources Risk and Hazards Map. June. Available at: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65

Bay Area Air Quality Management District (BAAQMD). 2020. Health Risk Calculator Beta 4.0. March. Available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/tools/baaqmd-health-risk-calculator-beta-4-0-xlsx.xlsx?la=en&rev=dab7d85a772d45caa9c99e59395bf12d\

Table 8
Estimated Energy Consumption by Off-Road Construction Equipment
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Construction Phase	Construction Subphase[1]	Equipment Type[1]	Fuel[1]	Number[1]	Horsepower[1]	kW	Load Factor	Daily Usage[1] (hours/day)	Days/Year[1]	Utilization[1]	Fuel Usage (gal diesel)[2]	Electricity Usage (kWh)
Phase 1	Demolition	Concrete/Industrial Saws	Diesel	1	33	24.61	0.73	8	40	20%	79	--
		Excavators	Diesel	3	36	26.85	0.38	8	40	80%	537	--
		Rubber Tired Dozers	Diesel	2	367	273.67	0.40	8	40	80%	3,840	--
	Site Preparation	Rubber Tired Dozers	Diesel	3	367	273.67	0.40	8	40	15%	1,080	--
		Tractors/Loaders/Backhoes	Diesel	4	84	62.64	0.37	8	40	85%	1,727	--
	Grading	Excavators	Diesel	1	36	26.85	0.38	8	30	70%	117	--
		Graders	Diesel	1	148	110.36	0.41	8	30	75%	558	--
		Rubber Tired Dozers	Diesel	1	367	273.67	0.40	8	30	35%	630	--
		Scrapers	Diesel	2	423	315.43	0.48	8	30	15%	747	--
		Tractors/Loaders/Backhoes	Diesel	3	84	62.64	0.37	8	30	65%	743	--
	Building Construction	Cranes	Electric	1	367	273.67	0.29	7	589	80%	--	261,777
		Forklifts	Diesel	3	82	61.15	0.20	8	589	25%	2,961	--
		Generator Sets	Diesel	1	14	10.44	0.74	8	589	35%	873	--
		Tractors/Loaders/Backhoes	Diesel	3	84	62.64	0.37	7	589	10%	1,964	--
		Welders	Diesel	1	46	34.30	0.45	8	589	35%	1,744	--
	Paving	Pavers	Diesel	2	81	60.40	0.42	8	50	100%	1,390	--
		Paving Equipment	Diesel	2	89	66.37	0.36	8	50	100%	1,309	--
		Rollers	Diesel	2	36	26.85	0.38	8	50	100%	559	--
	Landscaping	Tractors/Loaders/Backhoes	Diesel	2	84	62.64	0.37	8	50	25%	318	--
	Architectural Coating	Air Compressors	Electric	1	37	27.59	0.48	6	24	100%	--	1,907
Phase 2	Site Preparation	Rubber Tired Dozers	Diesel	3	367	273.67	0.40	8	40	15%	1,080	--
		Tractors/Loaders/Backhoes	Diesel	4	84	62.64	0.37	8	40	85%	1,727	--
	Grading	Excavators	Diesel	1	36	26.85	0.38	8	30	70%	117	--
		Graders	Diesel	1	148	110.36	0.41	8	30	75%	558	--
		Rubber Tired Dozers	Diesel	1	367	273.67	0.40	8	30	35%	630	--
		Scrapers	Diesel	2	423	315.43	0.48	8	30	15%	747	--
		Tractors/Loaders/Backhoes	Diesel	3	84	62.64	0.37	8	30	65%	743	--
	Building Construction	Cranes	Electric	1	367	273.67	0.29	7	623	80%	--	276,888
		Forklifts	Diesel	3	82	61.15	0.20	8	623	25%	3,132	--
		Generator Sets	Diesel	1	14	10.44	0.74	8	623	35%	923	--
		Tractors/Loaders/Backhoes	Diesel	3	84	62.64	0.37	7	623	10%	2,077	--
		Welders	Diesel	1	46	34.30	0.45	8	623	35%	1,845	--
	Paving	Pavers	Diesel	1	81	60.40	0.42	8	40	100%	556	--
		Paving Equipment	Diesel	2	89	66.37	0.36	6	40	100%	786	--
		Rollers	Diesel	2	36	26.85	0.38	6	40	100%	335	--
	Landscaping	Tractors/Loaders/Backhoes	Diesel	2	84	62.64	0.37	8	40	25%	254	--
	Architectural Coating	Air Compressors	Electric	1	37	27.59	0.48	6	24	100%	--	1,907

Table 8
Estimated Energy Consumption by Off-Road Construction Equipment
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Construction Phase	Construction Subphase[1]	Equipment Type[1]	Fuel[1]	Number[1]	Horsepower[1]	kW	Load Factor	Daily Usage[1] (hours/day)	Days/Year[1]	Utilization[1]	Fuel Usage (gal diesel)[2]	Electricity Usage (kWh)
Phase 3	Site Preparation	Rubber Tired Dozers	Diesel	3	367	273.67	0.40	8	40	15%	1,080	--
		Tractors/Loaders/Backhoes	Diesel	4	84	62.64	0.37	8	40	85%	1,727	--
	Grading	Excavators	Diesel	1	36	26.85	0.38	8	30	70%	117	--
		Graders	Diesel	1	148	110.36	0.41	8	30	75%	558	--
		Rubber Tired Dozers	Diesel	1	367	273.67	0.40	8	30	35%	630	--
		Scrapers	Diesel	2	423	315.43	0.48	8	30	15%	747	--
		Tractors/Loaders/Backhoes	Diesel	3	84	62.64	0.37	8	30	65%	743	--
	Building Construction	Cranes	Electric	1	367	273.67	0.29	7	604	80%	--	268,444
		Forklifts	Diesel	3	82	61.15	0.20	8	604	25%	3,036	--
		Generator Sets	Diesel	1	14	10.44	0.74	8	604	35%	895	--
		Tractors/Loaders/Backhoes	Diesel	3	84	62.64	0.37	7	604	10%	2,014	--
		Welders	Diesel	1	46	34.30	0.45	8	604	35%	1,788	--
	Paving	Pavers	Diesel	2	81	60.40	0.42	8	40	100%	1,112	--
		Paving Equipment	Diesel	2	89	66.37	0.36	8	40	100%	1,048	--
		Rollers	Diesel	2	36	26.85	0.38	8	40	100%	447	--
	Landscaping	Tractors/Loaders/Backhoes	Diesel	2	84	62.64	0.37	8	40	25%	254	--
	Architectural Coating	Air Compressors	Electric	1	37	27.59	0.48	6	24	100%	--	1,907

Notes:

1. Information on Project equipment list, horsepower, quantity, and utilization factor were provided by the Project Applicant. All off-road equipment is assumed to have diesel engines except cranes and air compressors which were assumed to be electric, as designated by Project Applicant. Utilizations for duration represent the usage percentage during the indicated equipment date range. Utilization percentage is multiplied by the number of hours per day in the calculation of off-road emissions.

2. Fuel usage is calculated by taking the horsepower-hours for each piece of equipment (calculated as horsepower * usage hours * load factor*utilization percent) and multiplying it by the gallons of diesel consumption per horsepower-hour consistent with USEPA AP-42 diesel fuel data in Table 3.4.1, which cites an average brake-specific fuel consumption (BSFC) of 7,000 BTU/hp-hr, a heating value of 19,300 BTU/lb, and density of 7.1 lb/gal.

Abbreviations:

CalEEMod - California Emissions Estimator Model

References:

The California Emissions Estimator Model (CalEEMod). Available at: http://www.caleemod.com/

Table 9
Estimated Energy Consumption by On-Road Construction Vehicles
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Project Construction Onroad Data[1]

Construction Area	Subphase	Year	Trips (one way trips/activity)		
			Worker Trips	Vendor Trips	Hauling Trips
Phase 1	Demolition	2023	600	--	4,039
	Site Preparation	2023	720	--	44,083
	Building Construction	2023	30,636	12,006	--
		2024	116,328	45,588	--
		2025	114,552	44,892	--
	Architectural Coating	2025	2,136	--	--
	Grading	2025	600	--	5,276
	Paving	2025	750	--	--
	Landscaping	2025	250	--	--
Phase 2	Site Preparation	2024	720	--	--
	Building Construction	2024	25,410	9,900	--
		2025	40,194	15,660	--
		2026	30,338	11,820	--
	Architectural Coating	2026	744	--	--
	Grading	2026	600	--	--
	Paving	2026	520	--	--
	Landscaping	2026	200	--	--
Phase 3	Site Preparation	2024	720	--	--
	Building Construction	2024	27,776	10,864	--
		2025	129,456	50,634	--
		2026	129,456	50,634	--
		2027	12,896	5,044	--
	Architectural Coating	2027	2,400	--	--
	Grading	2026	600	--	--
	Paving	2026	600	--	--
	Landscaping	2026	200	--	--

EMFAC2021 Onroad Data by Vehicle Category[2]

Vehicle Category	Year	Fuel Consumption[3]		VMT[4]	
		Gasoline	Diesel	Gasoline	Diesel
		gal/day	gal/day	miles/day	
LDA	2023	257,688	--	7,859,305	--
	2024	243,789	--	7,587,857	--
	2025	230,167	--	7,320,237	--
	2026	218,850	--	7,101,587	--
	2027	209,418	--	6,919,040	--
LDT1	2023	28,726	--	732,966	--
	2024	28,000	--	729,680	--
	2025	27,190	--	724,296	--
	2026	26,436	--	718,963	--
	2027	25,823	--	716,000	--
LDT2	2023	190,244	--	4,741,847	--
	2024	193,391	--	4,944,105	--
	2025	194,764	--	5,105,177	--
	2026	195,609	--	5,242,840	--
	2027	196,752	--	5,377,105	--
MHDT	2023	--	20,956	--	175,901
	2024	--	21,007	--	177,028
	2025	--	20,964	--	177,558
	2026	--	20,880	--	177,809
	2027	--	20,724	--	177,451
HHDT	2023	--	22,677	--	119,080
	2024	--	22,429	--	119,489
	2025	--	22,066	--	119,561
	2026	--	21,704	--	119,592
	2027	--	21,286	--	119,375

Table 9
Estimated Energy Consumption by On-Road Construction Vehicles
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

EMFAC2021 Onroad Data by Fleet Type[5]

Fleet Type	Year	Fuel Consumption		VMT	
		Gasoline	Diesel	Gasoline	Diesel
		gal/day	gal/day	miles/day	
Worker	2023	126,346	--	3,516,771	--
	2024	123,295	--	3,497,830	--
	2025	119,828	--	3,468,502	--
	2026	116,832	--	3,445,588	--
	2027	114,454	--	3,432,036	--
Vendor	2023	--	21,816	--	147,490
	2024	--	21,718	--	148,259
	2025	--	21,515	--	148,559
	2026	--	21,292	--	148,701
	2027	--	21,005	--	148,413
Hauling	2023	--	22,677	--	119,080
	2024	--	22,429	--	119,489
	2025	--	22,066	--	119,561
	2026	--	21,704	--	119,592
	2027	--	21,286	--	119,375

Fuel Efficiency Data by Fleet Type

Scenario	Year	Fuel Efficiency[6]		VMT by Vehicle Fuel Type[7]	
		Gasoline	Diesel	Gasoline	Diesel
		mi/gal	mi/gal	Percentage (%)	
Worker	2023	28	--	100%	--
	2024	28	--	100%	--
	2025	29	--	100%	--
	2026	29	--	100%	--
	2027	30	--	100%	--
Vendor	2023	--	7	--	100%
	2024	--	7	--	100%
	2025	--	7	--	100%
	2026	--	7	--	100%
	2027	--	7	--	100%
Hauling	2023	--	5	--	100%
	2024	--	5	--	100%
	2025	--	5	--	100%
	2026	--	6	--	100%
	2027	--	6	--	100%

Fuel Consumption

Scenario	Year	Trip Rate (trips/year)[8]	Trip Length (mi/trip)[9]	Fuel Consumption[10,11]	
				Gallons of Gasoline	Gallons of Diesel
Worker	2023	31956	13	14,718	--
	2024	170,954	13	77,253	--
	2025	287,938	13	127,527	--
	2026	163258	13	70,968	--
	2027	15296	13	6,540	--
Vendor	2023	12006	7	--	12,964
	2024	66352	7	--	70,955
	2025	111186	7	--	117,548
	2026	62454	7	--	65,281
	2027	5044	7	--	5,211
Hauling	2023	48,122	20	--	183,286
	2024	0	0	--	0
	2025	5276	20	--	19475
	2026	0	0	--	0
	2027	0	0	--	0

Annual Construction On-Road Fuel Usage	Fuel Consumption[10]	
	Gasoline	Diesel
	gallon	gallon
2023	14718	196,250
2024	77253	70955
2025	127527	137023
2026	70968	65281
2027	6540	5211

Table 9
Estimated Energy Consumption by On-Road Construction Vehicles
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Notes:

1. Worker and vendor trip rates were calculated based on CalEEMod Methodology. Hauling trip rates were calculated based on the import and export quantities provided by the Project Sponsor.
2. Data obtained from EMFAC2021 for San Mateo County using the following inputs: emission mode, annual time period, EMFAC2007 vehicle classes, aggregated model year, aggregated speed.
3. Fuel consumption rates summed by fuel type and year. EMFAC2021 outputs gasoline and diesel fuel consumption rates in 1000 gallons per day.
4. Daily VMT summed by fuel type and year.
5. Construction fleets were defined consistent with CalEEMod® 2022.1.0. assumptions. The worker fleet is assumed to be 25% LDA, 50% LDT1, and 25% LDT2. The vendor fleet is assumed to be 50% MHDT and 50% HHDT. The hauling fleet is assumed to be 100% HHDT. Fuel consumption and VMT data by vehicle category were converted to fuel consumption and VMT data by fleet type using weighted sums.
6. Fuel efficiency for gasoline and diesel was calculated as daily fuel consumption rate divided by daily total VMT as shown in the EMFAC2021 Onroad Data by Fleet Type table.
7. Worker vehicle fuel type were assumed to be 100% gasoline; vendor and hauling vehicle fuel types were assumed to be 100% diesel.
8. Annual trip rates calculated by summing worker, vendor, and hauling trips rates per activity by year.
9. Worker and vendor trip lengths are based on CalEEMod Appendix G defaults for San Mateo County. Hauling trip lengths were estimated using CalEEMod defaults with demolition quantities and the quantity of soil imported and/or exported.
10. Annual energy usage rate calculated as follows: (Annual VMT) * (% of VMT attributed to fuel type) / (Fuel Efficiency).

Abbreviations:

CNG - compressed natural gas
DGE - diesel gallon equivalent
MWh - megawatt-hour
VMT - vehicle miles traveled

Table 10
Summary of Construction Energy Consumption
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Source[1,2]	Gasoline Usage (gal)	Diesel Usage (gal)	Electricity Usage (MWh)
Off-Road Construction Equipment	--	52,882	813
On-Road Construction Trips	297,006	474,720	--
Total	297,006	527,601	813

Notes:

1. Off-Road fuel usage is calculated in Table 8.
2. On-Road fuel usage is calculated in Table 9.

Abbreviations:

gal - gallons
MWh - kilowatt hour
MMBtu - million British Thermal Units

Table 11
Summary of Operational Energy Consumption
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Phase	Source[1]	Annual Energy Consumption				
		Gasoline Usage (gal/year)	Diesel Usage (gal/year)	Natural Gas Usage (MMBtu/year)	Electricity Usage (MWh/year)	Water[2] (gal/year)
Phase 1	Building	--	--	10,784	11,664	--
	Mobile Sources	359,965	44,110	0.3	251	--
	Water	--	--	--	--	43,351,988
	Unmitigated Landscaping	1,754	--	--	--	--
	Generators	--	11,252	--	--	--
Phase 2	Building	--	--	8,867	7,754	--
	Mobile Sources	298,193	36,211	0.2	221	--
	Water	--	--	--	--	21,972,925
	Unmitigated Landscaping	604	--	--	--	--
	Generators	--	7,501	--	--	--
Phase 3	Building	--	--	14,630	15,118	--
	Mobile Sources	422,725	51,334	0.3	0	--
	Water	--	--	--	--	45,133,577
	Landscaping	1,970	--	--	--	--
	Generators	--	7,626	--	--	--
Buildout	Building	--	--	34,281	34,536	--
	Mobile Sources	1,144,827	139,359	0.9	930	--
	Water	--	--	--	--	110,458,490
	Unmitigated Landscaping	4,453	--	--	--	--
	Generators	--	26,379	--	--	--

Notes:

[1] The energy consumption for building electricity, and building natural gas were estimated using CalEEMod® 2022.1.0.

[2] Buildout water consumption was based on water demand projection by BKF and the Project's Water Supply Assessment Request for Information Form. Buildout water consumption was scaled proportionally by acreage of each phase.

Abbreviations:

gal - gallons
MMBTU - million British Thermal Units
MWh - megawatt-hour

References:

CAPCOA. 2022. CALifornia Emissions Estimator MODel (CalEEMod). 2022.1.0. Available at: http://www.caleemod.com.

BKF, 2022. Peninsula Crossing: 1200-1340 Old Bayshore Highway, Burlingame. Wastewater Generation and Water Demand Estimates. August 18.

City of Burlingame, 2022. Water Supply Assessment Request for Information Form, Email Attachment of Email titled "RE:PX - Water Supply Assessment" from Ben Mickus at WRNS Studio to Virginia Calkins at DivcoWest. August 23.

Table 12
Emissions Calcuation Methodology
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Type	Source	Methodology and Formula	Reference
Construction Equipment	Off-Road Equipment Exhaust[1]	Ec = Σ(EFc * HP * LF * Hr * C)	OFFROAD2011 and ARB/USEPA Engine Standards
Construction On-Road Mobile Sources[2]	Exhaust – Running	E_R = Σ(EF_R * VMT * C) , where VMT = Trip Length * Trip Number	EMFAC2021
	Exhaust - Idling	E_I = Σ(EF_I * Trip Number *T_I* C)	EMFAC2021
	Brake Wear and Tire Wear	$E_{BW,TW}$ = Σ($EF_{BW,TW}$ * VMT * C), where VMT = Roadway Link Length * Vehicle Counts	EMFAC2021
	Exhaust - Running Losses	E_R = Σ(EF_{RL} * VMT * C) , where VMT = Trip Length * Trip Number	EMFAC2021
	Entrained Road Dust	E_{RD} = Σ(EF_{RD} * VMT * C) , where VMT = Trip Length * Trip Number	ARB 2021 Miscellaneous Process Methodology 7.9
Construction Fugitive Dust	Mechanical Dismemberment, Grading, Bulldozing, Truck Loading	CalEEMod®	CalEEMod®
ROG Off-Gassing	Architectural coating	CalEEMod®	CalEEMod®
Operational Generator Emissions[3]	Stationary Source	E_{SS} = EF_{SS} * Hr * C	CalEEMod® and AP-42
Other Operational Sources	Area, Energy, Mobile	CalEEMod®	CalEEMod®

Notes:

1. E_c: off-road equipment exhaust emissions (lb)
   EF_c: emission factor (g/hp-hr). CalEEMod default emission factors used
   HP: equipment horsepower from original building typology analysis
   LF: equipment load factor. OFFROAD2011
   Hr: equipment hours
   C: unit conversion factor
2. On-road mobile sources include truck and passenger vehicle trips. Emissions associated with mobile sources were calculated using the following formulas.
   E_R: running exhaust and running losses emissions (lb)
   EF_R: running emission factor (g/mile). From EMFAC2021
   VMT: vehicle miles traveled
   C: unit conversion factor
   The calculation involves the following assumptions:
   a. All material transporting and soil hauling trucks are heavy-heavy duty trucks.
   b. Trip Length: The one-way trip length as calculated based on the truck route or the default length from CalEEMod.
   c. Trip Number: from original building typology analysis
   E_I: vehicle idling emissions (lb).
   EF_I: vehicle idling emission factor (g/hr-trip). From EMFAC2021
   T_I: idling time
   C: unit conversion factor
3. Operational emissions from the generator were calculated using the following formulas:
   E_{SS}: Stationary Source emissions.
   EF_{SS}: Stationary Source emission factor
   Hr: hours of operation per year (hr)
   C: unit conversion factor

Abbreviations:

ARB - California Air Resources Board
EF - Emission Factor
EMFAC - EMission FACtor Model
g - gram
HP - horsepower
ROG - reactive organic gases
lb - pound
LF - Load Factor
mi - mile
USEPA - United States Environmental Protection Agency
VMT - vehicle miles traveled

References:

ARB/USEPA. 2013. Table 1: ARB and USEPA Off-Road Compression-Ignition (Diesel) Engine Standards. Available online at: http://www.arb.ca.gov/msprog/ordiesel/documents/Off-Road_Diesel_Stds.xls

ARB. 2021. EMission FACtors Model, 2021 (EMFAC2021). Available online at: https://arb.ca.gov/emfac/emissions-inventory

The California Emissions Estimator Model (CalEEMod). Available at: http://www.caleemod.com/

Table 13
Construction Phasing Schedule
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Construction Phase[1]	Construction Subphase[1]	Start Date	End Date[2]	Number of Work Days	Days per Week
Phase 1	Demolition	8/1/2023	9/25/2023	40	5
	Site Preparation	8/1/2023	9/25/2023	40	5
	Building Construction	9/26/2023	12/26/2025	589	5
	Architectural Coating	11/25/2025	12/26/2025	24	5
	Grading	5/9/2025	6/19/2025	30	5
	Paving	6/20/2025	8/28/2025	50	5
	Landscaping	8/29/2025	11/6/2025	50	5
Phase 2	Site Preparation	5/15/2024	7/9/2024	40	5
	Building Construction	5/15/2024	10/2/2026	623	5
	Architectural Coating	9/1/2026	10/2/2026	24	5
	Grading	3/4/2026	4/14/2026	30	5
	Paving	4/15/2026	6/9/2026	40	5
	Landscaping	6/10/2026	8/4/2026	40	5
Phase 3	Site Preparation	10/15/2024	12/9/2024	40	5
	Building Construction	10/15/2024	2/5/2027	604	5
	Architectural Coating	1/5/2027	2/5/2027	24	5
	Grading	7/7/2026	8/17/2026	30	5
	Paving	8/18/2026	10/12/2026	40	5
	Landscaping	10/13/2026	12/7/2026	40	5

Notes:

1. All construction phasing information is based on information provided by the Project Sponsor. Construction is assumed to occur Monday through Friday.
2. Phase 1 operation is conservatively assumed to begin in January 2026, Phase 2 in November 2026, and Phase 3 (Full Buildout Operations) is expected to begin in March 2027.

Abbreviations:

CalEEMod® - California Emissions Estimator Model®

Table 14
Construction Equipment
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Construction Phase	Construction Subphase	Equipment[1]	Fuel[1]	Number[1]	Horsepower[2]	Daily Usage[1] (hours/day)	Utilization[1]	Uncontrolled Equipment Tier[3]
Phase 1	Demolition	Concrete/Industrial Saws	Diesel	1	33	8	20%	Tier 4 Final
		Excavators	Diesel	3	36	8	80%	Tier 4 Final
		Rubber Tired Dozers	Diesel	2	367	8	80%	Tier 4 Final
	Site Preparation	Rubber Tired Dozers	Diesel	3	367	8	15%	Tier 4 Final
		Tractors/Loaders/Backhoes	Diesel	4	84	8	85%	Tier 4 Final
	Grading	Excavators	Diesel	1	36	8	70%	Tier 4 Final
		Graders	Diesel	1	148	8	75%	Tier 4 Final
		Rubber Tired Dozers	Diesel	1	367	8	35%	Tier 4 Final
		Scrapers	Diesel	2	423	8	15%	Tier 4 Final
		Tractors/Loaders/Backhoes	Diesel	3	84	8	65%	Tier 4 Final
	Building Construction	Cranes	Electric	1	367	7	80%	N/A (electric)
		Forklifts	Diesel	3	82	8	25%	Tier 4 Final
		Generator Sets	Diesel	1	14	8	35%	Tier 4 Final
		Tractors/Loaders/Backhoes	Diesel	3	84	7	10%	Tier 4 Final
		Welders	Diesel	1	46	8	35%	No Specific Tier
	Paving	Pavers	Diesel	2	81	8	100%	Tier 4 Final
		Paving Equipment	Diesel	2	89	8	100%	Tier 4 Final
		Rollers	Diesel	2	36	8	100%	Tier 4 Final
	Landscaping	Tractors/Loaders/Backhoes	Diesel	2	84	8	25%	Tier 4 Final
	Architectural Coating	Air Compressors	Electric	1	37	6	100%	N/A (electric)
Phase 2	Site Preparation	Rubber Tired Dozers	Diesel	3	367	8	15%	Tier 4 Final
		Tractors/Loaders/Backhoes	Diesel	4	84	8	85%	Tier 4 Final
	Grading	Excavators	Diesel	1	36	8	70%	Tier 4 Final
		Graders	Diesel	1	148	8	75%	Tier 4 Final
		Rubber Tired Dozers	Diesel	1	367	8	35%	Tier 4 Final
		Scrapers	Diesel	2	423	8	15%	Tier 4 Final
		Tractors/Loaders/Backhoes	Diesel	3	84	8	65%	Tier 4 Final
	Building Construction	Cranes	Electric	1	367	7	80%	N/A (electric)
		Forklifts	Diesel	3	82	8	25%	Tier 4 Final
		Generator Sets	Diesel	1	14	8	35%	Tier 4 Final
		Tractors/Loaders/Backhoes	Diesel	3	84	7	10%	Tier 4 Final
		Welders	Diesel	1	46	8	35%	No Specific Tier
	Paving	Pavers	Diesel	1	81	8	100%	Tier 4 Final
		Paving Equipment	Diesel	2	89	6	100%	Tier 4 Final
		Rollers	Diesel	2	36	6	100%	Tier 4 Final
	Landscaping	Tractors/Loaders/Backhoes	Diesel	2	84	8	25%	Tier 4 Final
	Architectural Coating	Air Compressors	Electric	1	37	6	100%	N/A (electric)
Phase 3	Site Preparation	Rubber Tired Dozers	Diesel	3	367	8	15%	Tier 4 Final
		Tractors/Loaders/Backhoes	Diesel	4	84	8	85%	Tier 4 Final
	Grading	Excavators	Diesel	1	36	8	70%	Tier 4 Final
		Graders	Diesel	1	148	8	75%	Tier 4 Final
		Rubber Tired Dozers	Diesel	1	367	8	35%	Tier 4 Final
		Scrapers	Diesel	2	423	8	15%	Tier 4 Final
		Tractors/Loaders/Backhoes	Diesel	3	84	8	65%	Tier 4 Final
	Building Construction	Cranes	Electric	1	367	7	80%	N/A (electric)
		Forklifts	Diesel	3	82	8	25%	Tier 4 Final
		Generator Sets	Diesel	1	14	8	35%	Tier 4 Final
		Tractors/Loaders/Backhoes	Diesel	3	84	7	10%	Tier 4 Final
		Welders	Diesel	1	46	8	35%	No Specific Tier
	Paving	Pavers	Diesel	2	81	8	100%	Tier 4 Final
		Paving Equipment	Diesel	2	89	8	100%	Tier 4 Final
		Rollers	Diesel	2	36	8	100%	Tier 4 Final
	Landscaping	Tractors/Loaders/Backhoes	Diesel	2	84	8	25%	Tier 4 Final
	Architectural Coating	Air Compressors	Electric	1	37	6	100%	N/A (electric)

Notes:

1. Construction equipment information was provided by the Project Sponsor or based on CalEEMod defaults.
2. Equipment horsepower is based on CalEEMod Appendix G defaults.
3. Uncontrolled equipment engine tiers are provided by the Project Sponsor.

Abbreviations:

CalEEMod - California Emissions Estimator Model

References:

The California Emissions Estimator Model (CalEEMod). Available at: http://www.caleemod.com/

Table 15
Construction Vehicle Trips
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Construction Area	Subphase	Year	Construction Days	Trip Rates[1] (trips/day)		Hauling Trips[2] (one-way trips/phase)	Trip Lengths[3] (miles/one-way trip)		
				Worker	Vendor		Worker	Vendor	Hauling
Phase 1	Demolition	2023	40	15	0	4,039	12.82	7.3	20
	Site Preparation	2023	40	18	0	44,083	12.82	7.3	20
	Building Construction	2023	69	444	174	0	12.82	7.3	--
		2024	262	444	174	0	12.82	7.3	--
		2025	258	444	174	0	12.82	7.3	--
	Architectural Coating	2025	24	89	0	0	12.82	7.3	--
	Grading	2025	30	20	0	5,276	12.82	7.3	20
	Paving	2025	50	15	0	0	12.82	7.3	--
	Landscaping	2025	50	5	0	0	12.82	7.3	--
Phase 2	Site Preparation	2024	40	18	0	0	12.82	7.3	--
	Building Construction	2024	165	154	60	0	12.82	7.3	--
		2025	261	154	60	0	12.82	7.3	--
		2026	197	154	60	0	12.82	7.3	--
	Architectural Coating	2026	24	31	0	0	12.82	7.3	--
	Grading	2026	30	20	0	0	12.82	7.3	--
	Paving	2026	40	13	0	0	12.82	7.3	--
	Landscaping	2026	40	5	0	0	12.82	7.3	--
Phase 3	Site Preparation	2024	40	18	0	0	12.82	7.3	--
	Building Construction	2024	56	496	194	0	12.82	7.3	--
		2025	261	496	194	0	12.82	7.3	--
		2026	261	496	194	0	12.82	7.3	--
		2027	26	496	194	0	12.82	7.3	--
	Architectural Coating	2027	24	100	0	0	12.82	7.3	--
	Grading	2026	30	20	0	0	12.82	7.3	--
	Paving	2026	40	15	0	0	12.82	7.3	--
	Landscaping	2026	40	5	0	0	12.82	7.3	--

EMFAC Data[4]

Trip Type	EMFAC Settings	Fleet Mix	Fuel Type
Worker	San Mateo County Calendar Years 2023-2027 Annual Season Aggregated Model Year EMFAC2007 Vehicle Categories	25% LDA, 50% LDT1, 25% LDT2	Gasoline
Vendor		50% MHDT, 50% HHDT	Diesel
Hauling		100% HHDT	Diesel

Notes:

1. Consistent with CalEEMod Appendix C, worker trip rates for all construction phases except building construction and architectural coating were calculated based on 1.25 workers per equipment in each subphase. Building construction worker trip rates were calculated using the CalEEMod Methodology for office/industrial land uses and are based on the land use square footage provided by the Project Sponsor. Architectural coating worker trips are 20% of building construction phase trips.

2. Hauling trip rates were calculated based on the import and export quantities provided by the Project Sponsor. Import and export quantities were converted from tons or cubic yards to corresponding one-way trips per phase by assuming 20 tons per truck or 16 cubic yards per truck based on CalEEMod defaults.

3. Worker and vendor trip lengths were based on CalEEMod Appendix G defaults for San Mateo County. Hauling trip lengths were estimated using CalEEMod defaults with demolition quantities and the quantity of soil imported and/or exported. To be conservative, all demolition and site preparation activities were assumed to be completed in phase 1.

4. Emissions were calculated using emission factors from EMFAC2021 Emissions Inventory with the specified settings and fleet and fuel assumptions.

Abbreviations:

CalEEMod - California Emissions Estimator Model
EMFAC2021 - California Air Resources Board EMission FACtor model
LDA - light-duty automobiles
LDT - light-duty trucks
MHDT - medium heavy-duty trucks
HHDT - heavy heavy-duty trucks
VMT - vehicle miles traveled

References:

The California Emissions Estimator Model (CalEEMod). Available at: http://www.caleemod.com/
California Air Resources Board (ARB) 2021. EMFAC2021. Available at: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-modeling-tools

Table 16
Silt Loading Emission Factors
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Entrained Roadway Dust Constants for San Mateo County		
Roadway Category	**Silt Loading[1] (g/m^2)**	**Travel Fraction[1]**
Freeway	0.015	63%
Major	0.032	27%
Collector	0.032	5%
Local - Urban	0.32	5%
Weighted Silt Loading Factor	0.036	100%

Notes:

1. Travel fraction by roadway category and silt loading are from the ARB's Entrained Road Travel Emission Inventory Source Methodology, Tables 2 and 4, respectively.

Abbreviations:

ARB - Air Resources Board
g - gram(s)
m - meter

References:

California Air Resources Board. 2021. Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust. March. Available online at: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/2021_paved_roads_7_9.pdf

Table 17
Emission Factors for Entrained Roadway Dust
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Road Dust Equation[1]

E [lb/VMT] = k*(sL)^0.91 * (W)^1.02 * (1-P/4N)

Parameters[2]	**Value**
E = annual average emission factor in the same units as k	[calculated]
k = particle size multiplier for particle size range	
PM_{10} (lb/VMT)	0.0022
$PM_{2.5}$ (lb/VMT)	3.3E-04
sL = roadway silt loading [grams per square meter - g/m^2]	0.036
W = average weight of vehicles traveling the road [tons]	2.4
P = number of "wet" days in county with at least 0.01 in of precipitation during the annual averaging period[3]	21.6
N = number of days in the averaging period	365

Entrained Road Dust Emission Factors	
$PM_{2.5}$ Emission Factor [lb/VMT]	3.83E-05

Notes:

1. Road dust equation and parameters are from the California Air Resources Board's (ARB) 2021 Miscellaneous Process Methodology 7.9 for Entrained Road Travel, Paved Road Dust.

2. The silt loading emission factor assumes San Mateo county default roadway fractions and silt loading levels from ARB 2021. Other parameters (average weight of vehicles, size multipliers) are from ARB 2021. $PM_{2.5}$ is assumed to be 15% of PM_{10} based on paved road dust sampling in California (ARB Speciation Profile #471), which is a more representative fraction than provided in the older AP-42 fugitive dust methodology as discussed in ARB 2021 (page 17).

3. The number of "wet" days measured at the nearest meteorological station is from CalEEMod® Appendix G Table 2.

Abbreviations:

ARB - California Air Resources Board
CalEEMod® - California Emissions Estimator Model
EMFAC - EMission FACtor Model
g - gram
lb - pound
$PM_{2.5}$ - particulate matter less than 2.5 microns
VMT - vehicle miles traveled

References:

California Air Resources Board. 2021. Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust. March. Available online at: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/2021_paved_roads_7_9.pdf

The California Emissions Estimator Model (CalEEMod). Available at: http://www.caleemod.com/

Table 18
On-road Entrained Dust Emissions
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Inputs		
Trip Length		
Worker Trip length (miles/trip)	12.82	CalEEMod defaults
Vendor Trip Length (miles/trip)	7.3	CalEEMod defaults
Hauling Trip Length (miles/trip)	20	CalEEMod defaults
Entrained Road Dust Emission Factors		
$PM_{2.5}$ Emission Factor [lb/VMT][1]	3.83E-05	

Construction Area	Subphase	Year	Construction Days	Worker Trips (trips/day)	Vendor Trips (trips/day)	Hauling Trips (total trips)	Worker VMT (miles)	Vendor VMT (miles)	Hauling VMT (miles)	Total VMT (miles)	Total Emissions (lb)
											$PM_{2.5}$
Phase 1	Demolition	2023	40	15	0	4,039	7692	0	80,780	88,472	3.4
	Site Preparation	2023	40	18	0	44,083	9,230	0	881,660	890,890	34
	Building Construction	2023	69	444	174	0	392,754	87644	0	480,397	18
	Building Construction	2024	262	444	174	0	1,491,325	332,792	0	1,824,117	70
	Building Construction	2025	258	444	174	0	1,468,557	327,712	0	1,796,268	69
	Architectural Coating	2025	24	89	0	0	27,384	0	0	27,384	1.0
	Grading	2025	30	20	0	5,276	7,692	0	105,520	113,212	4.3
	Paving	2025	50	15	0	0	9,615	0	0	9,615	0.37
	Landscaping	2025	50	5	0	0	3,205	0	0	3,205	0.12
Phase 2	Site Preparation	2024	40	18	0	0	9,230	0	0	9,230	0.35
	Building Construction	2024	165	154	60	0	325,756	72270	0	398,026	15
	Building Construction	2025	261	154	60	0	515,287	114318	0	629,605	24
	Building Construction	2026	197	154	60	0	388,933	86286	0	475,219	18
	Architectural Coating	2026	24	31	0	0	9,538	0	0	9,538	0.36
	Grading	2026	30	20	0	0	7,692	0	0	7,692	0.29
	Paving	2026	40	13	0	0	6,666	0	0	6,666	0.26
	Landscaping	2026	40	5	0	0	2,564	0	0	2,564	0.10
Phase 3	Site Preparation	2024	40	18	0	0	9,230	0	0	9,230	0.35
	Building Construction	2024	56	496	194	0	356,088	79307	0	435,396	17
	Building Construction	2025	261	496	194	0	1,659,626	369628	0	2,029,254	78
	Building Construction	2026	261	496	194	0	1,659,626	369628	0	2,029,254	78
	Building Construction	2027	26	496	194	0	165,327	36821	0	202,148	7.7
	Architectural Coating	2027	24	100	0	0	30,768	0	0	30,768	1.2
	Grading	2026	30	20	0	0	7,692	0	0	7,692	0.29
	Paving	2026	40	15	0	0	7,692	0	0	7,692	0.29
	Landscaping	2026	40	5	0	0	2,564	0	0	2,564	0.10

Notes:
1. Entrained road dust emission factors were obtained from Table 17.

Abbreviations:
VMT - vehicle miles traveled
CalEEMod - California Emissions Estimator Model
$PM_{2.5}$ - particulate matter less than 2.5 microns
lb - pound

Table 19
Estimated Emissions from Construction Architectural Coating Off-Gassing
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Inputs[1,2]

Parameter		Input	Units
Non-Residential Surface Area to Floor Area Ratio		2.0	
Painted Area in Parking Structures		6%	--
Application Rate		100%	--
Reapplication Rate		10%	--
Fraction of Surface Area (Non-Parking)	Interior Surfaces	75%	--
	Exterior Shell	25%	--
Fraction of Surface Area (Parking)	Interior Surfaces	90%	--
	Exterior Shell	10%	--
Total surface for painting by acreage (in square feet) for parking lot		5%	--
Indoor Paint VOC Content (Unmitigated)		100	g/L
Indoor Paint VOC Content (Mitigated)		10	g/L
Exterior Paint VOC Content		150	g/L
Parking VOC Content		100	g/L

Emissions

Phase	Land Use Type	Year	Square Footage[2] (square feet)	Building Surface Area Painted[2] (square feet)	Interior Area Painted[3] (square feet)	Exterior Area Painted[3] (square feet)	Parking Area for Stripes and Symbols (square feet)	Mitigated Architectural Coating VOC emissions (lb)
Phase 1	General Office Building	2025	174,820	349,640	262,230	0	--	122
Phase 1	Research & Development	2025	262,230	524,460	393,345	0	--	182
Phase 1	Enclosed Parking With Elevator	2025	617,400	15,899	14,309	1,590	37,044	249
Phase 1	High Turnover (Sit Down Restaurant)	2025	2,500	5,000	3,750	0	--	2
Phase 2	General Office Building	2026	144,820	289,640	217,230	0	--	101
Phase 2	Research & Development	2026	217,230	434,460	325,845	0	--	151
Phase 2	High Turnover (Sit Down Restaurant)	2026	2,500	5,000	3,750	0	--	2
Phase 3	General Office Building	2027	246,360	492,720	369,540	0	--	171
Phase 3	Research & Development	2027	369,540	739,080	554,310	0	--	257
Phase 3	Enclosed Parking With Elevator	2027	562,800	16,553	14,898	1,655	33,768	237
							Total VOC Emissions in 2025 (lbs)	**555**
							Total VOC Emissions in 2026 (lbs)	**254**
							Total VOC Emissions in 2027 (lbs)	**665**

Notes:

1 Inputs and assumptions are consistent with CalEEMod® 2022.1 for BAAQMD. Indoor and outdoor paint VOC content parameters were obtained from CalEEMod Appendix G Table G-17 Architectural Coating Emissions Factors by Air District.

2 Building type square footage is based on Methodology Report. Non-residential square footage is assumed to be 2.0 times the square footage, and parking square footage is assumed to be 0.05 times the lot acreage (converted to square feet), consistent with CalEEMod® Appendix C. For parking acreage, it was conservatively assumed to be the total acreage in each phase.

3 For commercial and recreational land use types: calculated based on CalEEMod® assumption that 1 gallon of paint covers 180 square feet and that building area is assumed to be 75% indoors and 25% outdoors. The square footage of painted exterior for non-parking buildings is assumed to be 0, as provided by the Project Sponsor. For parking land use types: calculated based on CalEEMod® assumption that 1 gallon of paint covers 180 square feet and that building area is assumed to be 90% indoors and 10% outdoors.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
EF - Emission Factor
g - grams
L - liter
lb - pound
VOC - Volatile Organic Compound

References:

The California Emissions Estimator Model (CalEEMod). Available at: http://www.caleemod.com/

Table 20
Operational Daily Trips and Trip Rates by Phase
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

	Vehicle Trip Rate[1] (trips/1,000 square feet)	Vehicle Trip[2] (trips/day)
Phase 1	16.45	2876
Phase 2	16.45	2383
Phase 3	16.45	4053
Buildout	**16.45**	**9312**

Notes:

[1] Daily trips for each Project phase are assigned to the general office building land use. Trip rate per phase is calculated by dividing daily vehicle trips by the gross square footage of the general office land use. Trip rates for all other land uses were assumed to be zero.

[2] Project buildout daily trips were provided by Fehr &Peers. Daily trips for Project phase are based on the size of the office land use to be built out in that phase.

Table 21
Consumer Product Emission Factor Refinement
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Year[1]	Consumer Products VOC inventory (tons/day)[2]	San Mateo County Population[3]	Total Building Square Footage[4]	Consumer Products VOC Emission Factor (lb/square foot/day)
2010	4.93	718,451	537,446,060	1.83E-05
2020	5.20	764,442	571,850,190	1.82E-05

Notes:

1. 2010 data are used because total building square footage was available only for 2010. Building square footage for 2020 was estimated by multiplying 2010 building square footage with the ratio of population in 2020 to that in 2010.
2. VOC inventory obtained from California Air Resources Board's emission inventory for Consumer Products under Solvent Evaporation for the respective years.
3. Population estimates obtained from US Census Bureau's QuickFacts for San Mateo County for the respective years.
4. Total building square footage for 2010 obtained from FEMA HAZUS-MH software.

Abbreviations:

lb - pound

VOC - Volatile Organic Compound

References:

California Air Resources Board. Almanac Emission Projection Data. Available online at https://www.arb.ca.gov/app/emsinv/emssumcat.php. Accessed November 2021.

US Census Bureau QuickFacts. Available online at https://www.census.gov/quickfacts/fact/table/US/PST045219. Accessed November 2021.

US Federal Emergency Management Agency's Hazus software (HAZUS-MH), Version 5.1. Available online at https://msc.fema.gov/portal/resources/hazus.

Table 22
CAP and GHG Emissions and Diesel Consumption from Operational Emergency Generators
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Location	Phase	Rating (HP)[2]	Tier[3]	Load Factor	Hours / year[4]	Emissions[1]							Energy Consumption[5]
						tons/year				MT/year	g/s		gal/year
						ROG	NOx	PM_{10}	$PM_{2.5}$	CO_2e	PM_{10}	$PM_{2.5}$	Diesel
Building 1	Phase 3	1475	Tier 4	0.73	50	0.008	0.030	0.001	0.001	28.2	3.8E-05	3.8E-05	2,750
Building 2	Phase 1	2347	Tier 4	0.73	50	0.013	0.047	0.002	0.002	44.8	6.0E-05	6.0E-05	4,376
Building 3	Phase 2	2012	Tier 4	0.73	50	0.011	0.040	0.002	0.002	38.4	5.1E-05	5.1E-05	3,751
Parking North	Phase 3	939	Default	0.73	50	0.039	0.172	0.006	0.006	17.9	1.6E-04	1.6E-04	1,750
Parking South	Phase 1	1006	Tier 4	0.73	50	0.006	0.020	0.001	0.001	19.2	2.6E-05	2.6E-05	1,875
Tenant 1	Phase 3	1676	Tier 4	0.73	50	0.009	0.034	0.001	0.001	32.0	4.3E-05	4.3E-05	3,126
Tenant 2	Phase 1	2682	Tier 4	0.73	50	0.015	0.054	0.002	0.002	51.2	6.8E-05	6.8E-05	5,001
Tenant 3	Phase 2	2012	Tier 4	0.73	50	0.011	0.040	0.002	0.002	38.4	5.1E-05	5.1E-05	3,751

Notes:

1. Emission factors based on CalEEMod Appendix C and Emission Standards obtained from AP-42 Chapter 3.4 and summarized by DieselNet.
2. Engine ratings provided by the Project Sponsor.
3. According to the BAAQMD requirements, all emergency backup engines greater than or equal to 1,000 brake horsepower are required to meet EPA Tier 4 emissions standards.
4. ARB ATCM limits non-emergency use of emergency backup engines to 50 hours a year.
5. Diesel consumption calculated based on the brake-specific fuel consumption, heating value, and diesel density provided in AP-42 Chapter 3.4.

Abbreviations:

HP - Horsepower
MT - metric tons
ROG - reactive organic gases
NOx - nitrogen oxides
PM - particulate matter
ATCM - Air Toxic Control Measures
CO_2e - carbon dioxide equivalents
g/s - grams per second
gal - gallon
CalEEMod - California Emission Estimator Model
EPA - Environmental Protection Agency

References:

California Emissions Estimator Model (CalEEMod). 2022.1.0. Available online at: http://www.caleemod.com
EPA, 1996. AP 42 Fifth Edition, Volume I, Chapter 3.4. October. Available at: https://www3.epa.gov/ttnchie1/ap42/ch03/.
DieselNet, 2022. United States: Nonroad Diesel Engines. November. Available at: https://dieselnet.com/standards/us/nonroad.php.

Table 23
Modeled DPM Emissions during Construction and Operation
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Year	Unmitigated Construction Emissions[1] [g/s]			
	Offroad		Onroad	
	DPM	$PM_{2.5}$	DPM	$PM_{2.5}$
2023	1.4E-04	0.0089	9.6E-05	0.0019
2024	3.6E-04	0.0038	--	0.0033
2025	5.0E-04	0.0016	1.0E-05	0.0056
2026	3.5E-04	0.0025	--	0.0031
2027	1.1E-05	1.0E-05	--	2.8E-04

Year	Mitigated Construction Emissions[1] [g/s]			
	Offroad		Onroad	
	DPM	$PM_{2.5}$	DPM	$PM_{2.5}$
2023	1.4E-04	0.0089	9.6E-05	0.0019
2024	3.6E-04	0.0038	--	0.0033
2025	5.0E-04	0.0016	1.0E-05	0.0056
2026	3.5E-04	0.0025	--	0.0031
2027	1.1E-05	1.0E-05	--	2.8E-04

Year	Operational Emissions [g/s]	
	DPM	$PM_{2.5}$
2026	1.7E-04	1.7E-04
2027	4.6E-04	4.6E-04
2028 and later	5.0E-04	5.0E-04

Notes:

1. Construction TAC emissions were estimated from on-site off-road emissions, where all PM_{10} tailpipe emissions are assumed to be DPM (although a portion of this is likely not from diesel sources). On-road emissions from hauling, vendor and worker vehicles were estimated using a modeled trip length of 1 miles. The inclusion of on-road emissions is conservative as the estimated traffic volumes do not exceed the screening levels recommended by BAAQMD (i.e., more than 10,000 vehicles per day and 100 trucks per day) and can be considered minor sources (BAAQMD 2011).

Abbreviations:

BAAQMD - Bay Area Air Quality Management District
CalEEMod® - California Emissions Estimator Model®
DPM - diesel particulate matter
$PM_{2.5}$ - particulate matter less than 2.5 microns

References:

The California Emissions Estimator Model (CalEEMod). Available at: http://www.caleemod.com/

California Environmental Quality Act (CEQA) Guidelines. 2017. Bay Area Air Quality Management District (BAAQMD). May. Available online at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

Recommended Methods for Screening and Modeling Local Risks and Hazards. 2012. BAAQMD. May. Available online at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en

Table 24
Modelling Parameters
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Construction Sources

Source	Source Type	Number of Sources[1]	Source Dimension	Release Height[2]	Initial Vertical Dimension[3]	Initial Lateral Dimension[4]
			[m]	[m]	[m]	[m]
Construction Equipment	Area	3	Parcel Area	5.0	1.16	--
On-Road Haul Trucks	Volume	Variable	Width of Road + 6	2.6	2.4	9.8 to 17

Operational Sources

Source[5]	Source Type	Number of Sources[1]	Stack Height	Stack Velocity	Exit Diameter	Stack Temperature
			[m]	[m/s]	[m]	°F
Generators	Point	8	33 and 60	45.3	0.18	872

Notes:

1. Construction off-road equipment is modeled as an area source covering the parcel under construction. The number of modeled construction equipment sources is based on the number of distinct construction work areas. The number of on-road vehicle sources is based on the geometry of the truck routes. The Project generator is modeled as a point source.

2. Construction equipment parameters used are based on BAAQMD's San Francisco Community Risk Reduction Plan-Health Risk Assessment (CRRP-HRA). According to the CRRP-HRA methodology, release height of a modeled area source representing construction equipment was set to 5 meters. On-road truck and light-duty release height is based on USEPA haul road guidance, assuming vehicle heights of 2 meters for light-duty vehicles and 3 meters for heavy-duty vehicles. Modeled generator release heights assume the default release height used by BAAQMD in the CRRP-HRA (BAAQMD 2012, STI 2011) plus the height of the generator location.

3. According to the Community HRA methodology, initial vertical dimension of the modeled construction equipment area sources is the release height divided by 4.3. On-road haul truck initial vertical dimension is based on USEPA's haul road guidance, assuming vehicle heights of 2 meters for light-duty vehicles and 3 meters for heavy-duty vehicles.

4. According to USEPA AERMOD User's Guide, for a line source modeled as adjacent volume sources, the initial lateral dimension is the length of the side divided by 2.15. Initial lateral dimension is a function of road width and for different roads and road sections it was between 9.8 and 17 m.

5. Generators were modeled assuming default parameters in Table 7 of the Community HRA technical guidance documentation (SF DPH, SF Planning, and Ramboll. Feb 2020). The height of generators on the Project Office Buildings was modeled as 60 meters (10 feet above the building rooftop). The height of generators on the Parking Structures was modeled as 33 meters (10 feet above the parking structure rooftop).

Abbreviations:

°F - Fahrenheit
m - meter
s - second
BAAQMD - Bay Area Air Quality Management District
USEPA - United States Environmental Protection Agency
CRRP - Community Risk Reduction Plan
HRA - Health risk assessment

References:

San Francisco Department of Public Health (SF DPH), San Francisco Planning Department (SF Planning), and Ramboll. 2020. San Francisco Citywide Health Risk Assessment: Technical Support Documentation.
https://www.sfdph.org/dph/files/EHSdocs/AirQuality/Air_Pollutant_Exposure_Zone_Technical_Documentation_2020.pdf

USEPA. 2012. Haul Road Workgroup Final Report Submission to EPA-OAQPS. March. Available at:
https://www3.epa.gov/scram001/reports/Haul_Road_Workgroup-Final_Report_Package-20120302.pdf

USEPA. 2021. User's Guide for the AMS/EPA Regulatory Model (AERMOD). Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina. EPA-454/B-20-001, April 2021). Available at: https://gaftp.epa.gov/Air/aqmg/SCRAM/models/preferred/aermod/aermod_userguide.pdf

Table 25
Exposure Parameters
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Population	Receptor Age Group	Exposure Parameters					
		Daily Breathing Rate (DBR)[1]	Exposure Duration (ED)[2]	Fraction of Time at Home (FAH)[3]	Exposure Frequency (EF)[4]	Averaging Time (AT)	Intake Factor, Inhalation (IF_{inh})
		[L/kg-day]	[years]	[unitless]	[days/year]	[days]	[m^3/kg-day]
Recreational[5]	Age 0-<2 Years	300	1.0	--	350	25,550	0.004
	Age 2-<16 Years	160	1.0	--	350	25,550	0.002
	Age 16-30 Years	130	1.0	--	350	25,550	0.002

Notes:
1. Daily breathing rates for recreational receptors are scaled from 95th percentile 8-hour daily breathing rates for moderate intensity to 2-hour breathing rate.
2. Exposure Duration is shown in the intake factor tables.
3. Fraction of time spent at home is not applicable for this receptor type.
4. Exposure frequency conservatively reflects default residential exposure frequency from OEHHA 2015.
5. Recreational receptors are assumed to be exposed for 2 hours a day at the same exposure frequency as OEHHA-recommended residential exposure frequency, from infancy to 30 years of age.

Calculation:

IF_{inh} = DBR * FAH * EF * ED * CF / AT

CF = 0.001 (m^3/L)

Abbreviations:

AT - averaging time
BAAQMD - Bay Area Air Quality Management District
DBR - daily breathing rate
ED - exposure duration
EF - exposure frequency
IF_{inh} - intake factor
kg - kilogram
L - liter
m^3 - cubic meter
OEHHA - Office of Environmental Health Hazard Assessment

References:

BAAQMD. 2016. Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines. January.
BAAQMD. 2020. Health Risk Assessment (HRA) Modeling Protocol. December.
OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Table 26
Age Sensitivity Weighted Intake Factors by Year and Age Bin for the Construction and Operation Exposure Scenario
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Year[1]	Recreational			
	Fraction of Year in Age Bin[2]			Age Sensitivity Weighted Intake Factor by Year, Inhalation[3,4]
	0-2	2-16	16-30	(m^3/kg-day)
2023	1.00			0.041
2024	1.00			0.041
2025	0.58	0.42		0.027
2026		1		0.0066
2027		1		0.0066
2028		1		0.0066
2029		1		0.0066
2030		1		0.0066
2031		1		0.0066
2032		1		0.0066
2033		1		0.0066
2034		1		0.0066
2035		1		0.0066
2036		1		0.0066
2037		1		0.0066
2038		1		0.0066
2039		0.58	0.42	0.0046
2040			1	0.0018
2041			1	0.0018
2042			1	0.0018
2043			1	0.0018
2044			1	0.0018
2045			1	0.0018
2046			1	0.0018
2047			1	0.0018
2048			1	0.0018
2049			1	0.0018
2050			1	0.0018
2051			1	0.0018
2052			1	0.0018
2053			0.58	0.0010

Notes:
1. Exposure assumes to begin at the start of construction on August 1st, 2023.
2. The exposure duration for all years is 1, as the health risk assessment is based on annual emissions.
3. The Intake Factors have been multiplied by the Age Sensitivity Factors and weighted by the exposure duration for each age bin.
4. Intake Factors are based on the exposure parameters table.

Abbreviations:
IF - intake factor
m^3 - cubic meter
kg - kilogram

References:
OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Table 27
Age Sensitivity Weighted Intake Factors by Year and Age Bin for the Operation-Only Exposure Scenario
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Year[1]	Recreational			
	Fraction of Year in Age Bin[2]			Age Sensitivity Weighted Intake Factor by Year, Inhalation[3,4]
	0-2	2-16	16-30	(m^3/kg-day)
2027	1.00			0.041
2028	1.00			0.041
2029	0.16	0.84		0.012
2030		1		0.0066
2031		1		0.0066
2032		1		0.0066
2033		1		0.0066
2034		1		0.0066
2035		1		0.0066
2036		1		0.0066
2037		1		0.0066
2038		1		0.0066
2039		1		0.0066
2040		1		0.0066
2041		1		0.0066
2042		1		0.0066
2043		0.16	0.84	0.0026
2044			1	0.0018
2045			1	0.0018
2046			1	0.0018
2047			1	0.0018
2048			1	0.0018
2049			1	0.0018
2050			1	0.0018
2051			1	0.0018
2052			1	0.0018
2053			1	0.0018
2054			1	0.0018
2055			1	0.0018
2056			1	0.0018
2057			0.16	0.0003

Notes:
1. Exposure assumes to begin following the full buildout on March 1st, 2027.
2. The exposure duration for all years is 1, as the health risk assessment is based on annual emissions.
3. The Intake Factors have been multiplied by the Age Sensitivity Factors and weighted by the exposure duration for each age bin.
4. Intake Factors are based on the exposure parameters table.

Abbreviations:
IF - intake factor
m^3 - cubic meter
kg - kilogram

References:
OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Table 28
Toxicity Values
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Source	Chemical[1]	CAS Number	Cancer Potency Factor	Chronic Noncancer Reference Exposure Level
			$(mg/kg\text{-}day)^{-1}$	$(\mu g/m^3)$
PM_{10}	Diesel PM	9-90-1	1.1	5.0

Notes:

1. Toxicity values are taken from ARB's Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values.

Abbreviations:

ARB - Air Resources Board
Cal/EPA - California Environmental Protection Agency
CAS - chemical abstract services
mg/kg-day - milligrams per kilogram per day
OEHHA - Office of Environmental Health Hazard Assessment
PM_{10} - particulate matter less than 10 microns
$\mu g/m^3$ - micrograms per cubic meter

Reference:

Cal/EPA. 2022. OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values. September. Available at: http://www.arb.ca.gov/toxics/healthval/contable.pdf.

Table 29
Modelling Adjustment Factors
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Receptor Type	Modeling Adjustment Factor[1]	
	Construction[2]	Operations[3]
Recreational	3.0	1

Notes:

1. Modeling adjustment factors are calculated based on the methodology from OEHHA's Guidance Manual for Preparation of Health Risk Assessments (2015).
2. The construction MAFs for the recreational receptor types are calculated to adjust from 24 hours/day to 2 hours/day ([24 hours/2 hours] * [7 days/7 days] = 3.0).
3. The operational modeling adjustment factor is 1 because emergency generators' operations could occur at anytime throughout the year.

References:

Cal/EPA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February. Available at: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

Table 30
Mobile Sources Energy Use
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Project Operations Traffic Data by Phase[1]

Phase	Year	Average Trips Rates	
		trips/day	trips/yr
Phase 1	2026	2876	1,049,810
	2027	2876	1,049,810
Phase 2	2026	2383	869,657
	2027	2383	869,657
Phase 3	2027	4053	1,479,414
Buildout	2028	9312	3,398,880

EMFAC2021 Onroad Data by Fleet Type[2]

Fleet Type	Year	Fuel Consumption[3]				VMT[4]			
		Gasoline	Diesel	Natural Gas	Electricity	Gasoline	Diesel	Natural Gas	Electricity
		gal/day	gal/day	DGE/day	kWh/day	miles/day			
LDA	2026	218,850	302	--	335,965	7,101,587	13,511	--	903,178
	2027	209,418	262	--	341,378	6,919,040	11,859	--	917,807
	2028	201,126	227	--	348,037	6,755,246	10,423	--	935,620
LDT1	2026	26,436	2.7	--	2,657	718,963	66	--	7,361
	2027	25,823	0.69	--	3,261	716,000	19	--	9,046
	2028	25,273	0.63	--	3,944	713,259	17	--	10,943
LDT2	2026	195,609	566	--	36,275	5,242,840	19,853	--	103,742
	2027	196,752	566	--	41,873	5,377,105	20,263	--	119,384
	2028	197,741	565	--	47,656	5,496,577	20,621	--	135,494
LHD1	2026	39,350	12,695	--	10,277	409,380	207,453	--	15,692
	2027	39,028	12,958	--	16,694	410,500	212,565	--	25,489
	2028	38,575	13,117	--	24,980	409,468	215,842	--	38,137
LHD2	2026	4,908	6,644	--	2,458	45,322	92,139	--	3,811
	2027	4,856	6,811	--	3,985	45,338	94,987	--	6,178
	2028	4,785	6,920	--	5,956	45,094	96,951	--	9,233
MCY	2026	1,888	--	--	--	80,439	--	--	--
	2027	1,920	--	--	--	81,910	--	--	--
	2028	1,948	--	--	--	83,191	--	--	--
MDV	2026	135,636	1,435	--	32,392	3,017,062	38,163	--	89,758
	2027	136,496	1,408	--	37,441	3,096,187	38,183	--	103,640
	2028	137,176	1,381	--	42,381	3,165,230	38,139	--	117,205
MHDT	2026	9,639	20,880	0.31	4,740	48,169	177,809	2,180	4,277
	2027	9,589	20,724	0.32	7,776	48,391	177,451	2,297	7,033
	2028	9,472	20,458	0.34	12,328	48,208	176,137	2,394	11,169
HHDT	2026	130	21,704	2.5	2,925	504	119,592	12,388	1,569
	2027	119	21,286	2.6	4,722	466	119,375	12,875	2,533
	2028	108	20,808	2.6	7,273	427	118,864	13,278	3,901
OBUS	2026	2,593	9,178	0.085	329	13,078	75,611	669	297
	2027	2,451	9,109	0.094	506	12,474	75,910	748	456
	2028	2,309	9,034	0.10	766	11,852	76,199	821	691
SBUS	2026	366	454	0.030	135	3,792	3,737	168	128
	2027	372	448	0.031	214	3,884	3,707	173	203
	2028	377	441	0.031	333	3,951	3,663	176	316
UBUS	2026	467	2,599	0.73	6,781	4,203	21,576	4,554	3,890
	2027	469	2,603	0.73	6,858	4,215	21,607	4,567	3,934
	2028	459	2,441	0.80	9,286	4,226	19,903	4,967	5,327

Table 30
Mobile Sources Energy Use
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

EMFAC2021 Onroad Data Total VMT by Year

Year	Total VMT
2026	18,620,817
2027	18,720,432
2028	18,816,078

Fuel Efficiency Data by Fleet Type

Fleet Type		Fuel Efficiency[5]				VMT by Vehicle and Fuel Type[6]			
		Gasoline	Diesel	Natural Gas	Electricity	Gasoline	Diesel	Natural Gas	Electricity
		mi/gal	mi/gal	mi/DGE	mi/kWh	Percentage (%)			
LDA	2026	32	45	--	2.7	38.14%	0.07%	0.00%	4.85%
	2027	33	45	--	2.7	36.96%	0.06%	0.00%	4.90%
	2028	34	46	--	2.7	35.90%	0.06%	0.00%	4.97%
LDT1	2026	27	24	--	2.8	3.86%	0.00%	0.00%	0.04%
	2027	28	27	--	2.8	3.82%	0.00%	0.00%	0.05%
	2028	28	27	--	2.8	3.79%	0.00%	0.00%	0.06%
LDT2	2026	27	35	--	2.9	28.16%	0.11%	0.00%	0.56%
	2027	27	36	--	2.9	28.72%	0.11%	0.00%	0.64%
	2028	28	36	--	2.8	29.21%	0.11%	0.00%	0.72%
LHD1	2026	10	16	--	1.5	2.20%	1.11%	0.00%	0.08%
	2027	11	16	--	1.5	2.19%	1.14%	0.00%	0.14%
	2028	11	16	--	1.5	2.18%	1.15%	0.00%	0.20%
LHD2	2026	9.2	14	--	1.6	0.24%	0.49%	0.00%	0.02%
	2027	9.3	14	--	1.6	0.24%	0.51%	0.00%	0.03%
	2028	9.4	14	--	1.6	0.24%	0.52%	0.00%	0.05%
MCY	2026	43	--	--	--	0.43%	0.00%	0.00%	0.00%
	2027	43	--	--	--	0.44%	0.00%	0.00%	0.00%
	2028	43	--	--	--	0.44%	0.00%	0.00%	0.00%
MDV	2026	22	27	--	2.8	16.20%	0.20%	0.00%	0.48%
	2027	23	27	--	2.8	16.54%	0.20%	0.00%	0.55%
	2028	23	28	--	2.8	16.82%	0.20%	0.00%	0.62%
MHDT	2026	5.0	8.5	7,066	0.90	0.26%	0.95%	0.01%	0.02%
	2027	5.0	8.6	7,090	0.90	0.26%	0.95%	0.01%	0.04%
	2028	5.1	8.6	7,109	0.91	0.26%	0.94%	0.01%	0.06%
HHDT	2026	3.9	5.5	4,971	0.54	0.00%	0.64%	0.07%	0.01%
	2027	3.9	5.6	5,032	0.54	0.00%	0.64%	0.07%	0.01%
	2028	3.9	5.7	5,088	0.54	0.00%	0.63%	0.07%	0.02%
OBUS	2026	5.0	8.2	7,881	0.90	0.07%	0.41%	0.00%	0.00%
	2027	5.1	8.3	7,992	0.90	0.07%	0.41%	0.00%	0.00%
	2028	5.1	8.4	8,099	0.90	0.06%	0.40%	0.00%	0.00%
SBUS	2026	10	8.2	5,628	0.95	0.02%	0.02%	0.00%	0.00%
	2027	10	8.3	5,653	0.95	0.02%	0.02%	0.00%	0.00%
	2028	10	8.3	5,674	0.95	0.02%	0.02%	0.00%	0.00%
UBUS	2026	9.0	8.3	6,215	0.57	0.02%	0.12%	0.02%	0.02%
	2027	9.0	8.3	6,215	0.57	0.02%	0.12%	0.02%	0.02%
	2028	9.2	8.2	6,200	0.57	0.02%	0.11%	0.03%	0.03%

Table 30
Mobile Sources Energy Use
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

EMFAC2021 Fleet-Average Fuel Consumption Rate

Year	Gasoline	Diesel	Natural Gas	Electricity
	gal/mi	gal/mi	DGE/mi	kWh/mi
2026	0.034	0.0041	2.0E-07	0.023
2027	0.034	0.0041	2.0E-07	0.025
2028	0.033	0.0040	2.1E-07	0.027

Fuel Consumption

Phase	Year	Trip Rate (trips/year)	Trip Length (mi/trip)	VMT in Phase-Year	Fuel Consumption[7,8]			
					Gallons of Gasoline	Gallons of Diesel	MMBTU of Natural Gas	MWh of Electricity
Phase 1	2026	1,049,810	10	10,742,536	366,840	44,110	0.3	251
	2027	1,049,810	10	10,742,536	359,965	43,712	0.3	267
Phase 2	2026	869,657	10	1,483,177	50,648	6,090	0.0	35
	2027	869,657	10	8,899,062	298,193	36,211	0.2	221
Phase 3	2027	1,479,414	10	12,615,505	422,725	51,334	0.3	313
Buildout	2028	3,398,880	10	34,780,205	1,144,827	139,359	0.9	930

Notes:

1. Daily trips for Project phase are based on the size of the office land use to be built out in that phase. Yearly trips were calculated assuming the same trip generation for 365 days a year.
2. Data obtained from EMFAC2021 for San Mateo County using the following inputs: emission mode, annual time period, EMFAC2007 vehicle classes, aggregated model year, aggregated speed.
3. Fuel consumption rates summed by fuel type and year. EMFAC2021 outputs gasoline and diesel fuel consumption rates in 1000 gallons per day, natural gas fuel consumption rates in diesel gallon equivalents (DGE) per day, and electricity consumption rates for electric vehicles in kilowatt-hour (kWh) per day. Since Plug-in Hybrid Electric Vehicles (PHEV) use both gasoline and electricity, their fuel consumption rates were calculated separately based on fuel type.
4. Daily VMT summed by fuel type and year. Plug-in Hybrid Electric Vehicles (PHEV) have both cVMT (gasoline) and eVMT (electric), which were incorporated into respectively into gasoline or electric VMT totals.
5. Fuel efficiency for gasoline, diesel, and natural gas, and electricity energy efficiency calculated as daily fuel consumption rate divided by daily total VMT as shown in the EMFAC2021 Onroad Data by Fleet Type table.
6. Percentage of gasoline, diesel, natural gas, or electric vehicle miles calculated by taking the ratio of vehicle miles driven by a specific fuel-type over total miles for that fleet type (for all fuel types) in EMFAC. Based on State targets and current trends, electric vehicle penetration may increase beyond the EMFAC defaults, which would increase electricity consumption and decrease fossil fuel consumption relative to what is presented here.
7. Annual energy usage rate calculated as follows: (Annual VMT) * (% of VMT attributed to fuel type) / (Fuel Efficiency).
8. Natural gas usage rates were converted from DGE to MMBTU using US Department of Energy Alternative Fuel Data Center conversion factor of 1 DGE of CNG = 128,488 Btu.

Abbreviations:

CNG - compressed natural gas
DGE - diesel equivalent gallons
gal - gallons
kWh - kilowatt-hour
mi - mile
MMBTU - million British thermal units
MWh - megawatt-hour
VMT - vehicle miles traveled

References:

US Department of Energy (DOE), Fuel Economy Guide. Electric. Available at: https://www.fueleconomy.gov/feg/evsbs.shtml. Accessed September 2020.

DOE. 2017. Alternative Fuels Data Center, Gasoline and Diesel Gallon Equivalency Methodology, Compressed Natural Gas. Available online at: https://afdc.energy.gov/fuels/equivalency_methodology.html. Accessed May 2019.

Table 31
Landscaping Energy Use
Peninsula Crossing
1200-1340 Old Bayshore Highway, Burlingame, CA

Phase	Landscaping CO_2 Emissions[1]	Emission Factor[2]	Unmitigated Landscaping Fuel Usage
	MT/yr	kg CO_2/gal gasoline	gal gasoline/yr
Phase 1	15	8.8	1,754
Phase 2	5.3	8.8	604
Phase 3	17	8.8	1,970
Buildout	39	8.8	4,453

Notes:

1. Landscaping emissions were estimated using CalEEMod® 2022.1.0
2. Landscaping gasoline fuel use was estimated using the kilogram of CO_2 per gallon of gasoline emission factor from EPA's Emission Factors for Greenhouse Gas Inventories publication.

Abbreviations:

CO_2 - carbon dioxide
gal - gallons
kg - kilograms
MT - metric tons
yr - year

References:

CAPCOA. 2022. CALifornia Emissions Estimator Model (CalEEMod). 2022.1.0. Available at: http://www.caleemod.com
Emission Factors for Greenhouse Gas Inventories. 2022. https://www.epa.gov/system/files/documents/2022-04/ghg_emission_factors_hub.pdf

FIGURES

PROJECT: 1690025433 | DATED: 12/1/2022 | DESIGNER: ANSHI

Project Boundary
Buildings

0 1,000 2,000 Feet

PROJECT SITE AND VICINITY

Peninsula Crossing Project
1200-1340 Old Bayshore Highway
Burlingame, CA

FIGURE 01

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

RAMBOLL

PROJECT: 1690025433 | DATED: 12/1/2022 | DESIGNER: ANSHI

Project Boundary
Phase 1 Construction
Phase 2 Construction
Phase 3 Construction
Operational Emergency Diesel Generators
Haul Route

0 1,000 2,000 Feet

CONSTRUCTION AND OPERATIONAL SOURCES OF DIESEL PARTICULATE MATTER

Peninsula Crossing Project
1200-1340 Old Bayshore Highway
Burlingame, CA

FIGURE 02

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

PROJECT: 1690025433 | DATED: 2/3/2023 | DESIGNER: ANSHI

Project Boundary
1000 ft Buffer
Maximally Exposed Recreational Receptor
Recreational Receptors

0 2,000 4,000 Feet

MODELED SENSITIVE RECEPTORS AND MAXIMALLY EXPOSED INDIVIDUAL RECEPTOR LOCATIONS

Peninsula Crossing Project
1200-1340 Old Bayshore Highway
Burlingame, CA

FIGURE 03

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	DivcoWest (phase 1+2+3)
Lead Agency	
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	4.6
Precipitation (days)	37.8
Location	1300 Old Bayshore Hwy, Burlingame, CA 94010, USA
County	San Mateo
City	Burlingame
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1201
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreag	Building Ar	Landscape	Special Lar	Populatior	Description
General Office Building	566	1000sqft	13	566000	300000			
Research & Development	849	1000sqft	19.5	849000	0			
Enclosed Parking with Elevator	1180	1000sqft	27.1	1180000	0			
High Turnover (Sit Down Restaurant)	5	1000sqft	0.11	5000	0			

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Area	LL-1	Replace Gas Powered Landscape Equipment with Zero-Emission Landscape Equipment
Area	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Un/Mit.	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Unmit.	48.2	74	28.1	354	0.75	1.21	26	27.2	1.23	4.55	5.79	1346	102999	104345	144	5.08	220	109675
Mit.	28.1	52.1	27.2	241	0.75	1.06	26	27.1	1.03	4.55	5.59	1346	102575	103921	144	5.07	220	109249
% Reduced	41.7	29.7	3.38	31.9	0.89	12.6		0.56	16.3		3.47		0.41	0.41	0.01	0.06		0.39
Daily, Winter (Max)																		
Unmit.	27.8	55.1	30.4	234	0.72	1.06	26	27.1	1.03	4.55	5.59	1346	99433	100779	144	5.3	35.8	105995
Mit.	27.8	51.7	30.4	234	0.72	1.06	26	27.1	1.03	4.55	5.59	1346	99433	100779	144	5.3	35.8	105995
% Reduced		6.18																
Average Daily (Max)																		
Unmit.	37.3	63.8	29.7	282	0.72	1.13	26	27.2	1.13	4.55	5.68	1346	99827	101173	144	5.22	113	106440
Mit.	27.4	51.3	29.2	226	0.72	1.06	26	27.1	1.03	4.55	5.59	1346	99618	100964	144	5.21	113	106230
% Reduced	26.6	19.7	1.58	19.8	0.46	6.62		0.28	8.77		1.74		0.21	0.21	< 0.005	0.03		0.2
Annual (Max)																		
Unmit.	6.81	11.7	5.42	51.4	0.13	0.21	4.75	4.96	0.21	0.83	1.04	223	16528	16750	23.8	0.86	18.7	17622
Mit.	5	9.36	5.33	41.2	0.13	0.19	4.75	4.94	0.19	0.83	1.02	223	16493	16716	23.8	0.86	18.7	17588
% Reduced	26.6	19.7	1.58	19.8	0.46	6.62		0.28	8.77		1.74		0.21	0.21	< 0.005	0.03		0.2

2.5. Operations Emissions by Sector, Unmitigated

Sector	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Mobile	27.1	24.8	18	234	0.69	0.36	26	26.4	0.33	4.55	4.89		70360	70360	2.3	2.21	190	71265
Area	20.1	48.7	0.95	113	0.01	0.15		0.15	0.2		0.2		465	465	0.02	< 0.005		467
Energy	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		30288	30288	4.09	0.4		30509
Water												996	1887	2883	102	2.46		6176
Waste												351	0	351	35	0		1226
Refrig.																	30.9	30.9
Total	48.2	74	28.1	354	0.75	1.21	26	27.2	1.23	4.55	5.79	1346	102999	104345	144	5.08	220	109675
Daily, Winter (Max)																		
Mobile	26.8	24.4	21.2	226	0.66	0.36	26	26.4	0.33	4.55	4.89		67259	67259	2.54	2.44	4.91	68053
Area		30.2																
Energy	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		30288	30288	4.09	0.4		30509
Water												996	1887	2883	102	2.46		6176
Waste												351	0	351	35	0		1226
Refrig.																	30.9	30.9
Total	27.8	55.1	30.4	234	0.72	1.06	26	27.1	1.03	4.55	5.59	1346	99433	100779	144	5.3	35.8	105995
Average Daily																		
Mobile	26.4	24	20	218	0.66	0.36	26	26.4	0.33	4.55	4.89		67423	67423	2.44	2.35	81.8	68267
Area	9.92	39.3	0.47	55.8	< 0.005	0.07		0.07	0.1		0.1		229	229	0.01	< 0.005		230
Energy	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		30288	30288	4.09	0.4		30509
Water												996	1887	2883	102	2.46		6176
Waste												351	0	351	35	0		1226
Refrig.																	30.9	30.9
Total	37.3	63.8	29.7	282	0.72	1.13	26	27.2	1.13	4.55	5.68	1346	99827	101173	144	5.22	113	106440
Annual																		
Mobile	4.82	4.38	3.65	39.8	0.12	0.06	4.75	4.82	0.06	0.83	0.89		11163	11163	0.4	0.39	13.6	11302
Area	1.81	7.18	0.09	10.2	< 0.005	0.01		0.01	0.02		0.02		38	38	< 0.005	< 0.005		38.1
Energy	0.18	0.09	1.68	1.41	0.01	0.13		0.13	0.13		0.13		5014	5014	0.68	0.07		5051
Water												165	312	477	17	0.41		1023
Waste												58	0	58	5.8	0		203
Refrig.																	5.11	5.11
Total	6.81	11.7	5.42	51.4	0.13	0.21	4.75	4.96	0.21	0.83	1.04	223	16528	16750	23.8	0.86	18.7	17622

2.6. Operations Emissions by Sector, Mitigated

Sector	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Mobile	27.1	24.8	18	234	0.69	0.36	26	26.4	0.33	4.55	4.89		70360	70360	2.3	2.21	190	71265
Area		26.8																
Energy	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		30328	30328	4.1	0.4		30550
Water												996	1887	2883	102	2.46		6176
Waste												351	0	351	35	0		1226
Refrig.																	30.9	30.9
Total	28.1	52.1	27.2	241	0.75	1.06	26	27.1	1.03	4.55	5.59	1346	102575	103921	144	5.07	220	109249
Daily, Winter (Max)																		
Mobile	26.8	24.4	21.2	226	0.66	0.36	26	26.4	0.33	4.55	4.89		67259	67259	2.54	2.44	4.91	68053
Area		26.8																
Energy	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		30288	30288	4.09	0.4		30509
Water												996	1887	2883	102	2.46		6176
Waste												351	0	351	35	0		1226
Refrig.																	30.9	30.9
Total	27.8	51.7	30.4	234	0.72	1.06	26	27.1	1.03	4.55	5.59	1346	99433	100779	144	5.3	35.8	105995
Average Daily																		

Mobile	26.4	24	20	218	0.66	0.36	26	26.4	0.33	4.55	4.89		67423	67423	2.44	2.35	81.8	68267
Area		26.8																
Energy	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		30308	30308	4.1	0.4		30529
Water												996	1887	2883	102	2.46		6176
Waste												351	0	351	35	0		1226
Refrig.																	30.9	30.9
Total	27.4	51.3	29.2	226	0.72	1.06	26	27.1	1.03	4.55	5.59	1346	99618	100964	144	5.21	113	106230
Annual																		
Mobile	4.82	4.38	3.65	39.8	0.12	0.06	4.75	4.82	0.06	0.83	0.89		11163	11163	0.4	0.39	13.6	11302
Area		4.88																
Energy	0.18	0.09	1.68	1.41	0.01	0.13		0.13	0.13		0.13		5018	5018	0.68	0.07		5054
Water												165	312	477	17	0.41		1023
Waste												58	0	58	5.8	0		203
Refrig.																	5.11	5.11
Total	5	9.36	5.33	41.2	0.13	0.19	4.75	4.94	0.19	0.83	1.02	223	16493	16716	23.8	0.86	18.7	17588

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building	27.1	24.8	18	234	0.69	0.36	3.94	4.3	0.33	1.21	1.54		70360	70360	2.3	2.21	190	71265
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	27.1	24.8	18	234	0.69	0.36	3.94	4.3	0.33	1.21	1.54		70360	70360	2.3	2.21	190	71265
Daily, Winter (Max)																		
General Office Building	26.8	24.4	21.2	226	0.66	0.36	3.94	4.3	0.33	1.21	1.54		67259	67259	2.54	2.44	4.91	68053
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	26.8	24.4	21.2	226	0.66	0.36	3.94	4.3	0.33	1.21	1.54		67259	67259	2.54	2.44	4.91	68053
Annual																		
General Office Building	4.82	4.38	3.65	39.8	0.12	0.06	0.72	0.78	0.06	0.22	0.28		11163	11163	0.4	0.39	13.6	11302
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	4.82	4.38	3.65	39.8	0.12	0.06	0.72	0.78	0.06	0.22	0.28		11163	11163	0.4	0.39	13.6	11302

4.1.2. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building	27.1	24.8	18	234	0.69	0.36	3.94	4.3	0.33	1.21	1.54		70360	70360	2.3	2.21	190	71265
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	27.1	24.8	18	234	0.69	0.36	3.94	4.3	0.33	1.21	1.54		70360	70360	2.3	2.21	190	71265
Daily, Winter (Max)																		
General Office Building	26.8	24.4	21.2	226	0.66	0.36	3.94	4.3	0.33	1.21	1.54		67259	67259	2.54	2.44	4.91	68053
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	26.8	24.4	21.2	226	0.66	0.36	3.94	4.3	0.33	1.21	1.54		67259	67259	2.54	2.44	4.91	68053
Annual																		
General Office Building	4.82	4.38	3.65	39.8	0.12	0.06	0.72	0.78	0.06	0.22	0.28		11163	11163	0.4	0.39	13.6	11302
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	4.82	4.38	3.65	39.8	0.12	0.06	0.72	0.78	0.06	0.22	0.28		11163	11163	0.4	0.39	13.6	11302

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building													6696	6696	1.08	0.13		6762
Research & Development													10044	10044	1.62	0.2		10143
Enclosed Parking with Elevator													2434	2434	0.39	0.05		2458
High Turnover (Sit Down Restaurant)													127	127	0.02	< 0.005		128
Total													19301	19301	3.12	0.38		19492
Daily, Winter (Max)																		
General Office Building													6696	6696	1.08	0.13		6762
Research & Development													10044	10044	1.62	0.2		10143
Enclosed Parking with Elevator													2434	2434	0.39	0.05		2458
High Turnover (Sit Down Restaurant)													127	127	0.02	< 0.005		128
Total													19301	19301	3.12	0.38		19492
Annual																		
General Office Building													1109	1109	0.18	0.02		1120
Research & Development													1663	1663	0.27	0.03		1679
Enclosed Parking with Elevator													403	403	0.07	0.01		407
High Turnover (Sit Down Restaurant)													21	21	< 0.005	< 0.005		21.2
Total													3195	3195	0.52	0.06		3227

4.2.2. Electricity Emissions By Land Use - Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building													6705	6705	1.08	0.13		6771
Research & Development													10057	10057	1.63	0.2		10157
Enclosed Parking with Elevator													2453	2453	0.4	0.05		2477
High Turnover (Sit Down Restaurant)													127	127	0.02	< 0.005		128
Total													19342	19342	3.13	0.38		19533
Daily, Winter (Max)																		
General Office Building													6696	6696	1.08	0.13		6762
Research & Development													10044	10044	1.62	0.2		10143
Enclosed Parking with Elevator													2434	2434	0.39	0.05		2458
High Turnover (Sit Down Restaurant)													127	127	0.02	< 0.005		128
Total													19301	19301	3.12	0.38		19492
Annual																		
General Office Building													1109	1109	0.18	0.02		1120
Research & Development													1664	1664	0.27	0.03		1680
Enclosed Parking with Elevator													405	405	0.07	0.01		409
High Turnover (Sit Down Restaurant)													21	21	< 0.005	< 0.005		21.2
Total													3199	3199	0.52	0.06		3230

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e

Daily, Summer (Max)																		
General Office Building	0.4	0.2	3.61	3.03	0.02	0.27		0.27	0.27		0.27		4308	4308	0.38	0.01		4320
Research & Development	0.6	0.3	5.42	4.55	0.03	0.41		0.41	0.41		0.41		6462	6462	0.57	0.01		6480
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.02	0.01	0.18	0.15	< 0.005	0.01		0.01	0.01		0.01		216	216	0.02	< 0.005		217
Total	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		10987	10987	0.97	0.02		11017
Daily, Winter (Max)																		
General Office Building	0.4	0.2	3.61	3.03	0.02	0.27		0.27	0.27		0.27		4308	4308	0.38	0.01		4320
Research & Development	0.6	0.3	5.42	4.55	0.03	0.41		0.41	0.41		0.41		6462	6462	0.57	0.01		6480
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.02	0.01	0.18	0.15	< 0.005	0.01		0.01	0.01		0.01		216	216	0.02	< 0.005		217
Total	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		10987	10987	0.97	0.02		11017
Annual																		
General Office Building	0.07	0.04	0.66	0.55	< 0.005	0.05		0.05	0.05		0.05		713	713	0.06	< 0.005		715
Research & Development	0.11	0.05	0.99	0.83	0.01	0.08		0.08	0.08		0.08		1070	1070	0.09	< 0.005		1073
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		35.8	35.8	< 0.005	< 0.005		35.9
Total	0.18	0.09	1.68	1.41	0.01	0.13		0.13	0.13		0.13		1819	1819	0.16	< 0.005		1824

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building	0.4	0.2	3.61	3.03	0.02	0.27		0.27	0.27		0.27		4308	4308	0.38	0.01		4320
Research & Development	0.6	0.3	5.42	4.55	0.03	0.41		0.41	0.41		0.41		6462	6462	0.57	0.01		6480
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.02	0.01	0.18	0.15	< 0.005	0.01		0.01	0.01		0.01		216	216	0.02	< 0.005		217
Total	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		10987	10987	0.97	0.02		11017
Daily, Winter (Max)																		
General Office Building	0.4	0.2	3.61	3.03	0.02	0.27		0.27	0.27		0.27		4308	4308	0.38	0.01		4320
Research & Development	0.6	0.3	5.42	4.55	0.03	0.41		0.41	0.41		0.41		6462	6462	0.57	0.01		6480
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.02	0.01	0.18	0.15	< 0.005	0.01		0.01	0.01		0.01		216	216	0.02	< 0.005		217
Total	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		10987	10987	0.97	0.02		11017
Annual																		
General Office Building	0.07	0.04	0.66	0.55	< 0.005	0.05		0.05	0.05		0.05		713	713	0.06	< 0.005		715
Research & Development	0.11	0.05	0.99	0.83	0.01	0.08		0.08	0.08		0.08		1070	1070	0.09	< 0.005		1073
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		35.8	35.8	< 0.005	< 0.005		35.9
Total	0.18	0.09	1.68	1.41	0.01	0.13		0.13	0.13		0.13		1819	1819	0.16	< 0.005		1824

4.3. Area Emissions by Source

4.3.2. Unmitigated

Source	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Consumer Products		25.9																
Architectural Coatings		4.23																
Landscape Equipment	20.1	18.6	0.95	113	0.01	0.15		0.15	0.2		0.2		465	465	0.02	< 0.005		467
Total	20.1	48.7	0.95	113	0.01	0.15		0.15	0.2		0.2		465	465	0.02	< 0.005		467
Daily, Winter (Max)																		
Consumer Products		25.9																
Architectural Coatings		4.23																
Total		30.2																
Annual																		
Consumer Products		4.73																
Architectural Coatings		0.77																
Landscape Equipment	1.81	1.67	0.09	10.2	< 0.005	0.01		0.01	0.02		0.02		38	38	< 0.005	< 0.005		38.1
Total	1.81	7.18	0.09	10.2	< 0.005	0.01		0.01	0.02		0.02		38	38	< 0.005	< 0.005		38.1

4.3.1. Mitigated

Source	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Consumer Products		25.9																
Architectural Coatings		0.82																
Total		26.8																
Daily, Winter (Max)																		
Consumer Products		25.9																
Architectural Coatings		0.82																
Total		26.8																
Annual																		
Consumer Products		4.73																
Architectural Coatings		0.15																
Total		4.88																

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												193	371	564	19.8	0.48		1201
Research & Development												800	1511	2311	82.3	1.98		4957
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												2.91	5.49	8.4	0.3	0.01		18
Total												996	1887	2883	102	2.46		6176
Daily, Winter (Max)																		
General Office Building												193	371	564	19.8	0.48		1201
Research & Development												800	1511	2311	82.3	1.98		4957
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												2.91	5.49	8.4	0.3	0.01		18
Total												996	1887	2883	102	2.46		6176
Annual																		
General Office Building												31.9	61.4	93.3	3.28	0.08		199
Research & Development												132	250	383	13.6	0.33		821
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												0.48	0.91	1.39	0.05	< 0.005		2.98
Total												165	312	477	17	0.41		1023

4.4.1. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												193	371	564	19.8	0.48		1201
Research & Development												800	1511	2311	82.3	1.98		4957
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												2.91	5.49	8.4	0.3	0.01		18
Total												996	1887	2883	102	2.46		6176
Daily, Winter (Max)																		
General Office Building												193	371	564	19.8	0.48		1201

Research & Development												800	1511	2311	82.3	1.98		4957
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												2.91	5.49	8.4	0.3	0.01		18
Total												996	1887	2883	102	2.46		6176
Annual																		
General Office Building												31.9	61.4	93.3	3.28	0.08		199
Research & Development												132	250	383	13.6	0.33		821
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												0.48	0.91	1.39	0.05	< 0.005		2.98
Total												165	312	477	17	0.41		1023

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												284	0	284	28.4	0		993
Research & Development												34.8	0	34.8	3.48	0		122
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												32.1	0	32.1	3.2	0		112
Total												351	0	351	35	0		1226
Daily, Winter (Max)																		
General Office Building												284	0	284	28.4	0		993
Research & Development												34.8	0	34.8	3.48	0		122
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												32.1	0	32.1	3.2	0		112
Total												351	0	351	35	0		1226
Annual																		
General Office Building												47	0	47	4.69	0		164
Research & Development												5.76	0	5.76	0.58	0		20.1
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												5.31	0	5.31	0.53	0		18.6
Total												58	0	58	5.8	0		203

4.5.1. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												284	0	284	28.4	0		993
Research & Development												34.8	0	34.8	3.48	0		122
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												32.1	0	32.1	3.2	0		112
Total												351	0	351	35	0		1226
Daily, Winter (Max)																		
General Office Building												284	0	284	28.4	0		993
Research & Development												34.8	0	34.8	3.48	0		122
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												32.1	0	32.1	3.2	0		112
Total												351	0	351	35	0		1226
Annual																		
General Office Building												47	0	47	4.69	0		164
Research & Development												5.76	0	5.76	0.58	0		20.1
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												5.31	0	5.31	0.53	0		18.6
Total												58	0	58	5.8	0		203

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building																	1.38	1.38
Research & Development																	21.7	21.7
High Turnover (Sit Down Restaurant)																	7.82	7.82
Total																	30.9	30.9
Daily, Winter (Max)																		
General Office Building																	1.38	1.38
Research & Development																	21.7	21.7
High Turnover (Sit Down Restaurant)																	7.82	7.82
Total																	30.9	30.9
Annual																		
General Office Building																	0.23	0.23
Research & Development																	3.59	3.59
High Turnover (Sit Down Restaurant)																	1.29	1.29
Total																	5.11	5.11

4.6.2. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building																	1.38	1.38
Research & Development																	21.7	21.7
High Turnover (Sit Down Restaurant)																	7.82	7.82
Total																	30.9	30.9
Daily, Winter (Max)																		
General Office Building																	1.38	1.38
Research & Development																	21.7	21.7
High Turnover (Sit Down Restaurant)																	7.82	7.82
Total																	30.9	30.9
Annual																		
General Office Building																	0.23	0.23
Research & Development																	3.59	3.59
High Turnover (Sit Down Restaurant)																	1.29	1.29
Total																	5.11	5.11

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.7.2. Mitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		

Daily, Winter (Max)
Total
Annual
Total

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.8.2. Mitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.9.2. Mitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Vegetation	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Species	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Daily, Winter (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Annual																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Vegetation	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		

Total

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Species	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Daily, Winter (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Annual																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Wee	Trips/Satu	Trips/Sunc	Trips/Year	VMT/Wee	VMT/Satu	VMT/Sund	VMT/Year
General Office Building	9311	9311	9311	3398406	95278	95278	95278	34776398
Research & Development	0	0	0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0

5.9.2. Mitigated

Land Use Type	Trips/Wee	Trips/Satu	Trips/Sunc	Trips/Year	VMT/Wee	VMT/Satu	VMT/Sund	VMT/Year
General Office Building	9311	9311	9311	3398406	95278	95278	95278	34776398
Research & Development	0	0	0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residentia	Non-Resid	Non-Resid	Parking Area Coated (sq ft)
0	0	2183100	715900	70800

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Land Use	Electricity	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	11981446	204	0.033	0.004	13442664
Research & Development	17972170	204	0.033	0.004	20163996
Enclosed Parking with Elevator	4355889	204	0.033	0.004	0
High Turnover (Sit Down Restaurant)	226894	204	0.033	0.004	674605

5.11.2. Mitigated

Land Use	Electricity	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	11981446	204	0.033	0.004	13442664
Research & Development	17972170	204	0.033	0.004	20163996
Enclosed Parking with Elevator	4355889	204	0.033	0.004	0
High Turnover (Sit Down Restaurant)	226894	204	0.033	0.004	674605

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Wa	Outdoor Water (gal/year)
General Office Building	1.01E+08	2487055
Research & Development	4.17E+08	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	1517669	0

5.12.2. Mitigated

Land Use	Indoor Wa	Outdoor Water (gal/year)
General Office Building	1.01E+08	2487055
Research & Development	4.17E+08	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	1517669	0

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (tor	Cogeneration (kWh/year)
General Office Building	526	0
Research & Development	64.5	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	59.5	0

5.13.2. Mitigated

Land Use	Waste (tor	Cogeneration (kWh/year)
General Office Building	526	0
Research & Development	64.5	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	59.5	0

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipmen	Refrigeran	GWP	Quantity (l	Operation	Service Le	Times Serviced
General Office Building	Householc	R-134a	1430	0.02	0.6	0	1
General Office Building	Other com	R-410A	2088	< 0.005	4	4	18
Research & Development	Householc	R-134a	1430	0.45	0.6	0	1
Research & Development	Other com	R-410A	2088	< 0.005	4	4	18
High Turnover (Sit Down Restaurant)	Householc	R-134a	1430	0	0.6	0	1
High Turnover (Sit Down Restaurant)	Other com	R-410A	2088	1.8	4	4	18
High Turnover (Sit Down Restaurant)	Walk-in re	R-404A	3922	< 0.005	7.5	7.5	20

5.14.2. Mitigated

Land Use Type	Equipmen	Refrigeran	GWP	Quantity (l	Operation	Service Le	Times Serviced
General Office Building	Householc	R-134a	1430	0.02	0.6	0	1
General Office Building	Other com	R-410A	2088	< 0.005	4	4	18
Research & Development	Householc	R-134a	1430	0.45	0.6	0	1
Research & Development	Other com	R-410A	2088	< 0.005	4	4	18
High Turnover (Sit Down Restaurant)	Householc	R-134a	1430	0	0.6	0	1
High Turnover (Sit Down Restaurant)	Other com	R-410A	2088	1.8	4	4	18
High Turnover (Sit Down Restaurant)	Walk-in re	R-404A	3922	< 0.005	7.5	7.5	20

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tie	Number p	Hours Per	Horsepow	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tie	Number p	Hours Per	Horsepow	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number p	Hours per	Hours per	Horsepow	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rati	Daily Heat	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetatior	Initial Acre	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetatior	Initial Acre	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acre	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acre	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for	Unit
Temperature and Extreme Heat	7.57	annual days of extreme heat
Extreme Precipitation	6.1	annual days with precipitation above 20 mm
Sea Level Rise	0	meters of inundation depth
Wildfire	0	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure S	Sensitivity	Adaptive C	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack	N/A	N/A	N/A	N/A
Air Quality	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure S	Sensitivity	Adaptive C	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A

Extreme Precipitation	2	1	1	3
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack	N/A	N/A	N/A	N/A
Air Quality	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures
7. Health and Equity Details
7.1. CalEnviroScreen 4.0 Scores
The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	
AQ-Ozone	10.6
AQ-PM	32.8
AQ-DPM	75.5
Drinking Water	42.7
Lead Risk Housing	59.5
Pesticides	0
Toxic Releases	33.4
Traffic	81
Effect Indicators	
CleanUp Sites	0
Groundwater	78.7
Haz Waste Facilities/Generators	76.7
Impaired Water Bodies	77.3
Solid Waste	84.7
Sensitive Population	
Asthma	12.4
Cardio-vascular	12.1
Low Birth Weights	63.3
Socioeconomic Factor Indicators	
Education	25.5
Housing	46
Linguistic	47.1
Poverty	32.5
Unemployment	61.5

7.2. Healthy Places Index Scores
The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	
Above Poverty	87.66842
Employed	97.33094
Median HI	79.13512
Education	
Bachelor's or higher	88.73348
High school enrollment	100
Preschool enrollment	80.93161
Transportation	
Auto Access	38.03413
Active commuting	89.90119
Social	
2-parent households	73.4377
Voting	91.00475
Neighborhood	
Alcohol availability	18.79892
Park access	50.49403
Retail density	95.36764
Supermarket access	22.49455
Tree canopy	83.9343
Housing	
Homeownership	32.88849
Housing habitability	47.09355
Low-inc homeowner severe housing cost burden	12.75504
Low-inc renter severe housing cost burden	78.78866
Uncrowded housing	58.11626
Health Outcomes	
Insured adults	83.39535
Arthritis	0
Asthma ER Admissions	79
High Blood Pressure	0
Cancer (excluding skin)	0
Asthma	0
Coronary Heart Disease	0
Chronic Obstructive Pulmonary Disease	0
Diagnosed Diabetes	0
Life Expectancy at Birth	82
Cognitively Disabled	75
Physically Disabled	87
Heart Attack ER Admissions	88
Mental Health Not Good	0
Chronic Kidney Disease	0
Obesity	0
Pedestrian Injuries	87
Physical Health Not Good	0
Stroke	0
Health Risk Behaviors	
Binge Drinking	0
Current Smoker	0
No Leisure Time for Physical Activity	0
Climate Change Exposures	
Wildfire Risk	0
SLR Inundation Area	28
Children	22
Elderly	57
English Speaking	72
Foreign-born	38
Outdoor Workers	64
Climate Change Adaptive Capacity	
Impervious Surface Cover	36

Traffic Density	84
Traffic Access	87
Other Indices	
Hardship	9
Other Decision Support	
2016 Voting	86

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	43
Healthy Places Index Score for Project Location (b)	94
Project Located in a Designated Disadvantaged Com	No
Project Located in a Low-Income Community (Asser	No
Project Located in a Community Air Protection Prog	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

Measure Title	Co-Benefits Achieved

7.5. Evaluation Scorecard

Category	Number o	Total Point	Max Possil	Weighted Score

7.6. Health & Equity Custom Measures

Measure Title	Sponsor

8. User Changes to Default Data

Screen	Justification
Operations: Vehicle Data	Updated the General Office Building Trip based on the latest traffic data that the client provided
Operations: Consumer Products	Adjusted to be specific to San Mateo county

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	DivcoWest (phase 1)
Lead Agency	
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	4.6
Precipitation (days)	37.8
Location	1300 Old Bayshore Hwy, Burlingame, CA 94010, USA
County	San Mateo
City	Burlingame
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1201
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreag	Building A	Landscape	Special Lar	Populatior	Description
General Office Building	175	1000sqft	7.3	175000	133000			
Research & Development	262	1000sqft	0	262000	0			
Enclosed Parking with Elevator	617	1000sqft	0	617000	0			
High Turnover (Sit Down Restaurant)	3	1000sqft	0	3000	0			

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Area	LL-1	Replace Gas Powered Landscape Equipment with Zero-Emission Landscape Equipment
Area	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Un/Mit.	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Unmit.	17.2	24.9	9.23	123	0.24	0.4	8.05	8.44	0.41	1.41	1.82	426	32832	33258	45.6	1.6	78.9	34953
Mit.	9.04	17	8.84	77.4	0.23	0.34	8.05	8.38	0.33	1.41	1.74	426	32660	33085	45.6	1.6	78.9	34780
% Reduced	47.5	31.9	4.19	37.3	1.16	15.5		0.73	19.9		4.49		0.53	0.52	0.01	0.08		0.49
Daily, Winter (Max)																		
Unmit.	8.94	17.3	9.91	75	0.22	0.34	8.05	8.38	0.33	1.41	1.74	426	31664	32090	45.6	1.67	13.5	33743
Mit.	8.94	16.8	9.91	75	0.22	0.34	8.05	8.38	0.33	1.41	1.74	426	31664	32090	45.6	1.67	13.5	33743
% Reduced		2.43																
Average Daily (Max)																		
Unmit.	12.8	20.9	9.71	95.2	0.23	0.37	8.05	8.41	0.37	1.41	1.78	426	31809	32235	45.6	1.65	40.8	33907
Mit.	8.8	16.7	9.52	72.5	0.23	0.34	8.05	8.38	0.33	1.41	1.74	426	31724	32150	45.6	1.64	40.8	33821
% Reduced	31.4	19.8	1.97	23.8	0.6	8.29		0.36	10.9		2.27		0.27	0.26	0.01			0.25
Annual (Max)																		
Unmit.	2.34	3.81	1.77	17.4	0.04	0.07	1.47	1.54	0.07	0.26	0.32	70.5	5266	5337	7.55	0.27	6.75	5614
Mit.	1.61	3.05	1.74	13.2	0.04	0.06	1.47	1.53	0.06	0.26	0.32	70.5	5252	5323	7.55	0.27	6.75	5599
% Reduced	31.4	19.8	1.97	23.8	0.6	8.29		0.36	10.9		2.27		0.27	0.26	0.01	0.04		0.25

2.5. Operations Emissions by Sector, Unmitigated

Sector	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Mobile	8.72	7.97	5.95	74.9	0.22	0.12	8.05	8.16	0.11	1.41	1.52		22083	22083	0.74	0.7	67.1	22378
Area	8.18	16.8	0.39	46	< 0.005	0.06		0.06	0.08		0.08		189	189	0.01	< 0.005		190
Energy	0.32	0.16	2.9	2.43	0.02	0.22		0.22	0.22		0.22		9975	9975	1.36	0.13		10049
Water												308	585	893	31.7	0.76		1913
Waste												118	0	118	11.8	0		412
Refrig.																	11.8	11.8
Total	17.2	24.9	9.23	123	0.24	0.4	8.05	8.44	0.41	1.41	1.82	426	32832	33258	45.6	1.6	78.9	34953
Daily, Winter (Max)																		
Mobile	8.62	7.84	7.02	72.6	0.21	0.12	8.05	8.16	0.11	1.41	1.52		21104	21104	0.82	0.77	1.74	21358
Area		9.27																
Energy	0.32	0.16	2.9	2.43	0.02	0.22		0.22	0.22		0.22		9975	9975	1.36	0.13		10049
Water												308	585	893	31.7	0.76		1913
Waste												118	0	118	11.8	0		412
Refrig.																	11.8	11.8
Total	8.94	17.3	9.91	75	0.22	0.34	8.05	8.38	0.33	1.41	1.74	426	31664	32090	45.6	1.67	13.5	33743
Average Daily																		
Mobile	8.49	7.72	6.62	70.1	0.21	0.12	8.05	8.16	0.11	1.41	1.52		21156	21156	0.79	0.75	29	21428
Area	4.03	13	0.19	22.7	< 0.005	0.03		0.03	0.04		0.04		93.2	93.2	< 0.005	< 0.005		93.6
Energy	0.32	0.16	2.9	2.43	0.02	0.22		0.22	0.22		0.22		9975	9975	1.36	0.13		10049
Water												308	585	893	31.7	0.76		1913
Waste												118	0	118	11.8	0		412
Refrig.																	11.8	11.8
Total	12.8	20.9	9.71	95.2	0.23	0.37	8.05	8.41	0.37	1.41	1.78	426	31809	32235	45.6	1.65	40.8	33907
Annual																		
Mobile	1.55	1.41	1.21	12.8	0.04	0.02	1.47	1.49	0.02	0.26	0.28		3503	3503	0.13	0.12	4.79	3548
Area	0.74	2.37	0.03	4.14	< 0.005	0.01		0.01	0.01		0.01		15.4	15.4	< 0.005	< 0.005		15.5
Energy	0.06	0.03	0.53	0.44	< 0.005	0.04		0.04	0.04		0.04		1651	1651	0.23	0.02		1664
Water												51	96.9	148	5.25	0.13		317
Waste												19.5	0	19.5	1.95	0		68.2
Refrig.																	1.96	1.96
Total	2.34	3.81	1.77	17.4	0.04	0.07	1.47	1.54	0.07	0.26	0.32	70.5	5266	5337	7.55	0.27	6.75	5614

2.6. Operations Emissions by Sector, Mitigated

Sector	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Mobile	8.72	7.97	5.95	74.9	0.22	0.12	8.05	8.16	0.11	1.41	1.52		22083	22083	0.74	0.7	67.1	22378
Area		8.85																
Energy	0.32	0.16	2.9	2.43	0.02	0.22		0.22	0.22		0.22		9991	9991	1.36	0.13		10066
Water												308	585	893	31.7	0.76		1913
Waste												118	0	118	11.8	0		412
Refrig.																	11.8	11.8
Total	9.04	17	8.84	77.4	0.23	0.34	8.05	8.38	0.33	1.41	1.74	426	32660	33085	45.6	1.6	78.9	34780
Daily, Winter (Max)																		
Mobile	8.62	7.84	7.02	72.6	0.21	0.12	8.05	8.16	0.11	1.41	1.52		21104	21104	0.82	0.77	1.74	21358
Area		8.85																
Energy	0.32	0.16	2.9	2.43	0.02	0.22		0.22	0.22		0.22		9975	9975	1.36	0.13		10049
Water												308	585	893	31.7	0.76		1913
Waste												118	0	118	11.8	0		412
Refrig.																	11.8	11.8
Total	8.94	16.8	9.91	75	0.22	0.34	8.05	8.38	0.33	1.41	1.74	426	31664	32090	45.6	1.67	13.5	33743
Average Daily																		

Mobile	8.49	7.72	6.62	70.1	0.21	0.12	8.05	8.16	0.11	1.41	1.52		21156	21156	0.79	0.75	29	21428
Area		8.85																
Energy	0.32	0.16	2.9	2.43	0.02	0.22		0.22	0.22		0.22		9983	9983	1.36	0.13		10057
Water												308	585	893	31.7	0.76		1913
Waste												118	0	118	11.8	0		412
Refrig.																	11.8	11.8
Total	8.8	16.7	9.52	72.5	0.23	0.34	8.05	8.38	0.33	1.41	1.74	426	31724	32150	45.6	1.64	40.8	33821
Annual																		
Mobile	1.55	1.41	1.21	12.8	0.04	0.02	1.47	1.49	0.02	0.26	0.28		3503	3503	0.13	0.12	4.79	3548
Area		1.61																
Energy	0.06	0.03	0.53	0.44	< 0.005	0.04		0.04	0.04		0.04		1653	1653	0.23	0.02		1665
Water												51	96.9	148	5.25	0.13		317
Waste												19.5	0	19.5	1.95	0		68.2
Refrig.																	1.96	1.96
Total	1.61	3.05	1.74	13.2	0.04	0.06	1.47	1.53	0.06	0.26	0.32	70.5	5252	5323	7.55	0.27	6.75	5599

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building	8.72	7.97	5.95	74.9	0.22	0.12	1.22	1.33	0.11	0.37	0.48		22083	22083	0.74	0.7	67.1	22378
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	8.72	7.97	5.95	74.9	0.22	0.12	1.22	1.33	0.11	0.37	0.48		22083	22083	0.74	0.7	67.1	22378
Daily, Winter (Max)																		
General Office Building	8.62	7.84	7.02	72.6	0.21	0.12	1.22	1.33	0.11	0.37	0.48		21104	21104	0.82	0.77	1.74	21358
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	8.62	7.84	7.02	72.6	0.21	0.12	1.22	1.33	0.11	0.37	0.48		21104	21104	0.82	0.77	1.74	21358
Annual																		
General Office Building	1.55	1.41	1.21	12.8	0.04	0.02	0.22	0.24	0.02	0.07	0.09		3503	3503	0.13	0.12	4.79	3548
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	1.55	1.41	1.21	12.8	0.04	0.02	0.22	0.24	0.02	0.07	0.09		3503	3503	0.13	0.12	4.79	3548

4.1.2. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building	8.72	7.97	5.95	74.9	0.22	0.12	1.22	1.33	0.11	0.37	0.48		22083	22083	0.74	0.7	67.1	22378
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	8.72	7.97	5.95	74.9	0.22	0.12	1.22	1.33	0.11	0.37	0.48		22083	22083	0.74	0.7	67.1	22378
Daily, Winter (Max)																		
General Office Building	8.62	7.84	7.02	72.6	0.21	0.12	1.22	1.33	0.11	0.37	0.48		21104	21104	0.82	0.77	1.74	21358
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	8.62	7.84	7.02	72.6	0.21	0.12	1.22	1.33	0.11	0.37	0.48		21104	21104	0.82	0.77	1.74	21358
Annual																		
General Office Building	1.55	1.41	1.21	12.8	0.04	0.02	0.22	0.24	0.02	0.07	0.09		3503	3503	0.13	0.12	4.79	3548
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	1.55	1.41	1.21	12.8	0.04	0.02	0.22	0.24	0.02	0.07	0.09		3503	3503	0.13	0.12	4.79	3548

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building													2070	2070	0.33	0.04		2091
Research & Development													3100	3100	0.5	0.06		3130
Enclosed Parking with Elevator													1273	1273	0.21	0.02		1285
High Turnover (Sit Down Restaurant)													76.1	76.1	0.01	< 0.005		76.8
Total													6519	6519	1.05	0.13		6583
Daily, Winter (Max)																		
General Office Building													2070	2070	0.33	0.04		2091
Research & Development													3100	3100	0.5	0.06		3130
Enclosed Parking with Elevator													1273	1273	0.21	0.02		1285
High Turnover (Sit Down Restaurant)													76.1	76.1	0.01	< 0.005		76.8
Total													6519	6519	1.05	0.13		6583
Annual																		
General Office Building													343	343	0.06	0.01		346
Research & Development													513	513	0.08	0.01		518
Enclosed Parking with Elevator													211	211	0.03	< 0.005		213
High Turnover (Sit Down Restaurant)													12.6	12.6	< 0.005	< 0.005		12.7
Total													1079	1079	0.17	0.02		1090

4.2.2. Electricity Emissions By Land Use - Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building													2073	2073	0.34	0.04		2094
Research & Development													3104	3104	0.5	0.06		3134
Enclosed Parking with Elevator													1283	1283	0.21	0.03		1295
High Turnover (Sit Down Restaurant)													76.1	76.1	0.01	< 0.005		76.9
Total													6535	6535	1.06	0.13		6600
Daily, Winter (Max)																		
General Office Building													2070	2070	0.33	0.04		2091
Research & Development													3100	3100	0.5	0.06		3130
Enclosed Parking with Elevator													1273	1273	0.21	0.02		1285
High Turnover (Sit Down Restaurant)													76.1	76.1	0.01	< 0.005		76.8
Total													6519	6519	1.05	0.13		6583
Annual																		
General Office Building													343	343	0.06	0.01		346
Research & Development													513	513	0.08	0.01		519
Enclosed Parking with Elevator													212	212	0.03	< 0.005		214
High Turnover (Sit Down Restaurant)													12.6	12.6	< 0.005	< 0.005		12.7
Total													1081	1081	0.17	0.02		1091

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e

Daily, Summer (Max)																		
General Office Building	0.12	0.06	1.12	0.94	0.01	0.08		0.08	0.08		0.08		1332	1332	0.12	< 0.005		1336
Research & Development	0.18	0.09	1.67	1.4	0.01	0.13		0.13	0.13		0.13		1994	1994	0.18	< 0.005		2000
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.01	0.01	0.11	0.09	< 0.005	0.01		0.01	0.01		0.01		130	130	0.01	< 0.005		130
Total	0.32	0.16	2.9	2.43	0.02	0.22		0.22	0.22		0.22		3456	3456	0.31	0.01		3466
Daily, Winter (Max)																		
General Office Building	0.12	0.06	1.12	0.94	0.01	0.08		0.08	0.08		0.08		1332	1332	0.12	< 0.005		1336
Research & Development	0.18	0.09	1.67	1.4	0.01	0.13		0.13	0.13		0.13		1994	1994	0.18	< 0.005		2000
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.01	0.01	0.11	0.09	< 0.005	0.01		0.01	0.01		0.01		130	130	0.01	< 0.005		130
Total	0.32	0.16	2.9	2.43	0.02	0.22		0.22	0.22		0.22		3456	3456	0.31	0.01		3466
Annual																		
General Office Building	0.02	0.01	0.2	0.17	< 0.005	0.02		0.02	0.02		0.02		221	221	0.02	< 0.005		221
Research & Development	0.03	0.02	0.31	0.26	< 0.005	0.02		0.02	0.02		0.02		330	330	0.03	< 0.005		331
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		21.5	21.5	< 0.005	< 0.005		21.5
Total	0.06	0.03	0.53	0.44	< 0.005	0.04		0.04	0.04		0.04		572	572	0.05	< 0.005		574

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building	0.12	0.06	1.12	0.94	0.01	0.08		0.08	0.08		0.08		1332	1332	0.12	< 0.005		1336
Research & Development	0.18	0.09	1.67	1.4	0.01	0.13		0.13	0.13		0.13		1994	1994	0.18	< 0.005		2000
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.01	0.01	0.11	0.09	< 0.005	0.01		0.01	0.01		0.01		130	130	0.01	< 0.005		130
Total	0.32	0.16	2.9	2.43	0.02	0.22		0.22	0.22		0.22		3456	3456	0.31	0.01		3466
Daily, Winter (Max)																		
General Office Building	0.12	0.06	1.12	0.94	0.01	0.08		0.08	0.08		0.08		1332	1332	0.12	< 0.005		1336
Research & Development	0.18	0.09	1.67	1.4	0.01	0.13		0.13	0.13		0.13		1994	1994	0.18	< 0.005		2000
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.01	0.01	0.11	0.09	< 0.005	0.01		0.01	0.01		0.01		130	130	0.01	< 0.005		130
Total	0.32	0.16	2.9	2.43	0.02	0.22		0.22	0.22		0.22		3456	3456	0.31	0.01		3466
Annual																		
General Office Building	0.02	0.01	0.2	0.17	< 0.005	0.02		0.02	0.02		0.02		221	221	0.02	< 0.005		221
Research & Development	0.03	0.02	0.31	0.26	< 0.005	0.02		0.02	0.02		0.02		330	330	0.03	< 0.005		331
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		21.5	21.5	< 0.005	< 0.005		21.5
Total	0.06	0.03	0.53	0.44	< 0.005	0.04		0.04	0.04		0.04		572	572	0.05	< 0.005		574

4.3. Area Emissions by Source

4.3.2. Unmitigated

Source	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Consumer Products		8.01																
Architectural Coatings		1.26																
Landscape Equipment	8.18	7.55	0.39	46	< 0.005	0.06		0.06	0.08		0.08		189	189	0.01	< 0.005		190
Total	8.18	16.8	0.39	46	< 0.005	0.06		0.06	0.08		0.08		189	189	0.01	< 0.005		190
Daily, Winter (Max)																		
Consumer Products		8.01																
Architectural Coatings		1.26																
Total		9.27																
Annual																		
Consumer Products		1.46																
Architectural Coatings		0.23																
Landscape Equipment	0.74	0.68	0.03	4.14	< 0.005	0.01		0.01	0.01		0.01		15.4	15.4	< 0.005	< 0.005		15.5
Total	0.74	2.37	0.03	4.14	< 0.005	0.01		0.01	0.01		0.01		15.4	15.4	< 0.005	< 0.005		15.5

4.3.1. Mitigated

Source	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Consumer Products		8.01																
Architectural Coatings		0.84																
Total		8.85																
Daily, Winter (Max)																		
Consumer Products		8.01																
Architectural Coatings		0.84																
Total		8.85																
Annual																		
Consumer Products		1.46																
Architectural Coatings		0.15																
Total		1.61																

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												59.6	116	175	6.13	0.15		372
Research & Development												247	466	713	25.4	0.61		1530
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												1.74	3.3	5.04	0.18	< 0.005		10.8
Total												308	585	893	31.7	0.76		1913
Daily, Winter (Max)																		
General Office Building												59.6	116	175	6.13	0.15		372
Research & Development												247	466	713	25.4	0.61		1530
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												1.74	3.3	5.04	0.18	< 0.005		10.8
Total												308	585	893	31.7	0.76		1913
Annual																		
General Office Building												9.87	19.1	29	1.01	0.02		61.7
Research & Development												40.9	77.2	118	4.2	0.1		253
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												0.29	0.55	0.83	0.03	< 0.005		1.79
Total												51	96.9	148	5.25	0.13		317

4.4.1. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												59.6	116	175	6.13	0.15		372
Research & Development												247	466	713	25.4	0.61		1530
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												1.74	3.3	5.04	0.18	< 0.005		10.8
Total												308	585	893	31.7	0.76		1913
Daily, Winter (Max)																		
General Office Building												59.6	116	175	6.13	0.15		372

Research & Development												247	466	713	25.4	0.61		1530
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												1.74	3.3	5.04	0.18	< 0.005		10.8
Total												308	585	893	31.7	0.76		1913
Annual																		
General Office Building												9.87	19.1	29	1.01	0.02		61.7
Research & Development												40.9	77.2	118	4.2	0.1		253
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												0.29	0.55	0.83	0.03	< 0.005		1.79
Total												51	96.9	148	5.25	0.13		317

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												87.7	0	87.7	8.77	0		307
Research & Development												10.7	0	10.7	1.07	0		37.5
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												19.2	0	19.2	1.92	0		67.3
Total												118	0	118	11.8	0		412
Daily, Winter (Max)																		
General Office Building												87.7	0	87.7	8.77	0		307
Research & Development												10.7	0	10.7	1.07	0		37.5
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												19.2	0	19.2	1.92	0		67.3
Total												118	0	118	11.8	0		412
Annual																		
General Office Building												14.5	0	14.5	1.45	0		50.8
Research & Development												1.78	0	1.78	0.18	0		6.22
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												3.19	0	3.19	0.32	0		11.1
Total												19.5	0	19.5	1.95	0		68.2

4.5.1. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												87.7	0	87.7	8.77	0		307
Research & Development												10.7	0	10.7	1.07	0		37.5
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												19.2	0	19.2	1.92	0		67.3
Total												118	0	118	11.8	0		412
Daily, Winter (Max)																		
General Office Building												87.7	0	87.7	8.77	0		307
Research & Development												10.7	0	10.7	1.07	0		37.5
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												19.2	0	19.2	1.92	0		67.3
Total												118	0	118	11.8	0		412
Annual																		
General Office Building												14.5	0	14.5	1.45	0		50.8
Research & Development												1.78	0	1.78	0.18	0		6.22
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												3.19	0	3.19	0.32	0		11.1
Total												19.5	0	19.5	1.95	0		68.2

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building																	0.43	0.43
Research & Development																	6.69	6.69
High Turnover (Sit Down Restaurant)																	4.69	4.69
Total																	11.8	11.8
Daily, Winter (Max)																		
General Office Building																	0.43	0.43
Research & Development																	6.69	6.69
High Turnover (Sit Down Restaurant)																	4.69	4.69
Total																	11.8	11.8
Annual																		
General Office Building																	0.07	0.07
Research & Development																	1.11	1.11
High Turnover (Sit Down Restaurant)																	0.78	0.78
Total																	1.96	1.96

4.6.2. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building																	0.43	0.43
Research & Development																	6.69	6.69
High Turnover (Sit Down Restaurant)																	4.69	4.69
Total																	11.8	11.8
Daily, Winter (Max)																		
General Office Building																	0.43	0.43
Research & Development																	6.69	6.69
High Turnover (Sit Down Restaurant)																	4.69	4.69
Total																	11.8	11.8
Annual																		
General Office Building																	0.07	0.07
Research & Development																	1.11	1.11
High Turnover (Sit Down Restaurant)																	0.78	0.78
Total																	1.96	1.96

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.7.2. Mitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		

Daily, Winter (Max)
Total
Annual
Total

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.8.2. Mitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.9.2. Mitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Vegetation	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Species	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Daily, Winter (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Annual																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Vegetation	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		

Total

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Species	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Daily, Winter (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Annual																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Wee	Trips/Satu	Trips/Sunc	Trips/Year	VMT/Wee	VMT/Satu	VMT/Sund	VMT/Year
General Office Building	2879	2879	2879	1050744	29459	29459	29459	10752420
Research & Development	0	0	0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0

5.9.2. Mitigated

Land Use Type	Trips/Wee	Trips/Satu	Trips/Sunc	Trips/Year	VMT/Wee	VMT/Satu	VMT/Sund	VMT/Year
General Office Building	2879	2879	2879	1050744	29459	29459	29459	10752420
Research & Development	0	0	0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residentia	Non-Resid	Non-Resid	Parking Area Coated (sq ft)
0	0	660000	220000	

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Land Use	Electricity	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	3704511	204	0.033	0.004	4156301
Research & Development	5546182	204	0.033	0.004	6222576
Enclosed Parking with Elevator	2277613	204	0.033	0.004	0
High Turnover (Sit Down Restaurant)	136136	204	0.033	0.004	404763
	11664442				10783640

5.11.2. Mitigated

Land Use	Electricity	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	3704511	204	0.033	0.004	4156301
Research & Development	5546182	204	0.033	0.004	6222576
Enclosed Parking with Elevator	2277613	204	0.033	0.004	0
High Turnover (Sit Down Restaurant)	136136	204	0.033	0.004	404763

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Wa	Outdoor Water (gal/year)
General Office Building	31103406	1102595
Research & Development	1.29E+08	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	910601	0

5.12.2. Mitigated

Land Use	Indoor Wa	Outdoor Water (gal/year)
General Office Building	31103406	1102595
Research & Development	1.29E+08	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	910601	0

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (tor	Cogeneration (kWh/year)
General Office Building	163	0
Research & Development	19.9	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	35.7	0

5.13.2. Mitigated

Land Use	Waste (tor	Cogeneration (kWh/year)
General Office Building	163	0
Research & Development	19.9	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	35.7	0

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipmen	Refrigeran	GWP	Quantity (l	Operation	Service Le	Times Serviced
General Office Building	Householc	R-134a	1430	0.02	0.6	0	1
General Office Building	Other com	R-410A	2088	< 0.005	4	4	18
Research & Development	Householc	R-134a	1430	0.45	0.6	0	1
Research & Development	Other com	R-410A	2088	< 0.005	4	4	18
High Turnover (Sit Down Restaurant)	Householc	R-134a	1430	0	0.6	0	1
High Turnover (Sit Down Restaurant)	Other com	R-410A	2088	1.8	4	4	18
High Turnover (Sit Down Restaurant)	Walk-in re	R-404A	3922	< 0.005	7.5	7.5	20

5.14.2. Mitigated

Land Use Type	Equipmen	Refrigeran	GWP	Quantity (l	Operation	Service Le	Times Serviced
General Office Building	Householc	R-134a	1430	0.02	0.6	0	1
General Office Building	Other com	R-410A	2088	< 0.005	4	4	18
Research & Development	Householc	R-134a	1430	0.45	0.6	0	1
Research & Development	Other com	R-410A	2088	< 0.005	4	4	18
High Turnover (Sit Down Restaurant)	Householc	R-134a	1430	0	0.6	0	1
High Turnover (Sit Down Restaurant)	Other com	R-410A	2088	1.8	4	4	18
High Turnover (Sit Down Restaurant)	Walk-in re	R-404A	3922	< 0.005	7.5	7.5	20

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tie	Number p	Hours Per	Horsepow	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tie	Number p	Hours Per	Horsepow	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number p	Hours per	Hours per	Horsepow	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rati	Daily Heat	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetatior	Initial Acre	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetatior	Initial Acre	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acre	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acre	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for	Unit
Temperature and Extreme Heat	7.57	annual days of extreme heat
Extreme Precipitation	6.1	annual days with precipitation above 20 mm
Sea Level Rise	0	meters of inundation depth
Wildfire	0	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure S	Sensitivity	Adaptive C	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack	N/A	N/A	N/A	N/A
Air Quality	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure S	Sensitivity	Adaptive C	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A

Extreme Precipitation	2	1	1	3
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack	N/A	N/A	N/A	N/A
Air Quality	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	
AQ-Ozone	10.6
AQ-PM	32.8
AQ-DPM	75.5
Drinking Water	42.7
Lead Risk Housing	59.5
Pesticides	0
Toxic Releases	33.4
Traffic	81
Effect Indicators	
CleanUp Sites	0
Groundwater	78.7
Haz Waste Facilities/Generators	76.7
Impaired Water Bodies	77.3
Solid Waste	84.7
Sensitive Population	
Asthma	12.4
Cardio-vascular	12.1
Low Birth Weights	63.3
Socioeconomic Factor Indicators	
Education	25.5
Housing	46
Linguistic	47.1
Poverty	32.5
Unemployment	61.5

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	
Above Poverty	87.66842
Employed	97.33094
Median HI	79.13512
Education	
Bachelor's or higher	88.73348
High school enrollment	100
Preschool enrollment	80.93161
Transportation	
Auto Access	38.03413
Active commuting	89.90119
Social	
2-parent households	73.4377
Voting	91.00475
Neighborhood	
Alcohol availability	18.79892
Park access	50.49403
Retail density	95.36764
Supermarket access	22.49455
Tree canopy	83.9343
Housing	
Homeownership	32.88849
Housing habitability	47.09355
Low-inc homeowner severe housing cost burden	12.75504
Low-inc renter severe housing cost burden	78.78866
Uncrowded housing	58.11626
Health Outcomes	
Insured adults	83.39535
Arthritis	0
Asthma ER Admissions	79
High Blood Pressure	0
Cancer (excluding skin)	0
Asthma	0
Coronary Heart Disease	0
Chronic Obstructive Pulmonary Disease	0
Diagnosed Diabetes	0
Life Expectancy at Birth	82
Cognitively Disabled	75
Physically Disabled	87
Heart Attack ER Admissions	88
Mental Health Not Good	0
Chronic Kidney Disease	0
Obesity	0
Pedestrian Injuries	87
Physical Health Not Good	0
Stroke	0
Health Risk Behaviors	
Binge Drinking	0
Current Smoker	0
No Leisure Time for Physical Activity	0
Climate Change Exposures	
Wildfire Risk	0
SLR Inundation Area	28
Children	22
Elderly	57
English Speaking	72
Foreign-born	38
Outdoor Workers	64
Climate Change Adaptive Capacity	
Impervious Surface Cover	36

Traffic Density	84
Traffic Access	87
Other Indices	
Hardship	9
Other Decision Support	
2016 Voting	86

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	43
Healthy Places Index Score for Project Location (b)	94
Project Located in a Designated Disadvantaged Com	No
Project Located in a Low-Income Community (Asser	No
Project Located in a Community Air Protection Prog	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

Measure Title	Co-Benefits Achieved

7.5. Evaluation Scorecard

Category	Number o	Total Poin	Max Possil	Weighted Score

7.6. Health & Equity Custom Measures

Measure Title	Sponsor

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Updated based on the latest construction schedule.
Operations: Vehicle Data	Updated the General Office Building Trip based on the latest traffic data that the client provided
Land Use	According to information provided by Project Applicant
Operations: Consumer Products	Adjusted to be specific to San Mateo county

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	DivcoWest (phase 1+2)
Lead Agency	
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	4.6
Precipitation (days)	37.8
Location	1300 Old Bayshore Hwy, Burlingame, CA 94010, USA
County	San Mateo
City	Burlingame
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1201
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreag	Building Ar	Landscape	Special Lar	Populatior	Description
General Office Building	320	1000sqft	7.35	320000	199000			
Research & Development	479	1000sqft	11	479000	0			
Enclosed Parking with Elevator	617	1000sqft	14.2	617000	0			
High Turnover (Sit Down Restaurant)	5	1000sqft	0.11	5000	0			

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Area	LL-1	Replace Gas Powered Landscape Equipment with Zero-Emission Landscape Equipment
Area	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Un/Mit.	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Unmit.	27.5	42.1	16.7	203	0.43	0.7	14.7	15.4	0.71	2.57	3.28	775	58853	59628	82.8	2.9	143	62707
Mit.	16.5	31.1	16.2	141	0.43	0.61	14.7	15.3	0.6	2.57	3.17	775	58621	59396	82.8	2.9	143	62475
% Reduced	39.9	26	3.12	30.4	0.85	11.9		0.54	15.5		3.35		0.39	0.39	0.01	0.06		0.37
Daily, Winter (Max)																		
Unmit.	16.3	31.7	18.1	137	0.41	0.61	14.7	15.3	0.6	2.57	3.17	775	56809	57584	82.9	3.03	24	60586
Mit.	16.3	30.9	18.1	137	0.41	0.61	14.7	15.3	0.6	2.57	3.17	775	56809	57584	82.9	3.03	24	60586
% Reduced		2.47																
Average Daily (Max)																		
Unmit.	21.5	36.5	17.6	163	0.41	0.66	14.7	15.4	0.65	2.57	3.23	775	57029	57804	82.9	2.99	73.8	60840
Mit.	16.1	30.7	17.4	133	0.41	0.61	14.7	15.3	0.6	2.57	3.17	775	56915	57690	82.9	2.99	73.8	60725
% Reduced	25.2	15.9	1.45	18.7	0.44	6.25		0.27	8.29		1.68		0.2	0.2	< 0.005			0.19
Annual (Max)																		
Unmit.	3.93	6.66	3.22	29.8	0.08	0.12	2.69	2.8	0.12	0.47	0.59	128	9442	9570	13.7	0.49	12.2	10073
Mit.	2.94	5.6	3.17	24.2	0.08	0.11	2.69	2.8	0.11	0.47	0.58	128	9423	9551	13.7	0.49	12.2	10054
% Reduced	25.2	15.9	1.45	18.7	0.44	6.25		0.27	8.29		1.68		0.2	0.2	< 0.005	0.03		0.19

2.5. Operations Emissions by Sector, Unmitigated

Sector	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Mobile	15.9	14.6	10.9	137	0.4	0.21	14.7	14.9	0.2	2.57	2.77		40381	40381	1.36	1.28	123	40920
Area	11	27.2	0.52	61.8	< 0.005	0.08		0.08	0.11		0.11		254	254	0.01	< 0.005		255
Energy	0.58	0.29	5.28	4.43	0.03	0.4		0.4	0.4		0.4		17150	17150	2.31	0.22		17275
Water												563	1068	1631	57.9	1.39		3495
Waste												212	0	212	21.2	0		742
Refrig.																	20.8	20.8
Total	27.5	42.1	16.7	203	0.43	0.7	14.7	15.4	0.71	2.57	3.28	775	58853	59628	82.8	2.9	143	62707
Daily, Winter (Max)																		
Mobile	15.8	14.3	12.8	133	0.38	0.21	14.7	14.9	0.2	2.57	2.77		38591	38591	1.51	1.42	3.18	39054
Area		17.1																
Energy	0.58	0.29	5.28	4.43	0.03	0.4		0.4	0.4		0.4		17150	17150	2.31	0.22		17275
Water												563	1068	1631	57.9	1.39		3495
Waste												212	0	212	21.2	0		742
Refrig.																	20.8	20.8
Total	16.3	31.7	18.1	137	0.41	0.61	14.7	15.3	0.6	2.57	3.17	775	56809	57584	82.9	3.03	24	60586
Average Daily																		
Mobile	15.5	14.1	12.1	128	0.38	0.21	14.7	14.9	0.2	2.57	2.77		38686	38686	1.45	1.37	53	39182
Area	5.42	22.1	0.26	30.5	< 0.005	0.04		0.04	0.05		0.05		125	125	0.01	< 0.005		126
Energy	0.58	0.29	5.28	4.43	0.03	0.4		0.4	0.4		0.4		17150	17150	2.31	0.22		17275
Water												563	1068	1631	57.9	1.39		3495
Waste												212	0	212	21.2	0		742
Refrig.																	20.8	20.8
Total	21.5	36.5	17.6	163	0.41	0.66	14.7	15.4	0.65	2.57	3.23	775	57029	57804	82.9	2.99	73.8	60840
Annual																		
Mobile	2.83	2.58	2.21	23.4	0.07	0.04	2.69	2.72	0.04	0.47	0.51		6405	6405	0.24	0.23	8.77	6487
Area	0.99	4.03	0.05	5.56	< 0.005	0.01		0.01	0.01		0.01		20.7	20.7	< 0.005	< 0.005		20.8
Energy	0.11	0.05	0.96	0.81	0.01	0.07		0.07	0.07		0.07		2839	2839	0.38	0.04		2860
Water												93.2	177	270	9.59	0.23		579
Waste												35.1	0	35.1	3.51	0		123
Refrig.																	3.45	3.45
Total	3.93	6.66	3.22	29.8	0.08	0.12	2.69	2.8	0.12	0.47	0.59	128	9442	9570	13.7	0.49	12.2	10073

2.6. Operations Emissions by Sector, Mitigated

Sector	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Mobile	15.9	14.6	10.9	137	0.4	0.21	14.7	14.9	0.2	2.57	2.77		40381	40381	1.36	1.28	123	40920
Area		16.3																
Energy	0.58	0.29	5.28	4.43	0.03	0.4		0.4	0.4		0.4		17172	17172	2.32	0.23		17297
Water												563	1068	1631	57.9	1.39		3495
Waste												212	0	212	21.2	0		742
Refrig.																	20.8	20.8
Total	16.5	31.1	16.2	141	0.43	0.61	14.7	15.3	0.6	2.57	3.17	775	58621	59396	82.8	2.9	143	62475
Daily, Winter (Max)																		
Mobile	15.8	14.3	12.8	133	0.38	0.21	14.7	14.9	0.2	2.57	2.77		38591	38591	1.51	1.42	3.18	39054
Area		16.3																
Energy	0.58	0.29	5.28	4.43	0.03	0.4		0.4	0.4		0.4		17150	17150	2.31	0.22		17275
Water												563	1068	1631	57.9	1.39		3495
Waste												212	0	212	21.2	0		742
Refrig.																	20.8	20.8
Total	16.3	30.9	18.1	137	0.41	0.61	14.7	15.3	0.6	2.57	3.17	775	56809	57584	82.9	3.03	24	60586
Average Daily																		

Mobile	15.5	14.1	12.1	128	0.38	0.21	14.7	14.9	0.2	2.57	2.77		38686	38686	1.45	1.37	53	39182
Area		16.3																
Energy	0.58	0.29	5.28	4.43	0.03	0.4		0.4	0.4		0.4		17161	17161	2.31	0.22		17286
Water												563	1068	1631	57.9	1.39		3495
Waste												212	0	212	21.2	0		742
Refrig.																	20.8	20.8
Total	16.1	30.7	17.4	133	0.41	0.61	14.7	15.3	0.6	2.57	3.17	775	56915	57690	82.9	2.99	73.8	60725
Annual																		
Mobile	2.83	2.58	2.21	23.4	0.07	0.04	2.69	2.72	0.04	0.47	0.51		6405	6405	0.24	0.23	8.77	6487
Area		2.97																
Energy	0.11	0.05	0.96	0.81	0.01	0.07		0.07	0.07		0.07		2841	2841	0.38	0.04		2862
Water												93.2	177	270	9.59	0.23		579
Waste												35.1	0	35.1	3.51	0		123
Refrig.																	3.45	3.45
Total	2.94	5.6	3.17	24.2	0.08	0.11	2.69	2.8	0.11	0.47	0.58	128	9423	9551	13.7	0.49	12.2	10054

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building	15.9	14.6	10.9	137	0.4	0.21	2.22	2.44	0.2	0.68	0.88		40381	40381	1.36	1.28	123	40920
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	15.9	14.6	10.9	137	0.4	0.21	2.22	2.44	0.2	0.68	0.88		40381	40381	1.36	1.28	123	40920
Daily, Winter (Max)																		
General Office Building	15.8	14.3	12.8	133	0.38	0.21	2.22	2.44	0.2	0.68	0.88		38591	38591	1.51	1.42	3.18	39054
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	15.8	14.3	12.8	133	0.38	0.21	2.22	2.44	0.2	0.68	0.88		38591	38591	1.51	1.42	3.18	39054
Annual																		
General Office Building	2.83	2.58	2.21	23.4	0.07	0.04	0.41	0.44	0.04	0.12	0.16		6405	6405	0.24	0.23	8.77	6487
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	2.83	2.58	2.21	23.4	0.07	0.04	0.41	0.44	0.04	0.12	0.16		6405	6405	0.24	0.23	8.77	6487

4.1.2. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building	15.9	14.6	10.9	137	0.4	0.21	2.22	2.44	0.2	0.68	0.88		40381	40381	1.36	1.28	123	40920
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	15.9	14.6	10.9	137	0.4	0.21	2.22	2.44	0.2	0.68	0.88		40381	40381	1.36	1.28	123	40920
Daily, Winter (Max)																		
General Office Building	15.8	14.3	12.8	133	0.38	0.21	2.22	2.44	0.2	0.68	0.88		38591	38591	1.51	1.42	3.18	39054
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	15.8	14.3	12.8	133	0.38	0.21	2.22	2.44	0.2	0.68	0.88		38591	38591	1.51	1.42	3.18	39054
Annual																		
General Office Building	2.83	2.58	2.21	23.4	0.07	0.04	0.41	0.44	0.04	0.12	0.16		6405	6405	0.24	0.23	8.77	6487
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	2.83	2.58	2.21	23.4	0.07	0.04	0.41	0.44	0.04	0.12	0.16		6405	6405	0.24	0.23	8.77	6487

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building													3786	3786	0.61	0.07		3823
Research & Development													5667	5667	0.92	0.11		5723
Enclosed Parking with Elevator													1273	1273	0.21	0.02		1285
High Turnover (Sit Down Restaurant)													127	127	0.02	< 0.005		128
Total													10852	10852	1.76	0.21		10959
Daily, Winter (Max)																		
General Office Building													3786	3786	0.61	0.07		3823
Research & Development													5667	5667	0.92	0.11		5723
Enclosed Parking with Elevator													1273	1273	0.21	0.02		1285
High Turnover (Sit Down Restaurant)													127	127	0.02	< 0.005		128
Total													10852	10852	1.76	0.21		10959
Annual																		
General Office Building													627	627	0.1	0.01		633
Research & Development													938	938	0.15	0.02		947
Enclosed Parking with Elevator													211	211	0.03	< 0.005		213
High Turnover (Sit Down Restaurant)													21	21	< 0.005	< 0.005		21.2
Total													1797	1797	0.29	0.04		1814

4.2.2. Electricity Emissions By Land Use - Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building													3791	3791	0.61	0.07		3828
Research & Development													5674	5674	0.92	0.11		5730
Enclosed Parking with Elevator													1283	1283	0.21	0.03		1295
High Turnover (Sit Down Restaurant)													127	127	0.02	< 0.005		128
Total													10874	10874	1.76	0.21		10982
Daily, Winter (Max)																		
General Office Building													3786	3786	0.61	0.07		3823
Research & Development													5667	5667	0.92	0.11		5723
Enclosed Parking with Elevator													1273	1273	0.21	0.02		1285
High Turnover (Sit Down Restaurant)													127	127	0.02	< 0.005		128
Total													10852	10852	1.76	0.21		10959
Annual																		
General Office Building													627	627	0.1	0.01		633
Research & Development													939	939	0.15	0.02		948
Enclosed Parking with Elevator													212	212	0.03	< 0.005		214
High Turnover (Sit Down Restaurant)													21	21	< 0.005	< 0.005		21.2
Total													1798	1798	0.29	0.04		1816

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e

Daily, Summer (Max)																		
General Office Building	0.22	0.11	2.04	1.71	0.01	0.16		0.16	0.16		0.16		2436	2436	0.22	< 0.005		2442
Research & Development	0.34	0.17	3.06	2.57	0.02	0.23		0.23	0.23		0.23		3646	3646	0.32	0.01		3656
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.02	0.01	0.18	0.15	< 0.005	0.01		0.01	0.01		0.01		216	216	0.02	< 0.005		217
Total	0.58	0.29	5.28	4.43	0.03	0.4		0.4	0.4		0.4		6298	6298	0.56	0.01		6315
Daily, Winter (Max)																		
General Office Building	0.22	0.11	2.04	1.71	0.01	0.16		0.16	0.16		0.16		2436	2436	0.22	< 0.005		2442
Research & Development	0.34	0.17	3.06	2.57	0.02	0.23		0.23	0.23		0.23		3646	3646	0.32	0.01		3656
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.02	0.01	0.18	0.15	< 0.005	0.01		0.01	0.01		0.01		216	216	0.02	< 0.005		217
Total	0.58	0.29	5.28	4.43	0.03	0.4		0.4	0.4		0.4		6298	6298	0.56	0.01		6315
Annual																		
General Office Building	0.04	0.02	0.37	0.31	< 0.005	0.03		0.03	0.03		0.03		403	403	0.04	< 0.005		404
Research & Development	0.06	0.03	0.56	0.47	< 0.005	0.04		0.04	0.04		0.04		604	604	0.05	< 0.005		605
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		35.8	35.8	< 0.005	< 0.005		35.9
Total	0.11	0.05	0.96	0.81	0.01	0.07		0.07	0.07		0.07		1043	1043	0.09	< 0.005		1046

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building	0.22	0.11	2.04	1.71	0.01	0.16		0.16	0.16		0.16		2436	2436	0.22	< 0.005		2442
Research & Development	0.34	0.17	3.06	2.57	0.02	0.23		0.23	0.23		0.23		3646	3646	0.32	0.01		3656
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.02	0.01	0.18	0.15	< 0.005	0.01		0.01	0.01		0.01		216	216	0.02	< 0.005		217
Total	0.58	0.29	5.28	4.43	0.03	0.4		0.4	0.4		0.4		6298	6298	0.56	0.01		6315
Daily, Winter (Max)																		
General Office Building	0.22	0.11	2.04	1.71	0.01	0.16		0.16	0.16		0.16		2436	2436	0.22	< 0.005		2442
Research & Development	0.34	0.17	3.06	2.57	0.02	0.23		0.23	0.23		0.23		3646	3646	0.32	0.01		3656
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.02	0.01	0.18	0.15	< 0.005	0.01		0.01	0.01		0.01		216	216	0.02	< 0.005		217
Total	0.58	0.29	5.28	4.43	0.03	0.4		0.4	0.4		0.4		6298	6298	0.56	0.01		6315
Annual																		
General Office Building	0.04	0.02	0.37	0.31	< 0.005	0.03		0.03	0.03		0.03		403	403	0.04	< 0.005		404
Research & Development	0.06	0.03	0.56	0.47	< 0.005	0.04		0.04	0.04		0.04		604	604	0.05	< 0.005		605
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		35.8	35.8	< 0.005	< 0.005		35.9
Total	0.11	0.05	0.96	0.81	0.01	0.07		0.07	0.07		0.07		1043	1043	0.09	< 0.005		1046

4.3. Area Emissions by Source

4.3.2. Unmitigated

Source	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Consumer Products		14.7																
Architectural Coatings		2.39																
Landscape Equipment	11	10.1	0.52	61.8	< 0.005	0.08		0.08	0.11		0.11		254	254	0.01	< 0.005		255
Total	11	27.2	0.52	61.8	< 0.005	0.08		0.08	0.11		0.11		254	254	0.01	< 0.005		255
Daily, Winter (Max)																		
Consumer Products		14.7																
Architectural Coatings		2.39																
Total		17.1																
Annual																		
Consumer Products		2.68																
Architectural Coatings		0.44																
Landscape Equipment	0.99	0.91	0.05	5.56	< 0.005	0.01		0.01	0.01		0.01		20.7	20.7	< 0.005	< 0.005		20.8
Total	0.99	4.03	0.05	5.56	< 0.005	0.01		0.01	0.01		0.01		20.7	20.7	< 0.005	< 0.005		20.8

4.3.1. Mitigated

Source	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Consumer Products		14.7																
Architectural Coatings		1.6																
Total		16.3																
Daily, Winter (Max)																		
Consumer Products		14.7																
Architectural Coatings		1.6																
Total		16.3																
Annual																		
Consumer Products		2.68																
Architectural Coatings		0.29																
Total		2.97																

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												109	210	319	11.2	0.27		680
Research & Development												451	852	1304	46.4	1.12		2797
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												2.91	5.49	8.4	0.3	0.01		18
Total												563	1068	1631	57.9	1.39		3495
Daily, Winter (Max)																		
General Office Building												109	210	319	11.2	0.27		680
Research & Development												451	852	1304	46.4	1.12		2797
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												2.91	5.49	8.4	0.3	0.01		18
Total												563	1068	1631	57.9	1.39		3495
Annual																		
General Office Building												18	34.8	52.9	1.86	0.04		113
Research & Development												74.7	141	216	7.68	0.18		463
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												0.48	0.91	1.39	0.05	< 0.005		2.98
Total												93.2	177	270	9.59	0.23		579

4.4.1. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												109	210	319	11.2	0.27		680
Research & Development												451	852	1304	46.4	1.12		2797
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												2.91	5.49	8.4	0.3	0.01		18
Total												563	1068	1631	57.9	1.39		3495
Daily, Winter (Max)																		
General Office Building												109	210	319	11.2	0.27		680

Research & Development												451	852	1304	46.4	1.12		2797
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												2.91	5.49	8.4	0.3	0.01		18
Total												563	1068	1631	57.9	1.39		3495
Annual																		
General Office Building												18	34.8	52.9	1.86	0.04		113
Research & Development												74.7	141	216	7.68	0.18		463
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												0.48	0.91	1.39	0.05	< 0.005		2.98
Total												93.2	177	270	9.59	0.23		579

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												160	0	160	16	0		561
Research & Development												19.6	0	19.6	1.96	0		68.6
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												32.1	0	32.1	3.2	0		112
Total												212	0	212	21.2	0		742
Daily, Winter (Max)																		
General Office Building												160	0	160	16	0		561
Research & Development												19.6	0	19.6	1.96	0		68.6
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												32.1	0	32.1	3.2	0		112
Total												212	0	212	21.2	0		742
Annual																		
General Office Building												26.6	0	26.6	2.65	0		92.9
Research & Development												3.25	0	3.25	0.32	0		11.4
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												5.31	0	5.31	0.53	0		18.6
Total												35.1	0	35.1	3.51	0		123

4.5.1. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												160	0	160	16	0		561
Research & Development												19.6	0	19.6	1.96	0		68.6
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												32.1	0	32.1	3.2	0		112
Total												212	0	212	21.2	0		742
Daily, Winter (Max)																		
General Office Building												160	0	160	16	0		561
Research & Development												19.6	0	19.6	1.96	0		68.6
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												32.1	0	32.1	3.2	0		112
Total												212	0	212	21.2	0		742
Annual																		
General Office Building												26.6	0	26.6	2.65	0		92.9
Research & Development												3.25	0	3.25	0.32	0		11.4
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												5.31	0	5.31	0.53	0		18.6
Total												35.1	0	35.1	3.51	0		123

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building																	0.78	0.78
Research & Development																	12.2	12.2
High Turnover (Sit Down Restaurant)																	7.82	7.82
Total																	20.8	20.8
Daily, Winter (Max)																		
General Office Building																	0.78	0.78
Research & Development																	12.2	12.2
High Turnover (Sit Down Restaurant)																	7.82	7.82
Total																	20.8	20.8
Annual																		
General Office Building																	0.13	0.13
Research & Development																	2.03	2.03
High Turnover (Sit Down Restaurant)																	1.29	1.29
Total																	3.45	3.45

4.6.2. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building																	0.78	0.78
Research & Development																	12.2	12.2
High Turnover (Sit Down Restaurant)																	7.82	7.82
Total																	20.8	20.8
Daily, Winter (Max)																		
General Office Building																	0.78	0.78
Research & Development																	12.2	12.2
High Turnover (Sit Down Restaurant)																	7.82	7.82
Total																	20.8	20.8
Annual																		
General Office Building																	0.13	0.13
Research & Development																	2.03	2.03
High Turnover (Sit Down Restaurant)																	1.29	1.29
Total																	3.45	3.45

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.7.2. Mitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		

Daily, Winter (Max)
Total
Annual
Total

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.8.2. Mitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.9.2. Mitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Vegetation	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Species	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Daily, Winter (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Annual																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Vegetation	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		

Total

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Species	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Daily, Winter (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Annual																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Wee	Trips/Satu	Trips/Sunc	Trips/Year	VMT/Wee	VMT/Satu	VMT/Sund	VMT/Year
General Office Building	5264	5264	5264	1921360	53867	53867	53867	19661568
Research & Development	0	0	0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0

5.9.2. Mitigated

Land Use Type	Trips/Wee	Trips/Satu	Trips/Sunc	Trips/Year	VMT/Wee	VMT/Satu	VMT/Sund	VMT/Year
General Office Building	5264	5264	5264	1921360	53867	53867	53867	19661568
Research & Development	0	0	0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residentia	Non-Resid	Non-Resid	Parking Area Coated (sq ft)
0	0	1233765	405085	37020

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Land Use	Electricity	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	6773963	204	0.033	0.004	7600093
Research & Development	10139775	204	0.033	0.004	11376389
Enclosed Parking with Elevator	2277613	204	0.033	0.004	0
High Turnover (Sit Down Restaurant)	226894	204	0.033	0.004	674605

5.11.2. Mitigated

Land Use	Electricity	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	6773963	204	0.033	0.004	7600093
Research & Development	10139775	204	0.033	0.004	11376389
Enclosed Parking with Elevator	2277613	204	0.033	0.004	0
High Turnover (Sit Down Restaurant)	226894	204	0.033	0.004	674605

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Wa	Outdoor Water (gal/year)
General Office Building	56874799	1649747
Research & Development	2.36E+08	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	1517669	0

5.12.2. Mitigated

Land Use	Indoor Wa	Outdoor Water (gal/year)
General Office Building	56874799	1649747
Research & Development	2.36E+08	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	1517669	0

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (tor	Cogeneration (kWh/year)
General Office Building	298	0
Research & Development	36.4	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	59.5	0

5.13.2. Mitigated

Land Use	Waste (ton	Cogeneration (kWh/year)
General Office Building	298	0
Research & Development	36.4	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	59.5	0

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipmen	Refrigeran	GWP	Quantity (l	Operation	Service Lea	Times Serviced
General Office Building	Househol	R-134a	1430	0.02	0.6	0	1
General Office Building	Other com	R-410A	2088	< 0.005	4	4	18
Research & Development	Househol	R-134a	1430	0.45	0.6	0	1
Research & Development	Other com	R-410A	2088	< 0.005	4	4	18
High Turnover (Sit Down Restaurant)	Househol	R-134a	1430	0	0.6	0	1
High Turnover (Sit Down Restaurant)	Other com	R-410A	2088	1.8	4	4	18
High Turnover (Sit Down Restaurant)	Walk-in re	R-404A	3922	< 0.005	7.5	7.5	20

5.14.2. Mitigated

Land Use Type	Equipmen	Refrigeran	GWP	Quantity (l	Operation	Service Lea	Times Serviced
General Office Building	Househol	R-134a	1430	0.02	0.6	0	1
General Office Building	Other com	R-410A	2088	< 0.005	4	4	18
Research & Development	Househol	R-134a	1430	0.45	0.6	0	1
Research & Development	Other com	R-410A	2088	< 0.005	4	4	18
High Turnover (Sit Down Restaurant)	Househol	R-134a	1430	0	0.6	0	1
High Turnover (Sit Down Restaurant)	Other com	R-410A	2088	1.8	4	4	18
High Turnover (Sit Down Restaurant)	Walk-in re	R-404A	3922	< 0.005	7.5	7.5	20

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tie	Number p	Hours Per	Horsepow	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tie	Number p	Hours Per	Horsepow	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number p	Hours per	Hours per	Horsepow	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rati	Daily Heat	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation	Initial Acre	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation	Initial Acre	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acre	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acre	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for	Unit
Temperature and Extreme Heat	7.57	annual days of extreme heat
Extreme Precipitation	6.1	annual days with precipitation above 20 mm
Sea Level Rise	0	meters of inundation depth
Wildfire	0	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure S	Sensitivity	Adaptive C	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack	N/A	N/A	N/A	N/A
Air Quality	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure S	Sensitivity	Adaptive C	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A

Extreme Precipitation	2	1	1	3
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack	N/A	N/A	N/A	N/A
Air Quality	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures
7. Health and Equity Details
7.1. CalEnviroScreen 4.0 Scores
The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	
AQ-Ozone	10.6
AQ-PM	32.8
AQ-DPM	75.5
Drinking Water	42.7
Lead Risk Housing	59.5
Pesticides	0
Toxic Releases	33.4
Traffic	81
Effect Indicators	
CleanUp Sites	0
Groundwater	78.7
Haz Waste Facilities/Generators	76.7
Impaired Water Bodies	77.3
Solid Waste	84.7
Sensitive Population	
Asthma	12.4
Cardio-vascular	12.1
Low Birth Weights	63.3
Socioeconomic Factor Indicators	
Education	25.5
Housing	46
Linguistic	47.1
Poverty	32.5
Unemployment	61.5

7.2. Healthy Places Index Scores
The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	
Above Poverty	87.66842
Employed	97.33094
Median HI	79.13512
Education	
Bachelor's or higher	88.73348
High school enrollment	100
Preschool enrollment	80.93161
Transportation	
Auto Access	38.03413
Active commuting	89.90119
Social	
2-parent households	73.4377
Voting	91.00475
Neighborhood	
Alcohol availability	18.79892
Park access	50.49403
Retail density	95.36764
Supermarket access	22.49455
Tree canopy	83.9343
Housing	
Homeownership	32.88849
Housing habitability	47.09355
Low-inc homeowner severe housing cost burden	12.75504
Low-inc renter severe housing cost burden	78.78866
Uncrowded housing	58.11626
Health Outcomes	
Insured adults	83.39535
Arthritis	0
Asthma ER Admissions	79
High Blood Pressure	0
Cancer (excluding skin)	0
Asthma	0
Coronary Heart Disease	0
Chronic Obstructive Pulmonary Disease	0
Diagnosed Diabetes	0
Life Expectancy at Birth	82
Cognitively Disabled	75
Physically Disabled	87
Heart Attack ER Admissions	88
Mental Health Not Good	0
Chronic Kidney Disease	0
Obesity	0
Pedestrian Injuries	87
Physical Health Not Good	0
Stroke	0
Health Risk Behaviors	
Binge Drinking	0
Current Smoker	0
No Leisure Time for Physical Activity	0
Climate Change Exposures	
Wildfire Risk	0
SLR Inundation Area	28
Children	22
Elderly	57
English Speaking	72
Foreign-born	38
Outdoor Workers	64
Climate Change Adaptive Capacity	
Impervious Surface Cover	36

Traffic Density	84
Traffic Access	87
Other Indices	
Hardship	9
Other Decision Support	
2016 Voting	86

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	43
Healthy Places Index Score for Project Location (b)	94
Project Located in a Designated Disadvantaged Com	No
Project Located in a Low-Income Community (Asser	No
Project Located in a Community Air Protection Prog	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

Measure Title	Co-Benefits Achieved

7.5. Evaluation Scorecard

Category	Number of	Total Point	Max Possil	Weighted Score

7.6. Health & Equity Custom Measures

Measure Title	Sponsor

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Updated based on the latest construction schedule.
Operations: Vehicle Data	Updated the General Office Building Trip based on the latest traffic data that the client provided
Operations: Consumer Products	Adjusted to be specific to San Mateo county

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	DivcoWest (phase 1+2+3)
Lead Agency	
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	4.6
Precipitation (days)	37.8
Location	1300 Old Bayshore Hwy, Burlingame, CA 94010, USA
County	San Mateo
City	Burlingame
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1201
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreag	Building Ar	Landscape	Special Lar	Populatior	Description
General Office Building	566	1000sqft	13	566000	300000			
Research & Development	849	1000sqft	19.5	849000	0			
Enclosed Parking with Elevator	1180	1000sqft	27.1	1180000	0			
High Turnover (Sit Down Restaurant)	5	1000sqft	0.11	5000	0			

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Area	LL-1	Replace Gas Powered Landscape Equipment with Zero-Emission Landscape Equipment
Area	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Un/Mit.	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Unmit.	47.3	73.1	27.1	347	0.74	1.19	26	27.2	1.21	4.56	5.77	1346	102002	103348	144	5.06	196	108646
Mit.	27.2	53.2	26.1	234	0.74	1.03	26	27.1	1.01	4.56	5.57	1346	101578	102924	144	5.02	196	108209
% Reduced	42.6	27.3	3.51	32.6	0.91	12.8		0.56	16.6		3.48		0.42	0.41	0.01	0.85		0.4
Daily, Winter (Max)																		
Unmit.	26.9	54.2	29.2	226	0.71	1.03	26	27.1	1.01	4.56	5.57	1346	98493	99839	144	5.23	35.2	105033
Mit.	26.9	52.8	29.2	226	0.71	1.03	26	27.1	1.01	4.56	5.57	1346	98493	99839	144	5.23	35.2	105033
% Reduced		2.56																
Average Daily (Max)																		
Unmit.	36.4	63	28.5	275	0.71	1.11	26	27.1	1.11	4.56	5.67	1346	98884	100230	144	5.17	102	105472
Mit.	26.5	52.5	28	219	0.71	1.03	26	27.1	1.01	4.56	5.57	1346	98675	100021	144	5.15	102	105256
% Reduced	27.3	16.7	1.65	20.3	0.47	6.75		0.28	8.92		1.75		0.21	0.21	< 0.005	0.41		0.2
Annual (Max)																		
Unmit.	6.64	11.5	5.2	50.2	0.13	0.2	4.75	4.95	0.2	0.83	1.03	223	16371	16594	23.8	0.86	16.9	17462
Mit.	4.83	9.57	5.12	40	0.13	0.19	4.75	4.94	0.18	0.83	1.02	223	16337	16560	23.8	0.85	16.9	17426
% Reduced	27.3	16.7	1.65	20.3	0.47	6.75		0.28	8.92		1.75		0.21	0.21	< 0.005	0.41		0.2

2.5. Operations Emissions by Sector, Unmitigated

Sector	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Mobile	26.1	23.9	16.9	227	0.68	0.33	26	26.4	0.31	4.56	4.87		69362	69362	2.22	2.15	165	70225
Area	20.1	48.7	0.95	113	0.01	0.15		0.15	0.2		0.2		465	465	0.02	0.04		479
Energy	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		30288	30288	4.09	0.4		30509
Water												996	1887	2883	102	2.46		6176
Waste												351	0	351	35	0		1226
Refrig.																	30.9	30.9
Total	47.3	73.1	27.1	347	0.74	1.19	26	27.2	1.21	4.56	5.77	1346	102002	103348	144	5.06	196	108646
Daily, Winter (Max)																		
Mobile	25.8	23.5	20	219	0.65	0.33	26	26.4	0.31	4.56	4.87		66318	66318	2.44	2.37	4.29	67090
Area		30.2																
Energy	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		30288	30288	4.09	0.4		30509
Water												996	1887	2883	102	2.46		6176
Waste												351	0	351	35	0		1226
Refrig.																	30.9	30.9
Total	26.9	54.2	29.2	226	0.71	1.03	26	27.1	1.01	4.56	5.57	1346	98493	99839	144	5.23	35.2	105033
Average Daily																		
Mobile	25.5	23.2	18.8	211	0.65	0.33	26	26.4	0.31	4.56	4.87		66480	66480	2.35	2.29	71.4	67293
Area	9.92	39.3	0.47	55.8	< 0.005	0.07		0.07	0.1		0.1		229	229	0.01	0.02		236
Energy	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		30288	30288	4.09	0.4		30509
Water												996	1887	2883	102	2.46		6176
Waste												351	0	351	35	0		1226
Refrig.																	30.9	30.9
Total	36.4	63	28.5	275	0.71	1.11	26	27.1	1.11	4.56	5.67	1346	98884	100230	144	5.17	102	105472
Annual																		
Mobile	4.65	4.23	3.44	38.6	0.12	0.06	4.75	4.81	0.06	0.83	0.89		11007	11007	0.39	0.38	11.8	11141
Area	1.81	7.18	0.09	10.2	< 0.005	0.01		0.01	0.02		0.02		38	38	< 0.005	< 0.005		39.1
Energy	0.18	0.09	1.68	1.41	0.01	0.13		0.13	0.13		0.13		5014	5014	0.68	0.07		5051
Water												165	312	477	17	0.41		1023
Waste												58	0	58	5.8	0		203
Refrig.																	5.11	5.11
Total	6.64	11.5	5.2	50.2	0.13	0.2	4.75	4.95	0.2	0.83	1.03	223	16371	16594	23.8	0.86	16.9	17462

2.6. Operations Emissions by Sector, Mitigated

Sector	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Mobile	26.1	23.9	16.9	227	0.68	0.33	26	26.4	0.31	4.56	4.87		69362	69362	2.22	2.15	165	70225
Area		28.8																
Energy	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		30328	30328	4.1	0.4		30550
Water												996	1887	2883	102	2.46		6176
Waste												351	0	351	35	0		1226
Refrig.																	30.9	30.9
Total	27.2	53.2	26.1	234	0.74	1.03	26	27.1	1.01	4.56	5.57	1346	101578	102924	144	5.02	196	108209
Daily, Winter (Max)																		
Mobile	25.8	23.5	20	219	0.65	0.33	26	26.4	0.31	4.56	4.87		66318	66318	2.44	2.37	4.29	67090
Area		28.8																
Energy	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		30288	30288	4.09	0.4		30509
Water												996	1887	2883	102	2.46		6176
Waste												351	0	351	35	0		1226
Refrig.																	30.9	30.9
Total	26.9	52.8	29.2	226	0.71	1.03	26	27.1	1.01	4.56	5.57	1346	98493	99839	144	5.23	35.2	105033
Average Daily																		

Mobile	25.5	23.2	18.8	211	0.65	0.33	26	26.4	0.31	4.56	4.87		66480	66480	2.35	2.29	71.4	67293
Area		28.8																
Energy	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		30308	30308	4.1	0.4		30529
Water												996	1887	2883	102	2.46		6176
Waste												351	0	351	35	0		1226
Refrig.																	30.9	30.9
Total	26.5	52.5	28	219	0.71	1.03	26	27.1	1.01	4.56	5.57	1346	98675	100021	144	5.15	102	105256
Annual																		
Mobile	4.65	4.23	3.44	38.6	0.12	0.06	4.75	4.81	0.06	0.83	0.89		11007	11007	0.39	0.38	11.8	11141
Area		5.25																
Energy	0.18	0.09	1.68	1.41	0.01	0.13		0.13	0.13		0.13		5018	5018	0.68	0.07		5054
Water												165	312	477	17	0.41		1023
Waste												58	0	58	5.8	0		203
Refrig.																	5.11	5.11
Total	4.83	9.57	5.12	40	0.13	0.19	4.75	4.94	0.18	0.83	1.02	223	16337	16560	23.8	0.85	16.9	17426

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building	26.1	23.9	16.9	227	0.68	0.33	3.95	4.28	0.31	1.21	1.52		69362	69362	2.22	2.15	165	70225
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	26.1	23.9	16.9	227	0.68	0.33	3.95	4.28	0.31	1.21	1.52		69362	69362	2.22	2.15	165	70225
Daily, Winter (Max)																		
General Office Building	25.8	23.5	20	219	0.65	0.33	3.95	4.28	0.31	1.21	1.52		66318	66318	2.44	2.37	4.29	67090
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	25.8	23.5	20	219	0.65	0.33	3.95	4.28	0.31	1.21	1.52		66318	66318	2.44	2.37	4.29	67090
Annual																		
General Office Building	4.65	4.23	3.44	38.6	0.12	0.06	0.72	0.78	0.06	0.22	0.28		11007	11007	0.39	0.38	11.8	11141
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	4.65	4.23	3.44	38.6	0.12	0.06	0.72	0.78	0.06	0.22	0.28		11007	11007	0.39	0.38	11.8	11141

4.1.2. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building	26.1	23.9	16.9	227	0.68	0.33	3.95	4.28	0.31	1.21	1.52		69362	69362	2.22	2.15	165	70225
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	26.1	23.9	16.9	227	0.68	0.33	3.95	4.28	0.31	1.21	1.52		69362	69362	2.22	2.15	165	70225
Daily, Winter (Max)																		
General Office Building	25.8	23.5	20	219	0.65	0.33	3.95	4.28	0.31	1.21	1.52		66318	66318	2.44	2.37	4.29	67090
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	25.8	23.5	20	219	0.65	0.33	3.95	4.28	0.31	1.21	1.52		66318	66318	2.44	2.37	4.29	67090
Annual																		
General Office Building	4.65	4.23	3.44	38.6	0.12	0.06	0.72	0.78	0.06	0.22	0.28		11007	11007	0.39	0.38	11.8	11141
Research & Development	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	4.65	4.23	3.44	38.6	0.12	0.06	0.72	0.78	0.06	0.22	0.28		11007	11007	0.39	0.38	11.8	11141

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building													6696	6696	1.08	0.13		6762
Research & Development													10044	10044	1.62	0.2		10143
Enclosed Parking with Elevator													2434	2434	0.39	0.05		2458
High Turnover (Sit Down Restaurant)													127	127	0.02	< 0.005		128
Total													19301	19301	3.12	0.38		19492
Daily, Winter (Max)																		
General Office Building													6696	6696	1.08	0.13		6762
Research & Development													10044	10044	1.62	0.2		10143
Enclosed Parking with Elevator													2434	2434	0.39	0.05		2458
High Turnover (Sit Down Restaurant)													127	127	0.02	< 0.005		128
Total													19301	19301	3.12	0.38		19492
Annual																		
General Office Building													1109	1109	0.18	0.02		1120
Research & Development													1663	1663	0.27	0.03		1679
Enclosed Parking with Elevator													403	403	0.07	0.01		407
High Turnover (Sit Down Restaurant)													21	21	< 0.005	< 0.005		21.2
Total													3195	3195	0.52	0.06		3227

4.2.2. Electricity Emissions By Land Use - Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building													6705	6705	1.08	0.13		6771
Research & Development													10057	10057	1.63	0.2		10157
Enclosed Parking with Elevator													2453	2453	0.4	0.05		2477
High Turnover (Sit Down Restaurant)													127	127	0.02	< 0.005		128
Total													19342	19342	3.13	0.38		19533
Daily, Winter (Max)																		
General Office Building													6696	6696	1.08	0.13		6762
Research & Development													10044	10044	1.62	0.2		10143
Enclosed Parking with Elevator													2434	2434	0.39	0.05		2458
High Turnover (Sit Down Restaurant)													127	127	0.02	< 0.005		128
Total													19301	19301	3.12	0.38		19492
Annual																		
General Office Building													1109	1109	0.18	0.02		1120
Research & Development													1664	1664	0.27	0.03		1680
Enclosed Parking with Elevator													405	405	0.07	0.01		409
High Turnover (Sit Down Restaurant)													21	21	< 0.005	< 0.005		21.2
Total													3199	3199	0.52	0.06		3230

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e

Daily, Summer (Max)																		
General Office Building	0.4	0.2	3.61	3.03	0.02	0.27		0.27	0.27		0.27		4308	4308	0.38	0.01		4320
Research & Development	0.6	0.3	5.42	4.55	0.03	0.41		0.41	0.41		0.41		6462	6462	0.57	0.01		6480
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.02	0.01	0.18	0.15	< 0.005	0.01		0.01	0.01		0.01		216	216	0.02	< 0.005		217
Total	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		10987	10987	0.97	0.02		11017
Daily, Winter (Max)																		
General Office Building	0.4	0.2	3.61	3.03	0.02	0.27		0.27	0.27		0.27		4308	4308	0.38	0.01		4320
Research & Development	0.6	0.3	5.42	4.55	0.03	0.41		0.41	0.41		0.41		6462	6462	0.57	0.01		6480
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.02	0.01	0.18	0.15	< 0.005	0.01		0.01	0.01		0.01		216	216	0.02	< 0.005		217
Total	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		10987	10987	0.97	0.02		11017
Annual																		
General Office Building	0.07	0.04	0.66	0.55	< 0.005	0.05		0.05	0.05		0.05		713	713	0.06	< 0.005		715
Research & Development	0.11	0.05	0.99	0.83	0.01	0.08		0.08	0.08		0.08		1070	1070	0.09	< 0.005		1073
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		35.8	35.8	< 0.005	< 0.005		35.9
Total	0.18	0.09	1.68	1.41	0.01	0.13		0.13	0.13		0.13		1819	1819	0.16	< 0.005		1824

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building	0.4	0.2	3.61	3.03	0.02	0.27		0.27	0.27		0.27		4308	4308	0.38	0.01		4320
Research & Development	0.6	0.3	5.42	4.55	0.03	0.41		0.41	0.41		0.41		6462	6462	0.57	0.01		6480
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.02	0.01	0.18	0.15	< 0.005	0.01		0.01	0.01		0.01		216	216	0.02	< 0.005		217
Total	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		10987	10987	0.97	0.02		11017
Daily, Winter (Max)																		
General Office Building	0.4	0.2	3.61	3.03	0.02	0.27		0.27	0.27		0.27		4308	4308	0.38	0.01		4320
Research & Development	0.6	0.3	5.42	4.55	0.03	0.41		0.41	0.41		0.41		6462	6462	0.57	0.01		6480
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	0.02	0.01	0.18	0.15	< 0.005	0.01		0.01	0.01		0.01		216	216	0.02	< 0.005		217
Total	1.01	0.51	9.21	7.73	0.06	0.7		0.7	0.7		0.7		10987	10987	0.97	0.02		11017
Annual																		
General Office Building	0.07	0.04	0.66	0.55	< 0.005	0.05		0.05	0.05		0.05		713	713	0.06	< 0.005		715
Research & Development	0.11	0.05	0.99	0.83	0.01	0.08		0.08	0.08		0.08		1070	1070	0.09	< 0.005		1073
Enclosed Parking with Elevator	0	0	0	0	0	0		0	0		0		0	0	0	0		0
High Turnover (Sit Down Restaurant)	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		35.8	35.8	< 0.005	< 0.005		35.9
Total	0.18	0.09	1.68	1.41	0.01	0.13		0.13	0.13		0.13		1819	1819	0.16	< 0.005		1824

4.3. Area Emissions by Source

4.3.2. Unmitigated

Source	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Consumer Products		25.9																
Architectural Coatings		4.23																
Landscape Equipment	20.1	18.6	0.95	113	0.01	0.15		0.15	0.2		0.2		465	465	0.02	0.04		479
Total	20.1	48.7	0.95	113	0.01	0.15		0.15	0.2		0.2		465	465	0.02	0.04		479
Daily, Winter (Max)																		
Consumer Products		25.9																
Architectural Coatings		4.23																
Total		30.2																
Annual																		
Consumer Products		4.73																
Architectural Coatings		0.77																
Landscape Equipment	1.81	1.67	0.09	10.2	< 0.005	0.01		0.01	0.02		0.02		38	38	< 0.005	< 0.005		39.1
Total	1.81	7.18	0.09	10.2	< 0.005	0.01		0.01	0.02		0.02		38	38	< 0.005	< 0.005		39.1

4.3.1. Mitigated

Source	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Consumer Products		25.9																
Architectural Coatings		2.84																
Total		28.8																
Daily, Winter (Max)																		
Consumer Products		25.9																
Architectural Coatings		2.84																
Total		28.8																
Annual																		
Consumer Products		4.73																
Architectural Coatings		0.52																
Total		5.25																

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												193	371	564	19.8	0.48		1201
Research & Development												800	1511	2311	82.3	1.98		4957
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												2.91	5.49	8.4	0.3	0.01		18
Total												996	1887	2883	102	2.46		6176
Daily, Winter (Max)																		
General Office Building												193	371	564	19.8	0.48		1201
Research & Development												800	1511	2311	82.3	1.98		4957
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												2.91	5.49	8.4	0.3	0.01		18
Total												996	1887	2883	102	2.46		6176
Annual																		
General Office Building												31.9	61.4	93.3	3.28	0.08		199
Research & Development												132	250	383	13.6	0.33		821
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												0.48	0.91	1.39	0.05	< 0.005		2.98
Total												165	312	477	17	0.41		1023

4.4.1. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												193	371	564	19.8	0.48		1201
Research & Development												800	1511	2311	82.3	1.98		4957
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												2.91	5.49	8.4	0.3	0.01		18
Total												996	1887	2883	102	2.46		6176
Daily, Winter (Max)																		
General Office Building												193	371	564	19.8	0.48		1201

Research & Development												800	1511	2311	82.3	1.98		4957
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												2.91	5.49	8.4	0.3	0.01		18
Total												996	1887	2883	102	2.46		6176
Annual																		
General Office Building												31.9	61.4	93.3	3.28	0.08		199
Research & Development												132	250	383	13.6	0.33		821
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												0.48	0.91	1.39	0.05	< 0.005		2.98
Total												165	312	477	17	0.41		1023

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												284	0	284	28.4	0		993
Research & Development												34.8	0	34.8	3.48	0		122
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												32.1	0	32.1	3.2	0		112
Total												351	0	351	35	0		1226
Daily, Winter (Max)																		
General Office Building												284	0	284	28.4	0		993
Research & Development												34.8	0	34.8	3.48	0		122
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												32.1	0	32.1	3.2	0		112
Total												351	0	351	35	0		1226
Annual																		
General Office Building												47	0	47	4.69	0		164
Research & Development												5.76	0	5.76	0.58	0		20.1
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												5.31	0	5.31	0.53	0		18.6
Total												58	0	58	5.8	0		203

4.5.1. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building												284	0	284	28.4	0		993
Research & Development												34.8	0	34.8	3.48	0		122
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												32.1	0	32.1	3.2	0		112
Total												351	0	351	35	0		1226
Daily, Winter (Max)																		
General Office Building												284	0	284	28.4	0		993
Research & Development												34.8	0	34.8	3.48	0		122
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												32.1	0	32.1	3.2	0		112
Total												351	0	351	35	0		1226
Annual																		
General Office Building												47	0	47	4.69	0		164
Research & Development												5.76	0	5.76	0.58	0		20.1
Enclosed Parking with Elevator												0	0	0	0	0		0
High Turnover (Sit Down Restaurant)												5.31	0	5.31	0.53	0		18.6
Total												58	0	58	5.8	0		203

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building																	1.38	1.38
Research & Development																	21.7	21.7
High Turnover (Sit Down Restaurant)																	7.82	7.82
Total																	30.9	30.9
Daily, Winter (Max)																		
General Office Building																	1.38	1.38
Research & Development																	21.7	21.7
High Turnover (Sit Down Restaurant)																	7.82	7.82
Total																	30.9	30.9
Annual																		
General Office Building																	0.23	0.23
Research & Development																	3.59	3.59
High Turnover (Sit Down Restaurant)																	1.29	1.29
Total																	5.11	5.11

4.6.2. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building																	1.38	1.38
Research & Development																	21.7	21.7
High Turnover (Sit Down Restaurant)																	7.82	7.82
Total																	30.9	30.9
Daily, Winter (Max)																		
General Office Building																	1.38	1.38
Research & Development																	21.7	21.7
High Turnover (Sit Down Restaurant)																	7.82	7.82
Total																	30.9	30.9
Annual																		
General Office Building																	0.23	0.23
Research & Development																	3.59	3.59
High Turnover (Sit Down Restaurant)																	1.29	1.29
Total																	5.11	5.11

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.7.2. Mitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		

Daily, Winter (Max)
Total
Annual
Total

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.8.2. Mitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.9.2. Mitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Vegetation	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Species	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Daily, Winter (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Annual																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Vegetation	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		

Total

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Species	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Daily, Winter (Max)																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		
Annual																		
Avoided																		
Subtotal																		
Sequestered																		
Subtotal																		
Removed																		
Subtotal																		

5. Activity Data
5.9. Operational Mobile Sources
5.9.1. Unmitigated

Land Use Type	Trips/Wee	Trips/Satu	Trips/Sunc	Trips/Year	VMT/Wee	VMT/Satu	VMT/Sund	VMT/Year
General Office Building	9311	9311	9311	3398406	95278	95278	95278	34776398
Research & Development	0	0	0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0

5.9.2. Mitigated

Land Use Type	Trips/Wee	Trips/Satu	Trips/Sunc	Trips/Year	VMT/Wee	VMT/Satu	VMT/Sund	VMT/Year
General Office Building	9311	9311	9311	3398406	95278	95278	95278	34776398
Research & Development	0	0	0	0	0	0	0	0
Enclosed Parking with Elevator	0	0	0	0	0	0	0	0
High Turnover (Sit Down Restaurant)	0	0	0	0	0	0	0	0

5.10. Operational Area Sources
5.10.1. Hearths
5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)

5.10.2. Architectural Coatings

	Residential Interior Area Coated (sq ft)	Residentia	Non-Resid	Non-Resid	Parking Area Coated (sq ft)
	0	0	2183100	715900	70800

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0
Summer Days	day/yr	180

5.11. Operational Energy Consumption
5.11.1. Unmitigated

Land Use	Electricity	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	11981446	204	0.033	0.004	13442664
Research & Development	17972170	204	0.033	0.004	20163996
Enclosed Parking with Elevator	4355889	204	0.033	0.004	0
High Turnover (Sit Down Restaurant)	226894	204	0.033	0.004	674605

5.11.2. Mitigated

Land Use	Electricity	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	11981446	204	0.033	0.004	13442664
Research & Development	17972170	204	0.033	0.004	20163996
Enclosed Parking with Elevator	4355889	204	0.033	0.004	0
High Turnover (Sit Down Restaurant)	226894	204	0.033	0.004	674605

5.12. Operational Water and Wastewater Consumption
5.12.1. Unmitigated

Land Use	Indoor Wa	Outdoor Water (gal/year)
General Office Building	1.01E+08	2487055
Research & Development	4.17E+08	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	1517669	0

5.12.2. Mitigated

Land Use	Indoor Wa	Outdoor Water (gal/year)
General Office Building	1.01E+08	2487055
Research & Development	4.17E+08	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	1517669	0

5.13. Operational Waste Generation
5.13.1. Unmitigated

Land Use	Waste (toı	Cogeneration (kWh/year)
General Office Building	526	0
Research & Development	64.5	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	59.5	0

5.13.2. Mitigated

Land Use	Waste (tor	Cogeneration (kWh/year)
General Office Building	526	0
Research & Development	64.5	0
Enclosed Parking with Elevator	0	0
High Turnover (Sit Down Restaurant)	59.5	0

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipmen	Refrigeran	GWP	Quantity (l	Operation	Service Lea	Times Serviced
General Office Building	Householc	R-134a	1430	0.02	0.6	0	1
General Office Building	Other com	R-410A	2088	< 0.005	4	4	18
Research & Development	Householc	R-134a	1430	0.45	0.6	0	1
Research & Development	Other com	R-410A	2088	< 0.005	4	4	18
High Turnover (Sit Down Restaurant)	Householc	R-134a	1430	0	0.6	0	1
High Turnover (Sit Down Restaurant)	Other com	R-410A	2088	1.8	4	4	18
High Turnover (Sit Down Restaurant)	Walk-in re	R-404A	3922	< 0.005	7.5	7.5	20

5.14.2. Mitigated

Land Use Type	Equipmen	Refrigeran	GWP	Quantity (l	Operation	Service Lea	Times Serviced
General Office Building	Householc	R-134a	1430	0.02	0.6	0	1
General Office Building	Other com	R-410A	2088	< 0.005	4	4	18
Research & Development	Householc	R-134a	1430	0.45	0.6	0	1
Research & Development	Other com	R-410A	2088	< 0.005	4	4	18
High Turnover (Sit Down Restaurant)	Householc	R-134a	1430	0	0.6	0	1
High Turnover (Sit Down Restaurant)	Other com	R-410A	2088	1.8	4	4	18
High Turnover (Sit Down Restaurant)	Walk-in re	R-404A	3922	< 0.005	7.5	7.5	20

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tie	Number p	Hours Per	Horsepow	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tie	Number p	Hours Per	Horsepow	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number p	Hours per	Hours per	Horsepow	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rati	Daily Heat	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetatior	Initial Acre	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetatior	Initial Acre	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acre	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acre	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for	Unit
Temperature and Extreme Heat	7.57	annual days of extreme heat
Extreme Precipitation	6.1	annual days with precipitation above 20 mm
Sea Level Rise	0	meters of inundation depth
Wildfire	0	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure S	Sensitivity	Adaptive C	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack	N/A	N/A	N/A	N/A
Air Quality	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure S	Sensitivity	Adaptive C	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A

Extreme Precipitation	2	1	1	3
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack	N/A	N/A	N/A	N/A
Air Quality	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures
7. Health and Equity Details
7.1. CalEnviroScreen 4.0 Scores
The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	
AQ-Ozone	10.6
AQ-PM	32.8
AQ-DPM	75.5
Drinking Water	42.7
Lead Risk Housing	59.5
Pesticides	0
Toxic Releases	33.4
Traffic	81
Effect Indicators	
CleanUp Sites	0
Groundwater	78.7
Haz Waste Facilities/Generators	76.7
Impaired Water Bodies	77.3
Solid Waste	84.7
Sensitive Population	
Asthma	12.4
Cardio-vascular	12.1
Low Birth Weights	63.3
Socioeconomic Factor Indicators	
Education	25.5
Housing	46
Linguistic	47.1
Poverty	32.5
Unemployment	61.5

7.2. Healthy Places Index Scores
The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	
Above Poverty	87.66842
Employed	97.33094
Median HI	79.13512
Education	
Bachelor's or higher	88.73348
High school enrollment	100
Preschool enrollment	80.93161
Transportation	
Auto Access	38.03413
Active commuting	89.90119
Social	
2-parent households	73.4377
Voting	91.00475
Neighborhood	
Alcohol availability	18.79892
Park access	50.49403
Retail density	95.36764
Supermarket access	22.49455
Tree canopy	83.9343
Housing	
Homeownership	32.88849
Housing habitability	47.09355
Low-inc homeowner severe housing cost burden	12.75504
Low-inc renter severe housing cost burden	78.78866
Uncrowded housing	58.11626
Health Outcomes	
Insured adults	83.39535
Arthritis	0
Asthma ER Admissions	79
High Blood Pressure	0
Cancer (excluding skin)	0
Asthma	0
Coronary Heart Disease	0
Chronic Obstructive Pulmonary Disease	0
Diagnosed Diabetes	0
Life Expectancy at Birth	82
Cognitively Disabled	75
Physically Disabled	87
Heart Attack ER Admissions	88
Mental Health Not Good	0
Chronic Kidney Disease	0
Obesity	0
Pedestrian Injuries	87
Physical Health Not Good	0
Stroke	0
Health Risk Behaviors	
Binge Drinking	0
Current Smoker	0
No Leisure Time for Physical Activity	0
Climate Change Exposures	
Wildfire Risk	0
SLR Inundation Area	28
Children	22
Elderly	57
English Speaking	72
Foreign-born	38
Outdoor Workers	64
Climate Change Adaptive Capacity	
Impervious Surface Cover	36

Traffic Density	84
Traffic Access	87
Other Indices	
Hardship	9
Other Decision Support	
2016 Voting	86

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	43
Healthy Places Index Score for Project Location (b)	94
Project Located in a Designated Disadvantaged Com	No
Project Located in a Low-Income Community (Asser	No
Project Located in a Community Air Protection Prog	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

Measure Title	Co-Benefits Achieved

7.5. Evaluation Scorecard

Category	Number o	Total Point	Max Possil	Weighted Score

7.6. Health & Equity Custom Measures

Measure Title	Sponsor

8. User Changes to Default Data

Screen	Justification
Operations: Vehicle Data	Updated the General Office Building Trip based on the latest traffic data that the client provided
Operations: Consumer Products	Adjusted to be specific to San Mateo county

Appendix BIO

Biological Resources

California Natural Diversity Database (CNDDB)

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (San Mateo (3712253) OR San Francisco South (3712264) OR Hunters Point (3712263) OR Montara Mountain (3712254))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Acanthomintha duttonii San Mateo thorn-mint	PDLAM01040	Endangered	Endangered	G1	S1	1B.1
Acipenser medirostris pop. 1 green sturgeon - southern DPS	AFCAA01031	Threatened	None	G2T1	S1	
Adela oplerella Opler's longhorn moth	IILEE0G040	None	None	G2	S2	
Agrostis blasdalei Blasdale's bent grass	PMPOA04060	None	None	G2G3	S2	1B.2
Allium peninsulare var. franciscanum Franciscan onion	PMLIL021R1	None	None	G5T2	S2	1B.2
Amsinckia lunaris bent-flowered fiddleneck	PDBOR01070	None	None	G3	S3	1B.2
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Arctostaphylos franciscana Franciscan manzanita	PDERI040J3	Endangered	None	GHC	S1	1B.1
Arctostaphylos imbricata San Bruno Mountain manzanita	PDERI040L0	None	Endangered	G1	S1	1B.1
Arctostaphylos montana ssp. ravenii Presidio manzanita	PDERI040J2	Endangered	Endangered	G3T1	S1	1B.1
Arctostaphylos montaraensis Montara manzanita	PDERI042W0	None	None	G1	S1	1B.2
Arctostaphylos pacifica Pacific manzanita	PDERI040Z0	None	Endangered	G1	S1	1B.1
Arctostaphylos regismontana Kings Mountain manzanita	PDERI041C0	None	None	G2	S2	1B.2
Astragalus pycnostachyus var. pycnostachyus coastal marsh milk-vetch	PDFAB0F7B2	None	None	G2T2	S2	1B.2
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Banksula incredula incredible harvestman	ILARA14100	None	None	G1	S1	
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G2G3	S1S2	
Bombus occidentalis western bumble bee	IIHYM24252	None	Candidate Endangered	G3	S1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Brachyramphus marmoratus marbled murrelet	ABNNN06010	Threatened	Endangered	G3	S2	
Caecidotea tomalensis Tomales isopod	ICMAL01220	None	None	G2	S2S3	
Calicina minor Edgewood blind harvestman	ILARA13020	None	None	G1	S1	
Callophrys mossii bayensis San Bruno elfin butterfly	IILEPE2202	Endangered	None	G4T1	S2	
Carex comosa bristly sedge	PMCYP032Y0	None	None	G5	S2	2B.1
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
Charadrius nivosus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S3	SSC
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
Chorizanthe cuspidata var. cuspidata San Francisco Bay spineflower	PDPGN04081	None	None	G2T1	S1	1B.2
Chorizanthe robusta var. robusta robust spineflower	PDPGN040Q2	Endangered	None	G2T1	S1	1B.1
Cicindela hirticollis gravida sandy beach tiger beetle	IICOL02101	None	None	G5T2	S2	
Cirsium andrewsii Franciscan thistle	PDAST2E050	None	None	G3	S3	1B.2
Cirsium fontinale var. fontinale fountain thistle	PDAST2E161	Endangered	Endangered	G2T1	S1	1B.1
Cirsium occidentale var. compactum compact cobwebby thistle	PDAST2E1Z1	None	None	G3G4T2	S2	1B.2
Collinsia corymbosa round-headed Chinese-houses	PDSCR0H060	None	None	G1	S1	1B.2
Collinsia multicolor San Francisco collinsia	PDSCR0H0B0	None	None	G2	S2	1B.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Danaus plexippus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	Candidate	None	G4T1T2	S2	
Dicamptodon ensatus California giant salamander	AAAAH01020	None	None	G2G3	S2S3	SSC
Dipodomys venustus venustus Santa Cruz kangaroo rat	AMAFD03042	None	None	G4T1	S1	
Dirca occidentalis western leatherwood	PDTHY03010	None	None	G2	S2	1B.2

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Dufourea stagei Stage's dufourine bee	IIHYM22010	None	None	G1G2	S1	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Erethizon dorsatum North American porcupine	AMAFJ01010	None	None	G5	S3	
Eriophyllum latilobum San Mateo woolly sunflower	PDAST3N060	Endangered	Endangered	G1	S1	1B.1
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	
Euphydryas editha bayensis Bay checkerspot butterfly	IILEPK4055	Threatened	None	G5T1	S1	
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
Fritillaria biflora var. ineziana Hillsborough chocolate lily	PMLIL0V0M1	None	None	G3G4T1	S1	1B.1
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Geothlypis trichas sinuosa saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T3	S3	SSC
Gilia capitata ssp. chamissonis blue coast gilia	PDPLM040B3	None	None	G5T2	S2	1B.1
Gilia millefoliata dark-eyed gilia	PDPLM04130	None	None	G2	S2	1B.2
Grindelia hirsutula var. maritima San Francisco gumplant	PDAST470D3	None	None	G5T1Q	S1	3.2
Helianthella castanea Diablo helianthella	PDAST4M020	None	None	G2	S2	1B.2
Hemizonia congesta ssp. congesta congested-headed hayfield tarplant	PDAST4R065	None	None	G5T2	S2	1B.2
Hesperevax sparsiflora var. brevifolia short-leaved evax	PDASTE5011	None	None	G4T3	S3	1B.2
Hesperolinon congestum Marin western flax	PDLIN01060	Threatened	Threatened	G1	S1	1B.1
Heteranthera dubia water star-grass	PMPON03010	None	None	G5	S2	2B.2
Horkelia cuneata var. sericea Kellogg's horkelia	PDROS0W043	None	None	G4T1?	S1?	1B.1
Horkelia marinensis Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Hydroporus leechi Leech's skyline diving beetle	IICOL55040	None	None	G1?	S1?	
Hypogymnia schizidiata island tube lichen	NLT0032640	None	None	G2G3	S2	1B.3
Icaricia icarioides missionensis Mission blue butterfly	IILEPG801A	Endangered	None	G5T1	S2	
Icaricia icarioides pheres Pheres blue butterfly	IILEPG8019	None	None	G5TX	SX	
Ischnura gemina San Francisco forktail damselfly	IIODO72010	None	None	G2	S2	
Lasiurus cinereus hoary bat	AMACC05032	None	None	G3G4	S4	
Lasthenia californica ssp. macrantha perennial goldfields	PDAST5L0C5	None	None	G3T2	S2	1B.2
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3T1	S1	FP
Layia carnosa beach layia	PDAST5N010	Threatened	Endangered	G2	S2	1B.1
Leptosiphon croceus coast yellow leptosiphon	PDPLM09170	None	Endangered	G1	S1	1B.1
Leptosiphon rosaceus rose leptosiphon	PDPLM09180	None	None	G1	S1	1B.1
Lessingia arachnoidea Crystal Springs lessingia	PDAST5S0C0	None	None	G2	S2	1B.2
Lessingia germanorum San Francisco lessingia	PDAST5S010	Endangered	Endangered	G1	S1	1B.1
Lichnanthe ursina bumblebee scarab beetle	IICOL67020	None	None	G2	S2	
Limnanthes douglasii ssp. ornduffii Ornduff's meadowfoam	PDLIM02039	None	None	G4T1	S1	1B.1
Malacothamnus arcuatus arcuate bush-mallow	PDMAL0Q0E0	None	None	G2Q	S2	1B.2
Melospiza melodia pusillula Alameda song sparrow	ABPBXA301S	None	None	G5T2T3	S2S3	SSC
Monardella sinuata ssp. nigrescens northern curly-leaved monardella	PDLAM18162	None	None	G3T2	S2	1B.2
Monolopia gracilens woodland woollythreads	PDAST6G010	None	None	G3	S3	1B.2
Mylopharodon conocephalus hardhead	AFCJB25010	None	None	G3	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Myotis thysanodes fringed myotis	AMACC01090	None	None	G4	S3	
Nannopterum auritum double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	AMAFF08082	None	None	G5T2T3	S2S3	SSC
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Northern Maritime Chaparral Northern Maritime Chaparral	CTT37C10CA	None	None	G1	S1.2	
Nyctinomops macrotis big free-tailed bat	AMACD04020	None	None	G5	S3	SSC
Oncorhynchus mykiss irideus pop. 8 steelhead - central California coast DPS	AFCHA0209G	Threatened	None	G5T2T3Q	S3	
Pentachaeta bellidiflora white-rayed pentachaeta	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
Plagiobothrys chorisianus var. chorisianus Choris' popcornflower	PDBOR0V061	None	None	G3T1Q	S1	1B.2
Polemonium carneum Oregon polemonium	PDPLM0E050	None	None	G3G4	S2	2B.2
Polygonum marinense Marin knotweed	PDPGN0L1C0	None	None	G2Q	S2	3.1
Pomatiopsis californica Pacific walker	IMGASJ9020	None	None	G1	S1	
Potentilla hickmanii Hickman's cinquefoil	PDROS1B370	Endangered	Endangered	G1	S1	1B.1
Rallus obsoletus obsoletus California Ridgway's rail	ABNME05011	Endangered	Endangered	G3T1	S1	FP
Rana boylii pop. 4 foothill yellow-legged frog - central coast DPS	AAABH01054	Proposed Threatened	Endangered	G3T2	S2	
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Reithrodontomys raviventris salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sanicula maritima adobe sanicle	PDAPI1Z0D0	None	Rare	G2	S2	1B.1
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
Serpentine Bunchgrass Serpentine Bunchgrass	CTT42130CA	None	None	G2	S2.2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Silene scouleri ssp. scouleri Scouler's catchfly	PDCAR0U1MC	None	None	G5T4T5	S2S3	2B.2
Silene verecunda ssp. verecunda San Francisco campion	PDCAR0U213	None	None	G5T1	S1	1B.2
Speyeria callippe callippe callippe silverspot butterfly	IILEPJ6091	Endangered	None	G5T1	S1	
Speyeria zerene myrtleae Myrtle's silverspot butterfly	IILEPJ608C	Endangered	None	G5T1	S1	
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
Suaeda californica California seablite	PDCHE0P020	Endangered	None	G1	S1	1B.1
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis sirtalis tetrataenia San Francisco gartersnake	ARADB3613B	Endangered	Endangered	G5T2Q	S2	FP
Trachusa gummifera San Francisco Bay Area leaf-cutter bee	IIHYM80010	None	None	G1	S1	
Trifolium amoenum two-fork clover	PDFAB40040	Endangered	None	G1	S1	1B.1
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Triphysaria floribunda San Francisco owl's-clover	PDSCR2T010	None	None	G2?	S2?	1B.2
Triquetrella californica coastal triquetrella	NBMUS7S010	None	None	G2	S2	1B.2
Tryonia imitator mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	

Record Count: 118

California Native Plant Society (CNPS) Rare Plant Inventory

CNPS Rare Plant Inventory

CALIFORNIA NATIVE PLANT SOCIETY

Search Results

60 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [1A:1B:2A:2B] Quad is one of [3712253:3712264:3712263:3712254]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Acanthomintha duttonii	San Mateo thorn-mint	Lamiaceae	annual herb	Apr-Jun	FE	CE	G1	S1	1B.1	 © 2011 Aaron Schusteff
Agrostis blasdalei	Blasdale's bent grass	Poaceae	perennial rhizomatous herb	May-Jul	None	None	G2G3	S2	1B.2	 © 2001 Doreen L. Smith
Allium peninsulare var. *franciscanum*	Franciscan onion	Alliaceae	perennial bulbiferous herb	(Apr)May-Jun	None	None	G5T2	S2	1B.2	 © 2019 Aaron Arthur
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	Mar-Jun	None	None	G3	S3	1B.2	 © 2011 Neal Kramer
Arctostaphylos franciscana	Franciscan manzanita	Ericaceae	perennial evergreen shrub	Feb-Apr	FE	None	GHC	S1	1B.1	 © 2015 Neal Kramer
Arctostaphylos imbricata	San Bruno Mountain manzanita	Ericaceae	perennial evergreen shrub	Feb-May	None	CE	G1	S1	1B.1	 © 2013 Robert Sikora

Arctostaphylos montana ssp. ravenii	Presidio manzanita	Ericaceae	perennial evergreen shrub	Feb-Mar	FE	CE	G3T1	S1	1B.1	 © 2019 Susan McDougall
Arctostaphylos montaraensis	Montara manzanita	Ericaceae	perennial evergreen shrub	Jan-Mar	None	None	G1	S1	1B.2	 © 2016 Neal Kramer
Arctostaphylos pacifica	Pacific manzanita	Ericaceae	evergreen shrub	Feb-Apr	None	CE	G1	S1	1B.1	No Photo Available
Arctostaphylos regismontana	Kings Mountain manzanita	Ericaceae	perennial evergreen shrub	Dec-Apr	None	None	G2	S2	1B.2	No Photo Available
Astragalus pycnostachyus var. *pycnostachyus*	coastal marsh milk-vetch	Fabaceae	perennial herb	(Apr)Jun-Oct	None	None	G2T2	S2	1B.2	 ©2009 Neal Kramer
Astragalus tener var. *tener*	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G2T1	S1	1B.2	No Photo Available
Carex comosa	bristly sedge	Cyperaceae	perennial rhizomatous herb	May-Sep	None	None	G5	S2	2B.1	 Dean Wm. Taylor 1997
Centromadia parryi ssp. *parryi*	pappose tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.2	No Photo Available
Chloropyron maritimum ssp. *palustre*	Point Reyes salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Oct	None	None	G4?T2	S2	1B.2	 ©2017 John Doyen
Chorizanthe cuspidata var. *cuspidata*	San Francisco Bay spineflower	Polygonaceae	annual herb	Apr-Jul(Aug)	None	None	G2T1	S1	1B.2	No Photo Available
Chorizanthe robusta var. *robusta*	robust spineflower	Polygonaceae	annual herb	Apr-Sep	FE	None	G2T1	S1	1B.1	No Photo Available
Cirsium andrewsii	Franciscan thistle	Asteraceae	perennial herb	Mar-Jul	None	None	G3	S3	1B.2	No Photo Available
Cirsium fontinale var. *fontinale*	fountain thistle	Asteraceae	perennial herb	(Apr)May-Oct	FE	CE	G2T1	S1	1B.1	No Photo Available

Cirsium occidentale var. *compactum*	compact cobwebby thistle	Asteraceae	perennial herb	Apr-Jun	None	None	G3G4T2	S2	1B.2	No Photo Available
Collinsia corymbosa	round-headed collinsia	Plantaginaceae	annual herb	Apr-Jun	None	None	G1	S1	1B.2	 ©2007 Steve Matson
Collinsia multicolor	San Francisco collinsia	Plantaginaceae	annual herb	(Feb)Mar-May	None	None	G2	S2	1B.2	No Photo Available
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	Jan-Mar(Apr)	None	None	G2	S2	1B.2	 © 2017 Steve Matson
Eriophyllum latilobum	San Mateo woolly sunflower	Asteraceae	perennial herb	May-Jun	FE	CE	G1	S1	1B.1	No Photo Available
Fritillaria biflora var. *ineziana*	Hillsborough chocolate lily	Liliaceae	perennial bulbiferous herb	Mar-Apr	None	None	G3G4T1	S1	1B.1	 © 2012 Toni Corelli
Fritillaria lanceolata var. *tristulis*	Marin checker lily	Liliaceae	perennial bulbiferous herb	Feb-May	None	None	G5T2	S2	1B.1	 © 2020 Barry Rice
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2	S2	1B.2	 © 2004 Carol W. Witham
Gilia capitata ssp. *chamissonis*	blue coast gilia	Polemoniaceae	annual herb	Apr-Jul	None	None	G5T2	S2	1B.1	 © 2017 John Doyen
Gilia millefoliata	dark-eyed gilia	Polemoniaceae	annual herb	Apr-Jul	None	None	G2	S2	1B.2	 © 2017 John Doyen
Helianthella castanea	Diablo helianthella	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	 © 2013 Christopher Bronny

Hemizonia congesta ssp. *congesta*	congested-headed hayfield tarplant	Asteraceae	annual herb	Apr-Nov	None	None	G5T2	S2	1B.2	 © 2015 Vernon Smith
Hesperevax sparsiflora var. *brevifolia*	short-leaved evax	Asteraceae	annual herb	Mar-Jun	None	None	G4T3	S3	1B.2	 © 2006 Doreen L. Smith
Hesperolinon congestum	Marin western flax	Linaceae	annual herb	Apr-Jul	FT	CT	G1	S1	1B.1	 © 2009 Neal Kramer
Heteranthera dubia	water star-grass	Pontederiaceae	perennial herb (aquatic)	Jul-Oct	None	None	G5	S2	2B.2	 ©2010 Louis-M. Landry
Horkelia cuneata var. *sericea*	Kellogg's horkelia	Rosaceae	perennial herb	Apr-Sep	None	None	G4T1?	S1?	1B.1	 © 2018 Neal Kramer
Horkelia marinensis	Point Reyes horkelia	Rosaceae	perennial herb	May-Sep	None	None	G2	S2	1B.2	 © 2017 John Doyen
Hypogymnia schizidiata	island tube lichen	Parmeliaceae	foliose lichen		None	None	G2G3	S2	1B.3	No Photo Available
Lasthenia californica ssp. *macrantha*	perennial goldfields	Asteraceae	perennial herb	Jan-Nov	None	None	G3T2	S2	1B.2	 © 2013 John Doyen
Layia carnosa	beach layia	Asteraceae	annual herb	Mar-Jul	FT	CE	G2	S2	1B.1	 © 2007 Aaron Schusteff
Leptosiphon croceus	coast yellow leptosiphon	Polemoniaceae	annual herb	Apr-Jun	None	CE	G1	S1	1B.1	 © 2018 Neal Kramer

Leptosiphon rosaceus	rose leptosiphon	Polemoniaceae	annual herb	Apr-Jul	None	None	G1	S1	1B.1	 © 2013 Aaron Schusteff
Lessingia arachnoidea	Crystal Springs lessingia	Asteraceae	annual herb	Jul-Oct	None	None	G2	S2	1B.2	 © 2008 Neal Kramer
Lessingia germanorum	San Francisco lessingia	Asteraceae	annual herb	(Jun)Jul-Nov	FE	CE	G1	S1	1B.1	 © 2019 Aaron Schusteff
Limnanthes douglasii ssp. ornduffii	Ornduff's meadowfoam	Limnanthaceae	annual herb	Nov-May	None	None	G4T1	S1	1B.1	 © 2021 Eva Buxton
Malacothamnus arcuatus	arcuate bush-mallow	Malvaceae	perennial deciduous shrub	Apr-Sep	None	None	G2Q	S2	1B.2	 © 2017 Keir Morse
Monardella sinuata ssp. nigrescens	northern curly-leaved monardella	Lamiaceae	annual herb	(Apr)May-Jul(Aug-Sep)	None	None	G3T2	S2	1B.2	 © 2014 John Doyen
Monolopia gracilens	woodland woollythreads	Asteraceae	annual herb	(Feb)Mar-Jul	None	None	G3	S3	1B.2	 © 2016 Richard Spellenberg
Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	Mar-May	FE	CE	G1	S1	1B.1	No Photo Available
Plagiobothrys chorisianus var. chorisianus	Choris' popcornflower	Boraginaceae	annual herb	Mar-Jun	None	None	G3T1Q	S1	1B.2	No Photo Available
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	Apr-Sep	None	None	G3G4	S2	2B.2	 ©2018 John Doyen
Potentilla hickmanii	Hickman's cinquefoil	Rosaceae	perennial herb	Apr-Aug	FE	CE	G1	S1	1B.1	No Photo Available

Sanicula maritima	adobe sanicle	Apiaceae	perennial herb	Feb-May	None	CR	G2	S2	1B.1	No Photo Available
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	None	None	G3	S2	2B.2	No Photo Available
Silene scouleri ssp. *scouleri*	Scouler's catchfly	Caryophyllaceae	perennial herb	(Mar-May)Jun-Aug(Sep)	None	None	G5T4T5	S2S3	2B.2	 ©2015 Vernon Smith
Silene verecunda ssp. *verecunda*	San Francisco campion	Caryophyllaceae	perennial herb	(Feb)Mar-Jul(Aug)	None	None	G5T1	S1	1B.2	No Photo Available
Suaeda californica	California seablite	Chenopodiaceae	perennial evergreen shrub	Jul-Oct	FE	None	G1	S1	1B.1	No Photo Available
Trifolium amoenum	two-fork clover	Fabaceae	annual herb	Apr-Jun	FE	None	G1	S1	1B.1	No Photo Available
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.2	No Photo Available
Triphysaria floribunda	San Francisco owl's-clover	Orobanchaceae	annual herb	Apr-Jun	None	None	G2?	S2?	1B.2	No Photo Available
Triquetrella californica	coastal triquetrella	Pottiaceae	moss		None	None	G2	S2	1B.2	No Photo Available

Showing 1 to 60 of 60 entries

Suggested Citation:
California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website https://www.rareplants.cnps.org [accessed 22 December 2022].

U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Resource List

IPaC **U.S. Fish & Wildlife Service**

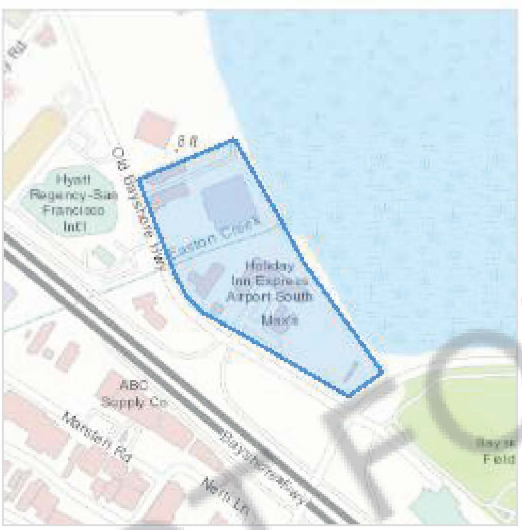
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

San Mateo County, California



Local offices

San Francisco Bay-Delta Fish And Wildlife

(916) 930-5603
(916) 930-5654

650 Capitol Mall
Suite 8-300
Sacramento, CA 95814

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse Reithrodontomys raviventris Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Clapper Rail Rallus longirostris obsoletus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern Sterna antillarum browni Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered

Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle Chelonia mydas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened
San Francisco Garter Snake Thamnophis sirtalis tetrataenia Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5956	Endangered

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
California Seablite Suaeda californica No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6310	Endangered
Fountain Thistle Cirsium fontinale var. fontinale Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7939	Endangered
Marin Dwarf-flax Hesperolinon congestum Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5363	Threatened
San Mateo Thornmint Acanthomintha obovata ssp. duttonii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2038	Endangered

San Mateo Woolly Sunflower Eriophyllum latilobum | Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7791

White-rayed Pentachaeta Pentachaeta bellidiflora | Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7782

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species

- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow Passerculus sandwichensis beldingi This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15

Black Oystercatcher Haematopus bachmani — Breeds Apr 15 to Oct 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9591

Black Skimmer Rynchops niger — Breeds May 20 to Sep 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5234

Black Turnstone Arenaria melanocephala — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Bullock's Oriole Icterus bullockii — Breeds Mar 21 to Jul 25

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

California Gull Larus californicus — Breeds Mar 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

California Thrasher Toxostoma redivivum — Breeds Jan 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Clark's Grebe Aechmophorus clarkii — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Marbled Godwit Limosa fedoa — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi | Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

https://ecos.fws.gov/ecp/species/3914

Short-billed Dowitcher Limnodromus griseus | Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

https://ecos.fws.gov/ecp/species/9480

Tricolored Blackbird Agelaius tricolor | Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis | Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

https://ecos.fws.gov/ecp/species/6743

Willet Tringa semipalmata | Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit Chamaea fasciata | Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

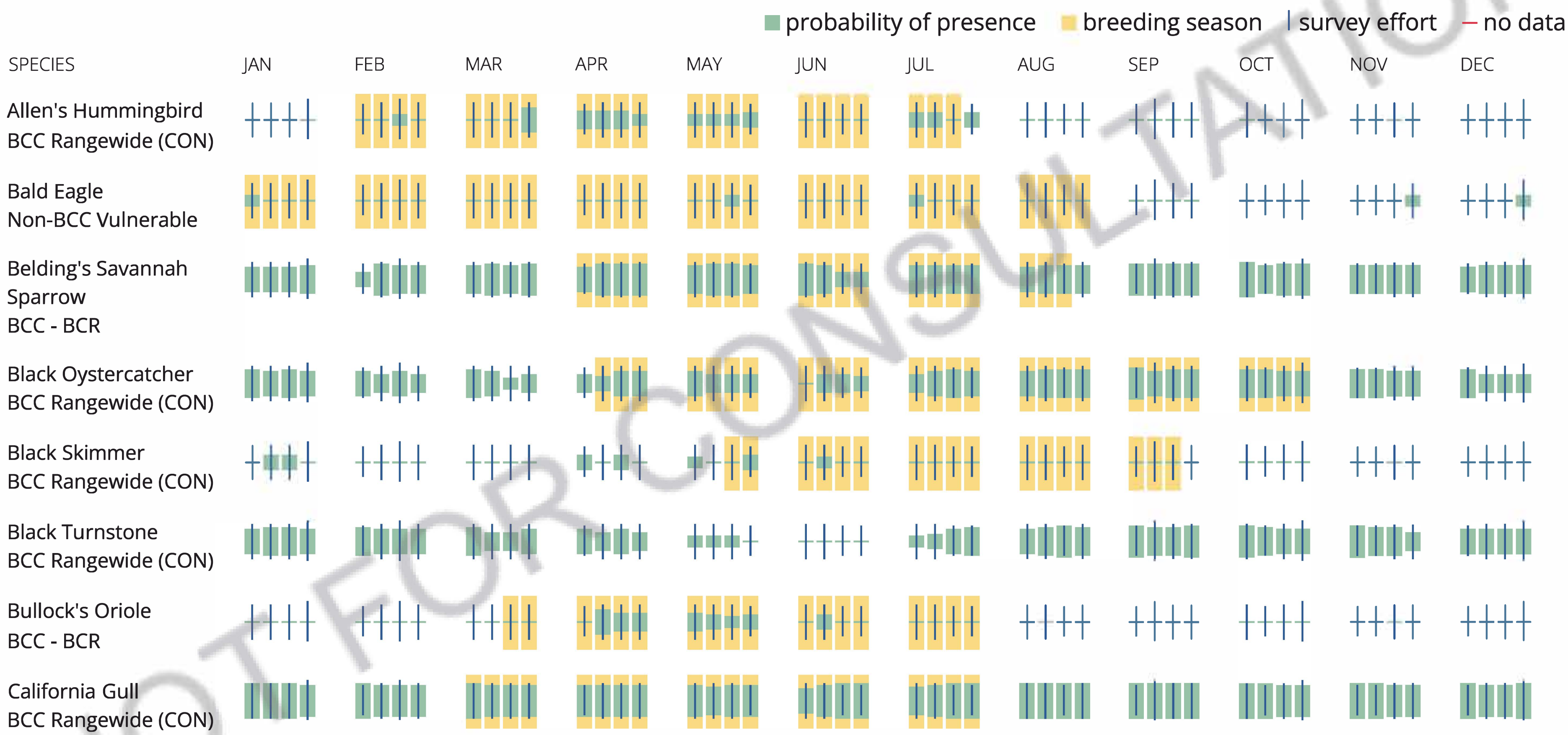
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

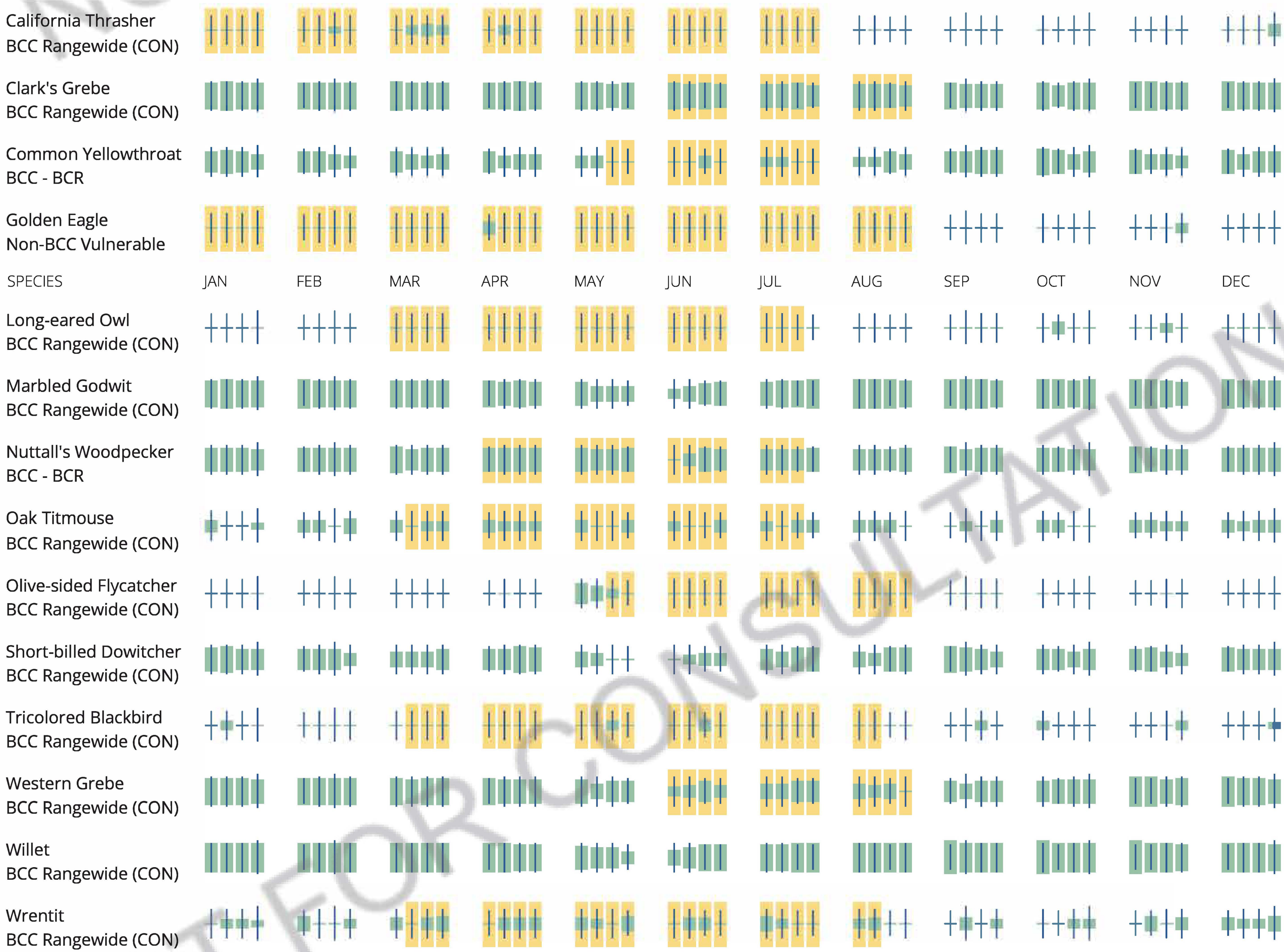
No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Table BIO: Special-Status Species with a Moderate or High Potential to Occur in the Study Area

TABLE BIO
SPECIAL-STATUS SPECIES WITH A MODERATE OR HIGH POTENTIAL TO OCCUR IN THE STUDY AREA

Common Name *Scientific Name*	**Listing Status USFWS/ CDFW/Other[a]**	**Habitat Description**	**Potential to Occur in the Project Site/Study Area[b,c]**
Plants			
San Mateo thorn-mint *Acanthomintha duttonii*	FE/CE/1B.1	Chaparral and valley grassland. Affinity for serpentine soil. 30 – 260m. Blooms April – June	**Absent**. No suitable habitat is present in the Project site. Serpentine soils not found in the Project site.
Blasdale's bent grass *Agrostis blasdalei*	--/--/1B.2	Coastal strand, coastal prairie, northern coastal scrub and dunes. 5 – 350m. Blooms May – July	**Absent**. No suitable habitat is present in the Project site.
Franciscan onion *Allium peninsulare* var. *franciscanum*	--/--/1B.2	Clay, volcanic, or serpentine substrate in valley and foothill grassland and cismontane woodland. 20 – 740m. Blooms May – June	**Absent**. No suitable habitat is present in the Project site.
Bent-flowered fiddleneck *Amsinckia lunaris*	--/--/1B.2	Coastal bluff scrub, cismontane woodland, and valley and foothill grassland. 30 – 680m. Blooms March – June	**Absent**. No suitable habitat is present in the Project site.
Anderson's manzanita *Arctostaphylos andersonii*	--/--/1B.2	Chaparral, mixed evergreen forest, and redwood forests in openings and along edges. 80 – 820m. Blooms November – March	**Absent**. No suitable habitat is present in the Project site.
Franciscan manzanita *Arctostaphylos franciscana*	FE/--/1B.1	Open, rocky, serpentine outcrops in chaparral. 20 – 130m. Blooms February – April	**Absent**. No suitable habitat is present in the Project site.
San Bruno Mountain manzanita *Arctostaphylos imbricata*	--/CE/1B.1	Chaparral and coastal scrub, usually on sandstone outcrops. 170 – 480m. Blooms February – May	**Absent**. No suitable habitat is present in the Project site.
Presidio manzanita *Arctostaphylos montana* ssp. *ravenii*	FE/CE/1B.1	Open, rocky, serpentine slopes in chaparral, coastal scrub, and coastal prairie. Blooms February – March	**Absent**. No suitable habitat is present in the Project site.
Montara manzanita *Arctostaphylos montaraensis*	--/--/1B.2	Slopes and ridges in chaparral and coastal scrub. 140 – 590m. Blooms January – March	**Absent**. No suitable habitat is present in the Project site.
Pacific manzanita *Arctostaphylos pacifica*	--/CE/1B.2	Coastal scrub and chaparral. 20 – 110m. Blooms February – April	**Absent**. No suitable habitat is present in the Project site.
King's Mountain manzanita *Arctostaphylos regismontana*	--/--/1B.2	Chaparral, mixed evergreen forest, and north coastal coniferous forest. 200 – 660m. Blooms January – April	**Absent**. No suitable habitat is present in the Project site.
Coastal marsh milk-vetch *Astragalus pycnostachyus* var. *pycnostachyus*	--/--/1B.2	Coastal dunes, coastal scrub, streamside and coastal marshes or swamps. 0 – 330m. Blooms April – October	**Low.** Marginally suitable habitat is present in the Project site. No occurrences documented within 5 miles of the Project site.
Alkali milk-vetch *Astragalus tener* var. *tener*	--/--/1B.2	Playas, valley foothill grasslands, vernal pools/alkaline habitats. 1 – 170m. Blooms March – June	**Absent**. No suitable habitat is present in the Project site.
Bristly sedge *Carex comosa*	--/--/2B.1	Lake margins, marshes, swamps, coastal prairie, and valley and foothill grasslands. 270 – 1030m. Blooms May – September	**Absent**. No suitable habitat is present in the Project site.

TABLE BIO (CONTINUED)
SPECIAL-STATUS SPECIES WITH A MODERATE OR HIGH POTENTIAL TO OCCUR IN THE STUDY AREA

Common Name *Scientific Name*	**Listing Status USFWS/ CDFW/Other**[a]	**Habitat Description**	**Potential to Occur in the Project Site/Study Area**[b,c]
Plants (cont.)			
Congdon's tarplant *Centromadia parryi* ssp. *congdonii congdonii*	--/--/1B.2	Valley and foothill grasslands/alkaline habitats, low water tolerance. 0 – 260m. Blooms May – October, uncommon in November	**Absent**. No suitable habitat is present in the Project site.
Pappose tarplant *Centromadia parryi* ssp. *parryi*	--/--/1B.2	Grassland, coastal salt marshes, alkaline springs, seeps. 10-410m. Blooms May – November	**Low.** Marginally suitable habitat is present in the Project site. No occurrences documented within 5 miles of the Project site. Nearest occurrence at Cooley's Landing and historic.
Point Reyes bird's-beak *Chloropyron maritimum* ssp. *palustris*	--/--/1B.2	Coastal salt marshes and swamps. 0 – 220m. Blooms June – October	**Low.** Marginally suitable habitat is present in the Project site. Regional records documented in Marin County. No occurrences documented within 5 miles of the Project site.
San Francisco spineflower *Chorizanthe cuspidata* var. cuspidata	--/--/1B.2	Sandy terraces and slopes of coastal bluff scrub, coastal dunes, coastal prairie and coastal scrub. 11 – 180m. Blooms April – July	**Absent**. No suitable habitat is present in the Project site.
Robust spineflower *Chorizanthe robusta* var. *robusta*	FE/--/1B.1	Cismontane woodland, coastal dunes, coastal scrub, sandy or gravelly terraces and bluffs or in loose sand. 3-120 m. Blooms April – September	**Absent**. No suitable habitat is present in the Project site.
Franciscan thistle *Cirsium andrewsii*	--/--/1B.2	Mixed evergreen forest, northern coastal scrub and wetland, riparian areas along the coast. Affinity to serpentine soil. 13 – 1950m. Blooms March – July	**Absent**. No suitable habitat is present in the Project site.
Crystal Springs fountain thistle *Cirsium fontinale* var. *fontinale*	FE/CE/1B.1	Chaparral, valley grassland, wetland riparian communities and in seeps. Occurs almost always under natural conditions in wetlands. Affinity to serpentine soil. Blooms March – October	**Absent.** No suitable freshwater habitat is present in the Project site. Serpentine soils not found in the Project site.
Compact cobwebby thistle *Cirsium occidentale* var. *compactum*	--/--/1B.2	Coastal scrub, grassland, and dunes; often associated with seeps. 0-260m. Blooms April – June	**Absent**. No suitable habitat is present in the Project site.
Lost thistle *Cirsium praeteriens*	--/--/1A	Presumed extinct; habitat unknown. Species has low water tolerance. Blooms June – July	**Absent.** Species presumed extinct.
Round-headed Chinese houses *Collinsia corymbosa*	--/--/1B.2	Coastal strand and dunes. 9 – 100m. Blooms April – June	**Absent**. No suitable habitat is present in the Project site.
San Francisco collinsia *Collinsia multicolor*	--/--/1B.2	Closed-cone coniferous forests, coastal scrub, sometimes on serpentinite derived soils. 10 – 430m. Blooms March – May	**Absent**. No suitable habitat is present in the Project site.
Western leatherwood *Dirca occidentalis*	--/--/1B.2	Generally north or northeast facing slopes, mixed-evergreen forest to chaparral, generally in fog belt. 50 – 400m. Blooms January – March	**Absent**. No suitable habitat is present in the Project site.

TABLE BIO (CONTINUED)
SPECIAL-STATUS SPECIES WITH A MODERATE OR HIGH POTENTIAL TO OCCUR IN THE STUDY AREA

Common Name *Scientific Name*	**Listing Status USFWS/ CDFW/Other[a]**	**Habitat Description**	**Potential to Occur in the Project Site/Study Area[b,c]**
Plants (cont.)			
San Mateo woolly sunflower *Eriophyllum latilobum*	FE/CE/1B.1	Foothill woodland. Affinity to serpentine soil. 20 – 630m. Blooms March – June	**Absent.** No suitable habitat is present in the Project site. Serpentine soils not found in the Project site.
Hoover's button-celery *Eryngium aristulatum* var. *hooveri*	--/--/1B.1	Found in alkaline depressions, vernal pools, roadside ditches and other freshwater wet places near the coast. 3 – 45m. Blooms July	**Absent**. No suitable habitat is present in the Project site.
Jepson's coyote thistle *Eryngium jepsonii*	--/--/1B.2	Valley and foothill grasslands and vernal pools. 6 – 110m. Blooms April – August	**Absent**. No suitable habitat is present in the Project site.
Hillsborough chocolate lily *Fritillaria biflora* var. *ineziana*	--/--/1B.1	Cismontane woodland, valley and foothill grassland; most recently found on serpentine soils. Blooms March - April	**Absent**. No suitable habitat is present in the Project site.
Fragrant fritillary *Fritillaria liliacea*	--/--/1B.2	Coastal bluff scrub, coastal scrub, valley and foothill grassland; clayey soils, often serpentinite. 6 – 370m Blooms February – April	**Absent**. No suitable habitat is present in the Project site.
Blue coast gilia *Gilia capitata* ssp. *chamissonis*	--/--/1B.2	Coastal dunes and scrub. 0 – 580m. Blooms April – July	**Absent**. No suitable habitat is present in the Project site.
Dark-eyed gilia *Gilia millefoliata*	--/--/1B.2	Coastal dunes or strand. 5 – 610m. Blooms April – July	**Absent**. No suitable habitat is present in the Project site.
San Francisco gumplant *Grindelia hirsutula* var. *maritima*	--/--/3.2	Coastal scrub and grasslands. 19 – 200m. Blooms June – September	**Absent**. No suitable habitat is present in the Project site.
Diablo helianthella *Helianthella castanea*	--/--/1B.2	On rocky soils in broadleaf upland forest, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland. 20 – 960m. Blooms March – June	**Absent**. No suitable habitat is present in the Project site.
White seaside (=congested-headed hayfield) tarplant *Hemizonia congesta* ssp. *congesta*	--/--/1B.2	Grassy valleys and hills, often on fallow fields in coastal scrub. 30 – 1060m. Blooms April – November	**Absent**. No suitable habitat is present in the Project site.
Short-leaved evax *Hesperevax sparsiflora* var. *brevifolia*	--/--/1B.2	Sandy bluffs and flats in coastal scrub and coastal dunes. 4 – 250m. Blooms March – June	**Absent.** No suitable habitat is present in the Project site.
Marin western flax *Hesperolinon congestum*	FT/CT/1B.1	Chaparral and valley/foothill grassland; serpentine soils. 4 – 420m. Blooms April – July	**Absent.** No suitable habitat is present in the Project site. Serpentine soils not found in the Project site.
Water star-grass *Heteranthera dubia*	--/--/2B.2	Marshes and swamps (alkaline, still or slow-moving water). Blooms July – October	**Absent**. No suitable habitat is present in the Project site.

TABLE BIO (CONTINUED)
SPECIAL-STATUS SPECIES WITH A MODERATE OR HIGH POTENTIAL TO OCCUR IN THE STUDY AREA

Common Name *Scientific Name*	**Listing Status USFWS/ CDFW/Other[a]**	**Habitat Description**	**Potential to Occur in the Project Site/Study Area[b,c]**
Plants (cont.)			
Kellogg's horkelia *Horkelia cuneata* var. *sericea*	--/--/1B.1	Coastal scrub, dunes, and openings of closed-cone coniferous forests. 0 – 1690m. Blooms February – July	**Absent**. No suitable habitat is present in the Project site.
Point Reyes horkelia *Horkelia marinensis*	--/--/1B.2	Coastal Strand, Coastal Prairie, Northern Coastal Scrub, and dunes. 14 – 600m. Blooms May - September	**Absent.** No suitable habitat is present in the Project site.
Perennial goldfields *Lasthenia californica* ssp. *macrantha*	--/--/1B.2	Coastal bluff scrub, coastal dunes, and coastal scrub. 5 – 520m. Blooms January – November	**Absent.** No suitable habitat is present in the Project site.
Beach layia *Layia carnosa*	FE/CE/1B.1	On sparsely vegetated, semi-stabilized coastal dunes and coastal scrub. 0 – 60m. Blooms March – July	**Absent.** No suitable habitat is present in the Project site.
Coast yellow leptosiphon *Leptosiphon croceus*	--/CCE/1B.1	Coastal bluff scrub and coastal prairie. 8 – 240m. Blooms April – May	**Absent.** No suitable habitat is present in the Project site.
rose leptosiphon *Leptosiphon rosaceus*	--/--/1B.1	Coastal bluff scrub. Species has a low water tolerance. +/- 0m. Blooms April – July	**Absent.** No suitable habitat is present in the Project site.
Crystal Springs lessingia *Lessingia arachnoidea*	--/--/1B.2	Valley grassland, foothill woodlands and northern coastal scrub in disturbed areas. 70 – 210m. Blooms July – October	**Absent.** No suitable habitat is present in the Project site.
San Francisco lessingia *Lessingia germanorum*	FE/CE/1B.1	Coastal scrub, sandy soils free of competing species. 7 – 790m. Blooms July – November	**Absent.** No suitable habitat is present in the Project site.
Ornduff's meadowfoam *Limnanthes douglasii* ssp. *ornduffii*	--/--/1B.1	Meadows and seeps, agricultural fields. 10 – 20m. Blooms November – May	**Absent.** No suitable habitat is present in the Project site.
Arcuate bush-mallow *Malacothamnus arcuatus*	--/--/1B.2	Gravelly alluvium in chaparral and cismontane woodland. 15 – 355m. Blooms April – September	**Absent.** No suitable habitat is present in the Project site.
Northern curly-leaved Monardella *Monardella sinuata* ssp. *nigrescens*	--/--/1B.2	Coastal dunes and scrub, chaparral, lower montane coniferous forest. 0 – 300m. Blooms April – September	**Absent.** No suitable habitat is present in the Project site.
woodland woolythreads *Monolopia gracilens*	--/--/1B.2	Mixed evergreen forest, broadleaved upland forest, redwood forest, and chaparral, and valley and foothill grasslands. Affinity to serpentine soil. 60 – 1360m. Blooms March – July	**Absent.** No suitable habitat is present in the Project site.
White-rayed pentachaeta *Pentachaeta bellidiflora*	FE/CE/1B.1	Open, dry, rocky slopes and grassy areas, usually on serpentine. 35 – 620m. Blooms March – May	**Absent.** No suitable habitat is present in the Project site.
Marin knotweed *Polygonum marinense*	--/--/3.1	Coastal (brackish) marshes and swamps. 0 – 10m. Blooms April – October	**Low.** Marginally suitable habitat is present in the Project site. Regional records documented in Marin County. No occurrences documented within 5 miles of the Project site.

TABLE BIO (CONTINUED)
SPECIAL-STATUS SPECIES WITH A MODERATE OR HIGH POTENTIAL TO OCCUR IN THE STUDY AREA

Common Name *Scientific Name*	**Listing Status USFWS/ CDFW/Other[a]**	**Habitat Description**	**Potential to Occur in the Project Site/Study Area[b,c]**
Plants (cont.)			
Choris' popcornflower *Plagiobothrys chorisianus* var. *chorisianus*	--/--/1B.2	Mesic sites in chaparral, coastal scrub, and coastal prairie. 4 – 300m. Blooms March – June	**Absent.** No suitable habitat is present in the Project site.
Oregon polemonium *Polemonium carneum*	--/--/2B.2	Northern coastal scrub, coastal prairie and yellow pine forest. Blooms April – September	**Absent.** No suitable habitat is present in the Project site.
Hickman's cinquefoil *Potentilla hickmanii*	FE/CE/1B.1	Coastal bluff scrub, closed-cone coniferous forest, meadows and seeps, marshes and swamps. 19 – 100m. Blooms April – August	**Absent.** No suitable habitat is present in the Project site.
Adobe sanicle *Sanicula maritima*	--/CR/1B.1	Meadows and seeps, valley and foothill grassland, chaparral, coastal prairie. Found on moist clay or ultramafic soils. 30 – 240m. Blooms February – May	**Absent.** No suitable habitat is present in the Project site.
San Francisco campion *Silene verecunda* ssp. *verecunda*	--/--/1B.2	Mudstone, shale, or serpentine substrates in coastal scrub, coastal prairie, chaparral and valley and foothill grassland. Blooms March – June	**Absent.** No suitable habitat is present in the Project site.
Sslender-leaved pondweed *Stuckenia filiformis* ssp. *alpina*	--/--/2B.2	Marshes and swamps, in shallow, clear water of lakes and drainage channels. 15 – 2310m. Blooms May – July	**Absent.** No suitable freshwater habitat is present in the Project site.
California seablite *Suaeda californica*	FE/--/1B.1	High margins of coastal salt marshes and swamps in sandy soil. 0 – 5m. Blooms July – October	**Low.** Marginal high salt marsh habitat is present in the Easton Creek channel within the Project site. No occurrences documented within 5 miles of the Project site.
Two fork (=showy rancheria) clover *Trifolium amoenum*	FE/--/1B.1	Valley grassland and wetland-riparian areas. Usually occurs in wetlands, but occasionally not wetlands. 8 – 160m. Blooms April – June	**Absent.** No suitable habitat is present in the Project site.
Saline clover *Trifolium depauperatum* var. *hydrophilum*	--/--/1B.2	Marshes and swamps, valley and foothill grasslands, vernal pools. 0 – 300m. Blooms April – June	**Absent.** No suitable habitat is present in the Project site.
San Francisco owl's-clover *Triphysaria floribunda*	--/--/1B.2	Coastal prairie, coastal scrub, valley and foothill grasslands. Affinity to serpentine soils. 10 – 160m. Blooms April – June	**Absent.** No suitable habitat is present in the Project site.
California triquetrella moss *Triquetrella californica*	--/--/1B.3	Coastal bluff scrub and coastal scrub. 10 – 100m.	**Absent.** No suitable habitat is present in the Project site.
Methuselah's beard lichen *Usnea longissima*	--/--/4.2	Found on tree branches in old growth hardwood or coniferous forests, broadleaf upland forests, and north coast coniferous forests. 50 – 1460m.	**Absent.** No suitable habitat is present in the Project site.

TABLE BIO (CONTINUED)
SPECIAL-STATUS SPECIES WITH A MODERATE OR HIGH POTENTIAL TO OCCUR IN THE STUDY AREA

Common Name *Scientific Name*	**Listing Status USFWS/ CDFW/Other[a]**	**Habitat Description**	**Potential to Occur in the Project Site/Study Area[b,c]**
Invertebrates			
Western bumble bee *Bombus occidentalis*	--/CC/--	Found in any area with sufficient flowers for nutrition, and underground burrows for nest for the queen.	**Low.** Historical occurrences from the City of Burlingame, Millbrae, and Hillsborough date from 1910 to 1958; from areas that are presently developed. Habitat is limited on the site. Suitable foraging habitat may be present on the waterfront; however, given that the Project site is mostly developed, and this species has not been identified locally for over 60 years, its likelihood on site is considered low.
San Bruno elfin butterfly *Callophrys mossii bayensis*	FE/--/--	Coastal scrub and bunchgrass grassland habitats, with larval foodplant, broadleaf stonecrop (*Sedum spathulifolium*); adults nectar on bladder parsnip (*Lomatium utriculatum*), common yarrow (*Achillea millefolium*), coast rock cress (*Arabis blepharophylla*), San Francisco wallflower (*Erysimum franciscanum*), California buttercup (*Ranunculus californicus*), and wood strawberry (*Fragaria vesca*).	**Absent.** Suitable habitat for this species is not found in the Project study area and supportive host plant and nectar plants not observed during reconnaissance survey by ESA in 2020.
Monarch butterfly *Danaus plexippus plexippus pop. 1*	FC/--/--	Adult monarchs feed on the nectar of many flowers, but they breed only where milkweeds (*Asclepias* sp.) are found. Dominant wintering sites include Eucalyptus, cypress (*Cupressus* sp.), Monterey pine (*Pinus radiata*), and western sycamore (*Platanus racemosa*) groves.	**Low (Not suitable for breeding or overwintering).** No milkweed plants observed on the Project site. The closest documented overwintering sites are located along the western coastline in San Mateo County and across the San Francisco Bay in Alameda County, approximately 10 miles west and east of the site. No overwintering sites are known from the study area. Individuals may occur on the Project site as occasional migrants, but this species is not expected to form large roosts or to breed on the site.
Bay checkerspot butterfly *Euphydryas Editha bayensis*	FT/--/--	Native grasslands on serpentine soils in San Francisco Bay area. Host plants: foothill plantain (*Plantago erecta*) (primary); denseflower Indian paintbrush (*Castilleja densiflora*) and owl's clover (*C. exserta*).	**Absent.** Suitable habitat for this species is not found in the Project study area and supportive host plants not observed during reconnaissance survey.
Mission blue butterfly *Icaricia icarioides missionensis*	FE/--/--	Grassland of the San Francisco Peninsula with silver bush lupine (*Lupinus albifrons*), western lupine (*L. formosus*), and varied lupine (*L. variicolor*).	**Absent.** Suitable habitat for this species is not found in the Project study area and supportive host plants not observed during reconnaissance surveys.
Callippe silverspot butterfly *Speyeria callippe callippe*	FE/--/--	Found in native grasslands with Johnny jump-up (*Viola pedunculata*) as larval food plant.	**Absent.** Suitable habitat for this species is not found in the Project study area and supportive host plant not observed during reconnaissance surveys.
Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	FE/--/--	Coastal dune and prairie communities with host plants including gumweed (*Grindelia hirsutula*), sand verbena (*Abronia latifolia*), Monardella (*Monardella* spp.), bull thistle (*Cirsium vulgare*), and seaside daisy (*Erigeron glaucus*) where found on the San Francisco and Marin peninsulas.	**Absent.** Extirpated from San Mateo County.

TABLE BIO (CONTINUED)
SPECIAL-STATUS SPECIES WITH A MODERATE OR HIGH POTENTIAL TO OCCUR IN THE STUDY AREA

Common Name *Scientific Name*	**Listing Status USFWS/ CDFW/Other[a]**	**Habitat Description**	**Potential to Occur in the Project Site/Study Area[b,c]**
Fish			
Green sturgeon – Southern DPS *Acipenser medirostris pop. 1*	FT/--/--	Spends majority of life in ocean waters near shore, estuaries, and bays, spawns in freshwater rivers.	**Moderate.** Spawns upstream in Sacramento River but is not known to spawn in San Francisco Bay. Travels through San Pablo Bay and northern San Francisco Bay but thought to be an infrequent visitor to southern San Francisco bay. Critical habitat for green sturgeon is designated within San Francisco Bay and south Bay tidal sloughs, which includes Easton Creek within the Project site.
Pacific herring *Clupea pallasii*	CDFW regulated fishery	San Francisco Bay has been a major spawning ground for species. Preferred spawning substrate is eelgrass and algae but will also use pier pilings, riprap, and other rigid, smooth structures within Bay waters.	**Moderate.** Not known to spawn in southern San Francisco Bay, but foraging is present, and herring have been documented migrating further south than the Project site.
Central Valley fall run chinook *Central Valley fall run chinook*	--/CSC/--	Spawning and rearing restricted to Sacramento River basin, migrate through San Francisco Bay and Sacramento-San Joaquin Delta, require clean, cold water and gravel beds for spawning.	**Low.** Several streams in southern San Francisco Bay have supported small numbers of the species, and it may use tidal marsh channels as transit habitat.
Pacific lamprey *Entosphenus tridentatus*	--/CSC/--	Occupies anadromous habitat in large streams entering the San Francisco and San Pablo Bays. Spawns in cool (shaded), clear, slow-moving rivers and streams supporting gravel, silt, and sand substrates.	**Low.** Historically documented in study area but is no longer considered to be present likely due to an impassible barrier (Crystal Springs Dam). Pacific lamprey adults may infrequently forage in open Bay waters, and could forage within Easton Creek at high tide, albeit infrequently and in low numbers (if at all) given the shallow and narrow nature of aquatic habitat within the creek.
hardhead *Mylopharodon conocephalus*	--/CSC/--	Relatively undisturbed habitats of larger streams of high water quality at low to mid-elevations. Prefers pools and runs with deep (>80cm), clear water, slow velocities and sand-gravel-boulder substrates. Their range extends from the Pit River (Modoc County) in the north to the Kern River (Kern County) in the south. Historically occurred in the San Francisco Bay and South Bay estuaries.	**Absent.** Suitable habitat is not present in the Project study area which is located outside of understood species range.
Steelhead – central California coast DPS *Oncorhynchus mykiss irideus*	FT/--/--	Spawns and rears in coastal streams between the Russian River in Sonoma County and Soquel Creek in Santa Cruz County, as well as drainages tributary to San Francisco Bay, where gravelly substrate and shaded riparian habitat occurs.	**Moderate.** While several streams on the peninsula (San Francisquito Creek, Steven's Creek) support spawning steelhead and juveniles are known to spend time in San Francisco Bay, Easton Creek is not included in the species' designated critical habitat and no spawning habitat exists in Easton Creek or immediate vicinity.
Longfin smelt *Spirinchus thaleichthys*	FC/CT/--	Found throughout the nearshore coastal waters and open waters of San Francisco Bay-Delta including the river channels and sloughs of the Delta. Spawns in the Delta.	**Low.** Somewhat rare in the south and central Bay, this species could occur in suitable open water habitat adjacent to the Project site in the late summer.

TABLE BIO (CONTINUED)
SPECIAL-STATUS SPECIES WITH A MODERATE OR HIGH POTENTIAL TO OCCUR IN THE STUDY AREA

Common Name *Scientific Name*	**Listing Status USFWS/ CDFW/Other[a]**	**Habitat Description**	**Potential to Occur in the Project Site/Study Area[b,c]**
Amphibians			
California red-legged frog *Rana draytonii*	FT/CSC/--	Streams, freshwater pools, and ponds with overhanging vegetation. Also found in woods adjacent to streams. Requires permanent or ephemeral water sources such as reservoirs and slow-moving streams and needs pools of >0.5 m depth for breeding.	**Low.** Suitable freshwater habitat for this species is not present within the Project study area. May occur upstream of the Project site in Easton Creek beyond tidal influence. Critical habitat for this species is designated approximately 2.5 miles west of the Project site, west of the I-280 highway.
Reptiles			
Western pond turtle *Emys marmorata*	--/CSC/--	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and suitable upland habitat for egg-laying. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks.	**Absent.** No suitable freshwater habitat is present in the Project study area.
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	FE/CE/--	Most often observed in the vicinity of standing water; ponds, lakes, marshes, and sloughs. Temporary ponds and seasonal bodies of water are also used. Banks with emergent and bankside vegetation are preferred and used for cover.	**Absent.** No substantial grassland area, standing freshwater, or freshwater emergent vegetation in or around the Project study area.
Birds			
Short-eared owl *Asio flammeus*	--/CSC/--	Nests in ground depressions concealed by dense vegetation, often in saline or freshwater marshes. Forages from small mounds or fence posts in treeless areas.	**Low (no potential to nest).** Limited and isolated tidal marsh habitat is present in the project study area. May flyover on a transient basis. Dense development in the Project study area would discourage regular presence in the area.
Western burrowing owl *Athene cunicularia*	--/CSC/--	Present in open annual grasslands with abundance of small mammal burrows for nesting.	**Absent** (no potential to nest). Suitable habitat is not present in the Project study area.
Western snowy plover *Charadrius nivosus nivosus*	FT/CSC/--	Sandy coastal beaches, salt pans, coastal dredged spoils sites, dry salt ponds, salt pond levees, and gravel bars. Nests in sandy substrate and forages in sandy marine and estuarine bodies.	**Low** (no potential to nest). Snowy plovers nest abundantly in dry south bay salt ponds and on levees associated with them but are not typically found outside these habitats. Crystallizer ponds south of the Project site in Redwood City could support nesting snowy plovers, but no habitat exists in the Project study area.
Northern harrier *Circus cyaneus*	--/SSC/--	Nests in coastal freshwater and saltwater marshes, nest and forages in grasslands.	**Low** (no potential to nest). Limited and isolated tidal marsh in the Project study area is marginally suitable habitat. May flyover on a transient basis. Dense development in the Project study area would discourage regular presence in the area.

TABLE BIO (CONTINUED)
SPECIAL-STATUS SPECIES WITH A MODERATE OR HIGH POTENTIAL TO OCCUR IN THE STUDY AREA

Common Name *Scientific Name*	**Listing Status USFWS/ CDFW/Other**[a]	**Habitat Description**	**Potential to Occur in the Project Site/Study Area**[b,c]
Birds (cont.)			
White-tailed kite *Elanus leucurus*	--/FP/--	Dense-topped trees for nesting and perching; open grasslands, meadows, or marshes for foraging.	**Low** (unlikely to nest). Limited nesting and foraging habitat is present in the study area. May flyover on a transient basis. Dense development in the Project study area would discourage regular presence in the area.
Merlin (wintering) *Falco columbarius*	--/§3503.5 /--	Found in grasslands, open forests, and coastal areas during migration or while wintering along the Pacific coast.	**Low** (no potential to nest**).** Marginal wintering habitat is present in the Project study area. Dense development in the Project study area would discourage regular presence in the area.
American peregrine falcon *Falco peregrinus anatum*	FD/CD, FP/--	Breeds near water with nearby vertical structure such as niches in steep banks, ledges and cliffs serving as nesting sites. Nests on skyscrapers and bridges in urban areas.	**Low** (unlikely to nest). Buildings in and adjacent to the Project site are not likely tall enough to provide suitable nesting habitat. Individuals may forage in tidal marshes and flats around Project study area.
Saltmarsh common yellow throat *Geothlypis trichas sinuosa*	--/CSC/--	Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting. Resident of San Francisco Bay region salt and freshwater marshes.	**Low** (unlikely to nest). Limited and isolated foraging and nesting habitat is present in the Project study area. May occur on a transient basis.
California black rail *Laterallus jamaicensis coturniculus*	--/CT, FP/--	Nests and forages in tidal emergent wetland with tall, dense pickleweed and well-developed channels.	**Low** (no potential to nest). Only occurs in densely-vegetated tidal marsh habitat or freshwater marsh. Tidal marsh within the Project site is isolated and not extensive enough to support black rail. No occurrences documented within 5 miles of the Project site.
Alameda song sparrow *Melospiza melodia pusillula*	--/CSC/--	Salt marshes of central San Francisco Bay. Nests occur in salt marsh areas hidden by dense vegetation.	**Low** (potential to nest). Limited and isolated foraging and nesting habitat is present in the Project study area.
California Ridgway's rail *Rallus obsoletus obsoletus*	FE/CE, FP/--	Nests and forages in emergent wetlands with pickleweed, cordgrass, and bulrush, and well-developed channels.	**Low** (no potential to nest). Only occurs in densely-vegetated tidal marsh habitat. Tidal marsh within the Project site is limited and isolated.
California least tern *Sterna antillarum browni*	FE/CE/--	Feeds in relatively shallow, near-shore waters, coastal freshwater ponds, channels, and lakes occupied by small fish. Colonial nesters on sand, gravel, or shell beaches where visibility is good.	**Low** (unlikely to nest). No nesting colonies are known to occur in the Project study area and there is no suitable nesting habitat. Shallower open water habitats of the study area are foraging habitat for California least tern.
Mammals			
Pallid bat *Antrozous pallidus*	--/CSC/--	Day roosts in caves, crevices, mines, and hollow trees and buildings. Night roosts can occur in more open areas, like porches and open buildings.	**Moderate.** Potential roosting habitat exists in buildings on the Project site.
Townsend's big-eared bat *Corynorhinus townsendii*	--/CSC/ WBWG-High	Inhabits caves and mines, but may also use bridges, buildings, rock crevices and tree hollows in coastal lowlands, cultivated valleys and nearby hills characterized by mixed vegetation throughout California below. 3,300 meters.	**Low.** Marginal roosting and foraging habitat for this species is present in the Project study area. Species has sensitivity to human disturbance and is unlikely to take up roosts in the highly developed Project vicinity.

TABLE BIO (CONTINUED)
SPECIAL-STATUS SPECIES WITH A MODERATE OR HIGH POTENTIAL TO OCCUR IN THE STUDY AREA

Common Name *Scientific Name*	**Listing Status USFWS/ CDFW/Other**[a]	**Habitat Description**	**Potential to Occur in the Project Site/Study Area**[b,c]
Mammals (cont.)			
Hoary bat *Lasiurus cinereus*	--/--/ WBWG: Medium	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for foraging. Roosts in dense foliage of medium to large trees. Feeds primarily on moths; requires water.	**Moderate.** Potential roosting habitat exists in buildings of the Project site.
Fringed myotis *Myotis thysanodes*	--/*/ WBWG-High	Inhabits a variety of habitats including pinyon-juniper woodland, valley-foothill hardwood, hardwood-conifer forests, and desert scrub from sea level to 9,000 feet. Cluster in groups of up to 300 to roost in caves, mines, rock crevices, and buildings.	**Low.** Marginal roosting and foraging habitat for this species is present in the Project study area.
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	--/SSC/WBWG Medium-High	Prefer habitats with rugged, rocky terrain up to 8,000 feet elevation. Clustering information unknown. Roost in rock crevices.	**Absent.** Typical distribution is limited to southeastern California. No occurrences in the vicinity of the Project site.
Big free-tailed bat *Nyctinomops macrotis*	--/SSC/WBWG Medium-High	Prefer habitats with rugged, rocky terrain up to 8,000 feet elevation. Clustering information unknown. Roost in rock crevices.	**Absent.** Typical distribution is limited to southeastern California. No occurrences in the vicinity of the Project site.
Salt marsh harvest mouse *Reithrodontomys raviventris*	FE/CE/--	Saline emergent marshlands with dense pickleweed or emergency halophytic vegetation such as bulrushes. Will forage and take high tide refuge in adjacent transitional zones including grassland.	**Low.** Tidal marsh habitat within the Project site is limited, isolated, and unlikely to support this species. No occurrences documented within 5 miles of the Project site.
American badger *Taxidea taxus*	--/CSC/--	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents.	**Absent.** Suitable habitat not found in the Project study area.

NOTES:

[a] Listing status codes are as follows:

FEDERAL: (U.S. Fish and Wildlife Service)
- FE = Listed as Endangered (in danger of extinction) by the Federal Government
- FT = Listed as Threatened (likely to become Endangered within the foreseeable future) by the Federal Government. FC = Candidate for listing as Threatened or Endangered by the Federal Government
- FD = Delisted by the Federal Government
- FC = Candidate for listing by the Federal Government

STATE: (California Department of Fish and Game)
- CE = Listed as Endangered by the State of California
- CT = Listed as Threatened by the State of California
- CR = Listed as Rare by the State of California (plants only)
- CD = Delisted by the State of California
- CFP = Fully Protected by the State of California
- CC = Candidate for listing by the State of California
- CSC = California Species of Special Concern
- §3503.5 = Protection for nesting species of Falconiformes (hawks) and Strigiformes (owls)

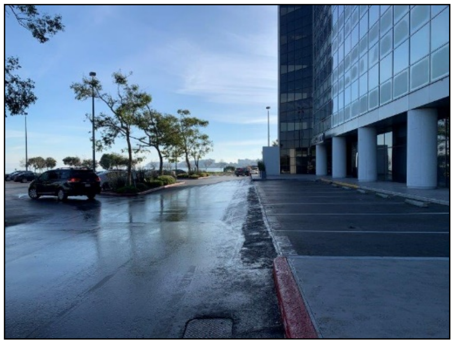
WBWG = Western Bat Working Group:
Low = Stable population
Medium = Need more information about the species, possible threats, and protective actions to implement.
High= Imperiled or at high risk of imperilment.

[b] Potential to Occur analysis for plant species is limited to the Project site because potential impacts to plants are limited to direct impacts to plants on the Project site. Wildlife present in the immediate vicinity of the Project site, such as nesting birds, can be indirectly impacted by construction or operational noise, light, vibration and human presences; therefore, Potential to Occur analysis includes the Study Area (Project site, plus a buffer).

[c] Potential to Occur Categories:
Moderate = The study area is within the known range of the species and suitable habitat is present within the study area; but there are few or no recent documented occurrences of the species within an appropriate distance of these areas (this will depend on the species' mobility).
High = The study area is within the known range of the species and suitable habitat is present within the study area, and there are recent documented occurrences of the species within an appropriate distance of these areas (this will depend on the species' mobility).

SOURCE: ESA, 2023

Biological Resources Report



H. T. HARVEY & ASSOCIATES

Ecological Consultants

1200-1340 Old Bayshore Highway Project
Biological Resources Report

H. T. Harvey #4498-02

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July 22, 2022

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Table of Contents

Figures

Tables

Appendices

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Section 1. Introduction

This report describes the biological resources present on the 1200-1340 Old Bayshore Highway Project site, as well as the potential biological impacts of proposed project development activities and measures necessary to reduce these impacts to less-than-significant levels under the California Environmental Quality Act (CEQA). This assessment is based on the project's plans and description provided to H. T. Harvey & Associates by the DivcoWest project team through July 22, 2022.

1.1 Project Location

The approximately 12-acre project site consists of 13 parcels located at 1200-1340 Bayshore Highway in the Burlingame Bayfront area in the City of Burlingame (Figure 1). The site is bounded by San Francisco Bay to the east, the One Bay Plaza office building and associated parking lots to the north, Old Bayshore Highway and commercial and industrial development to the west, and Airport Boulevard to the south (Figure 2). The engineered tidal channel of Easton Creek bisects the project site, flowing from west to east into the Bay. The project site is located on the *San Mateo*, *California* 7.5-minute United States Geological Survey (USGS) quadrangle.

1.2 Project Description

The 1200-1340 Old Bayshore Highway Project proposes to construct three separate life science/office buildings totaling approximately 1.46 million square feet (sf). The life science/office buildings would be designed with core and shell infrastructure suitable to support life science tenants. The project provides for flexibility in end use, ranging from an overall building program of 100 percent life science use to 100 percent office use, or a combination thereof. The program also includes various amenities and 2,500 sf of activating retail in each of the middle and southern buildings.

Off-site improvements would include demolition of existing sidewalk, driveways, curb, and gutter. New driveways would be constructed to include either driveway aprons or curb returns and curb ramps. There would be new concrete sidewalk, curb, and gutter constructed along the project frontage and other pavement replacement would occur as needed. There would be traffic signal modification at the Caltrans intersection of U.S. 101 on- and off-ramps and Old Bayshore Highway. Frontage improvements would include high-low lights, and street trees. The proposed design of the site also includes shoreline improvements, extension of the Bay Trail through the site, public open space and onsite walks, native landscaped areas, and a resilient sea level rise strategy along the shore and creek.

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Figure 1. Vicinity Map

1200-1340 Old Bayshore Highway Project (4498-02)

July 2022

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Figure 2. Project Site
1200-1340 Old Bayshore Highway Project (4498-02)
July 2022

1.1.1 Site Access, Circulation, & Parking

1.1.1.1 Parking Structures and Surface Parking

Parking would be provided on site in two parking structures, one south of Easton Creek between the South Building and Center Building and a second north of the North Building. Forty stalls of parking would be dedicated to Bay Trail users in the south parking structure. Electric vehicle charging stations/spaces would be based on the Reach Code, providing 10 percent on day 1 and 10 percent in the future, as follows:

- North Parking Structure: 179 (day 1) + 179 (future)
- South Parking Structure: 190 (day 1) + 190 (future)

1.1.1.2 Vehicular Access

The proposed project emphasizes nearby public transit connectivity and proposes a dedicated shuttle service for future employees to facilitate transit ridership unless or until the planned and funded Burlingame Point shuttle service becomes operational with headways of 15 minutes or less. The proposed project's southerly edge is adjacent to the Broadway/U.S. 101 interchange and approximately 0.3 mile from the Broadway Caltrain Station. The northerly entrance is approximately 1.5 miles from the Millbrae BART/Caltrain Station. The project site would be accessed solely from Old Bayshore Highway through four driveways. Internal vehicular circulation would be between building structures only.

1.1.1.3 Bicycle Access

Bicycle access would be provided via the project site driveways as well as from the Bay Trail. As noted, each building (excluding parking structures) would provide a cycle center with shower facilities for tenants. Long-term bicycle parking (Class 2) would be located in secured areas and is generally for employees or invited guests. Additional short-term Class 1 bicycle parking spaces would be provided as well. Other bicycle parking would be provided throughout the project site.

1.1.1.4 Pedestrian Access

Pedestrian access would be provided by new sidewalks on the Old Bayshore Highway project site frontage and along Airport Boulevard. The Bay Trail would be connected across the project site from San Francisco International Airport to Redwood Shores, including transitions to existing segments of the Bay Trail at the north and south ends of the project site and the project includes overlooks and seating amenities. The proposed project would include a new pedestrian/bicycle bridge over Easton Creek, between the North and Center Buildings. This bridge would span the creek and its banks and avoid abutments, piers, or columns within the creek or its banks. Grade transitions to the existing Bay Trail would be 4.5 percent maximum slope and consist of a minimum 18-foot-wide concrete path. Additionally, the proposed project envisions a new public trail along a beautified Easton Creek corridor with opportunities for gathering and refuge. This corridor would also provide a key pedestrian connection to Old Bayshore Highway. Tenant amenity plazas would provide opportunities for dining, fitness, and private outdoor gatherings. A children's playground would be constructed east of the south parking garage, and stairs, accessible ramps, and railings would be provided between Old Bayshore Highway and building entries.

1.1.2 Open Space and Landscaping

The proposed project has been designed to include open landscaped space with a variety of public amenities. Landscaping would be provided throughout the project site, with open space areas surrounding Easton Creek and overlooking the shoreline frontage. A new Bay Trail is proposed to connect the current dead ends in the trail on either side of the project site. The concept plan includes generous public gathering spaces to accommodate a wide variety of uses and natural plantings. Proposed structures have been sited to provide view corridors from Old Bayshore Highway to the Bay, and to include balconies for views of the Bay Trail. A key project feature would be a plaza and seating area at the intersection of Old Bayshore Highway and Airport Boulevard/Broadway.

1.1.3 Building Design

The massing concept for the project was devised to emphasize slender upper-level volumes facing the public open spaces with deeper floor plate volumes near the parking structures. The broad faces of buildings' upper levels are rotated away from Old Bayshore Highway to maximize view corridors toward the Bay while also helping to shape the significant open spaces that they face. The structures have been sited to provide view corridors from Old Bayshore Highway and adjacent areas to the Bay. The buildings would include balconies for views of the Bay. All buildings would have textured façades and glass walls on ground floor uses. Upper façades would be uniform, although patterned, with variation in material and scale for lower building elements. The lowest two levels of the buildings, where they meet the ground, would have a much more pedestrian-scaled massing, alternating between solid textured blocks and projecting volumes. This approach, combined with the various active programs behind the ground- and second-level façades, is intended to activate the ground plane of the project site.

Each building would contain a lobby, elevators, restrooms, and bicycle/shower facility, and each may, depending on the use, also contain one or more tenant cafeterias. Each life science/office building would have an appurtenant service yard., a loading dock of up to six bays, depending on tenant needs, would also be constructed for each occupied building, as indicated on the ground floor site plan. The project would comply with applicable California Green Building Standards Code (CALGreen) and target Leadership in Energy and Environmental Design (LEED) certification rating of Silver.

All buildings and parking structures would be set back 10 feet along Old Bayshore Highway. The minimum distance between buildings would be 56 feet, based on fire apparatus access requirements. The fire separation distance from each building to the midpoint of the open space between buildings would be at least 28 feet, meeting or exceeding the required fire separation distance.

Buildings will be designed to meet bird-safe standards. Although the details of the facades (e.g., with respect to locations of glass and bird-safe glazing features) and lighting are still being determined, the project team is working with bird-safe design experts to ensure that building design minimizes bird collision risk.

1.1.4 Utilities and Infrastructure

On-site utilities would be served by energy (gas and electric), domestic water, fire water, wastewater, and storm drain facilities. All on-site utilities would be designed in accordance with applicable codes and current engineering practices. The proposed project would meet the latest CALGreen and City Reach Code requirements, as applicable to the project. Existing Pacific Gas and Electric Company electric and gas lines in the vicinity of the project site would continue to serve the project site.

1.1.4.1 Water

The Burlingame Public Works Department provides water service at the project site. New water services would be connected to existing 8-inch cement pipe and 12-inch PVC water mains along much of the project frontage. Towards the southern end of the project site, these lines consolidate into a single 12-inch main that continues towards Airport Boulevard. Buildings would be served by the existing water mains in Old Bayshore Highway. A service lateral, meter, and backflow preventer would be installed for each on-site structure (5 total). Depending on required size and pressure, laterals may need to connect to the larger 12-inch water main, located on the western side of Old Bayshore Highway.

It is anticipated that operation of the proposed project would require 193,600 gallons per day (gpd) of water (186,000 gpd for buildings plus 7,600 gpd for irrigation). While recycled water is not currently available at the project site, the City has started using recycled water for non-potable uses at its wastewater treatment plant and will build a water distribution system to use recycled water for irrigation at some of the City's parks and other municipally owned landscape areas. Larger commercial developments on the east side of U.S. 101, such as the proposed project, are required to extend water lines for non-potable irrigation water to support their required landscaping. A service lateral and meter will be installed for each of the three on-site office/life science buildings. These service laterals would be connected to the existing domestic water main. Drip irrigation would be provided for all planting areas and purple pipe installed for irrigation with non-potable water.

Fire service would be provided to each on-site structure. Buildings as shown on Exhibit 5 will have two separate fire service connections. Each parking structure will have a single fire service connection. An on-site fire water loop would be installed on each side of Easton Creek. The fire water loop will have a backflow preventer on each end. To the south of Easton Creek, a fire water main will loop around the South Garage and serve on-site fire hydrants. To the north of Easton Creek, a fire water main will run between North Garage and Center Building and serve on-site fire hydrants; depending on available water pressure, a loop may be required and would likely wrap around the south side of the Center Building. Fire mains will be sized in conformance with future hydraulic analysis.

1.1.4.2 Sewer

The Burlingame Public Works Department provides wastewater service at the project site. On-site sanitary sewer mains are proposed along on-site roadways. A total of three mains sized between 95 and 159 gallons per minute will serve the project site; one sewer main will serve each building.

1.1.4.3 Stormwater

As an infill development that will replace or alter more than 50 percent of existing impervious surfaces at the project site, the proposed project provides treatment measures for all impervious surfaces. The proposed project will include bioretention areas sized at approximately 4 percent of impervious areas (roof, access roads). Flows from the parking structures and the remainder of the project site would be treated with the use of on-grade flow-through planters. Final sizing would be documented in the Stormwater Management Plan to be submitted with the construction documents for the proposed project. Open space areas will be self-treating or self-retaining and would not require bioretention. Stormwater from site building roofs and impervious roads would be treated in the bioretention areas and then discharged to the City storm drain or Easton Creek outfalls. The proposed project will connect to the existing City storm drain main on Old Bayshore Highway in four locations. The proposed project will replace two existing outfalls on Easton Creek with new outfalls. On-site access roads would grade toward Old Bayshore Highway, and bioretention would be required along that frontage to collect and treat access road runoff. The Bay Trail would slope inland to adjacent vegetated areas, allowing it to be considered a self-retaining area that does not require bioretention.

1.1.4.4 Solid Waste

Solid waste from the project structures would be disposed of in large disposal bins in the service yard areas. Service will be established with the applicable trash hauler. Recycling containers will be placed in all office/lab areas. Biohazardous waste, if generated, would be disposed of per all federal, State, and local regulations. Landscaping materials would be recycled for compost in special containers on site. Each building tenant would sort and recycle or dispose of trash.

1.1.4.5 Fire Access

Aerial fire apparatus access for fire vehicles would be provided along a minimum of two sides of each building via Old Bayshore Highway and on-site fire access roads. The remaining sides would include foot access paths. Standpipes would be placed in areas where no on-site fire water main is proposed, subject to Fire Marshal approval. In the alternative, fire hydrants and additional on-site fire water lines could be specified.

1.1.5 Foundation and Sea Level Rise/Flood Control Improvements

Project amenities would include sea level rise protection measures in compliance with, and in some cases in excess of, the requirements of Chapter 25.12.050 (Public Access, Flood and Sea Level Rise Performance Guidelines) of the City of Burlingame Municipal Code. The proposed project is located within the City of Burlingame Sea Level Rise Overlay Area indicated on the Map of Future Conditions. The Map indicates that the lowest building Finished Floor Elevation (FFE) shall be at least +13' NAVD88. The proposed FFE for new buildings within the development would be at about +16' NAVD88, which would meet and exceed the requirement of +13' NAVD88 minimum.

The proposed project has frontage on San Francisco Bay and along Easton Creek. The Map of Future Conditions states that new construction must include shoreline infrastructure with a top elevation that is 6 feet higher than the FEMA Base Flood Elevation (BFE). The BFE along the Bay shoreline is +11' NAVD88 and along Easton Creek the BFE is +10' NAVD88. The project would include shoreline infrastructure with a top elevation of +17' NAVD88 along the Bay shoreline and +16' NAVD88 along Easton Creek. These proposed elevations comply with the requirement of Chapter 25.12.050.I of the Zoning Ordinance.

Portions of the project area are in the FEMA Special Flood Hazard Area (SFHA) or "Floodplain". The project proposes to raise site elevations to above the BFE such that the project site will no longer fall within the FEMA definition of an area required to be protected by levee or sea wall systems. Appropriate applications for Letters of Map Revision would be provided by the project applicant to FEMA to remove the SFHA designation. Therefore, as a technical matter, FEMA flood-protection requirements will not apply at the time of project completion because flood-protection elements such as levees or sea walls are, by definition, only constructed in flood plains.

However, keeping future sea level rise in mind, the shoreline infrastructure will be designed and constructed such that it will meet the FEMA requirements for flood protection at such time, after future sea level rise, when the raised site falls again within a defined FEMA flood plain, when the shoreline infrastructure would function as a sea wall and meet the FEMA definition of a sea wall. Design Documents, Construction Plans, and Specifications for the shoreline infrastructure will be stamped by a registered professional engineer retained by the project applicant and provided to the City. The project sponsor would also comply with the Municipal Code requirements for preparation of land surveys and real estate disclosures.

The first 1.25 inches of rainwater is not required to be detained on the project site because a regional stormwater management system is available to serve the development. The project site is served by an existing City storm drain system in Old Bayshore Highway, two existing outfalls along Easton Creek, and one outfall north of the existing 1300 and 1308 Old Bayshore Highway building. The two outfalls to Easton Creek will be replaced as part of the project. Onsite stormwater will be captured and treated per Chapter 25.12.050.M Provision C.3 requirements prior to discharge to the storm drain. Peak stormwater discharge flows leaving the project site will not exceed pre-project conditions.

The proposed project includes the following shoreline improvements and other features relevant to sea level rise and flooding:

- Sea level rise and flood protection including earthen berms, sea walls, flood walls, riprap slopes, settlement mitigation, and geotechnical provisions for seismic stability of the shoreline and along Easton Creek.

- Approximately 260 linear feet of "soft" or "living" shoreline where feasible, including shoreline grading and planting that allows tidal influence in both current and future sea level conditions. Where wider areas exist between building faces and the property line on the Bay side, more gradual shoreline grading, planted earth benches, and riprap would be combined to allow for future tidal influence and shoreline resilience. Such activities will occur outside of jurisdictional waters of the U.S./State.
- A steel sheet pile sea wall will be installed along both sides of Easton Creek and along the entire bay shoreline of the project site. Sheet piles will be driven entirely outside of aquatic/jurisdictional habitats, likely using a vibratory hammer suspended from a crane. Typical sound levels produced by the vibratory hammer are approximately 80 decibels (db). After completion, the sea walls will largely be embedded/buried within project landscaping.
- Grading and placement of fill for the South Entry Plaza would occur at Old Bayshore Highway to bring the entry plaza to road grade at about 17.5 feet, with stepped amphitheater seating and earthwork slopes returning this elevation to the grade of the existing tidal wetland.
- Enhanced existing tidal wetland, which would include earthwork, grading, and native planting. Grading would achieve moderate slopes from the wetland up to the entry plaza and Bay Trail. All these enhancement activities will occur outside of jurisdictional waters of the U.S./State.

1.1.6 Lighting

Exterior lighting would consist of wall- and surface-mounted lighting and recessed lighting (e.g., at building pedestrian and vehicular entrances), pole-mounted pedestrian scale lights (e.g., in the proposed plazas, surface parking areas, and other pedestrian circulation areas), and one-side output wall lighting (for accent and sign lighting). Lighting would be designed to meet the requirements of Municipal Code Section 18.16.030 to prevent light spillage off site and would comply with the City of Burlingame Exterior Illumination Ordinance.

1.1.7 Sustainability Features

The project applicant proposes to design the project buildings to meet the LEED Silver standard. The buildings would comply with the City of Burlingame Reach Code, which prohibits natural gas in most instances. Electric space heating/cooling and domestic water heating would reduce carbon emissions.

Fossil fuels would generally be utilized only for limited laboratory/research and development uses, emergency generators, and public café/restaurant tenants, as allowed by the Reach Code. Tenant cafeterias would utilize only electricity and no fossil fuels. Proposed building glazing would control interior heat and light transmission for energy efficiency. The project would include 215,000 square feet of landscaped area and open space consisting of picnic and play areas, landscaped areas, and creek and wetlands, considerably reducing the amount of impervious services currently on-site. As discussed in Section 1.1.4.3 above, stormwater runoff from certain areas of the project site would be directed to natural stormwater treatment systems, including bioretention areas. The project would implement water conservation features, including low-flow plumbing fixtures and drip irrigation for a drought-tolerant landscape.

1.1.8 Project Construction

1.1.8.1 Construction Schedule and Phasing

The proposed project would be constructed in phases, with staggered start and end dates. Project construction is expected to commence in the third quarter of 2023 and be completed in the first quarter of 2027. Phase 1 would include demolition of all existing structures on the project site as well as some grading and site preparation. Phase 1 would also include construction of the Middle Building and the south parking structure. All construction staging and worker parking would occur on the project site. As the parking structures are completed, worker parking would shift into the parking structures. Phase 2 would include construction of the South Building, and the last phase would construct the North Building and north parking garage.

The proposed building foundations would require piles; to minimize potential noise and vibration effects, the project sponsor proposes to install piles using a drilled, cast-in-place method, such as auger-cast or torque-down piles, as opposed to impact pile driving. During the paving, landscaping and infrastructure installation phase, the principal construction vehicles and equipment would include pavers, dump trucks, and backhoes.

1.1.8.2 Site Grading

A majority of site grading would occur during Phase 1 of the proposed project, although some finish grading and site preparation would occur during Phases 2 and 3. The proposed project would require soil import and export, excavation, and tree removal. Approximately 35,000 cubic yards of soil would be imported and 5,000 cubic yards exported during grading activities. Excavation depths would extend to a maximum of approximately 27 feet below 11.5-foot grade, resulting in dewatering during construction. Water generated by dewatering operation would be treated on site and discharged to the storm drain system. No permanent groundwater dewatering would be required during operation.

1.1.8.3 Construction Debris and Hauling

About 5,000 cubic yards of the excavated material would be exported off site; much of this is anticipated to be recycled onsite and used as base rock or for temporary roads. As such, construction of the project would require the disposal of exported materials at a permitted landfill. All soil and debris, including contaminated soil, would be hauled to the Dumbarton or Newby Island Landfill or a similar facility. Haul trucks would access and leave the project site via Old Bayshore Highway. Construction haul routes would be included in the construction documents for the proposed project and would avoid residential neighborhoods or areas of high congestion.

1.1.8.4 Construction Equipment and Staging

Construction worker parking and equipment laydown would initially occur on the future project sites. As the parking structures are completed, construction worker parking would shift to the parking structures. Construction equipment would continue to be staged on site during Phase 3 but would shift to other available on-site areas later.

Demolition of existing features on the property would include the removal of the existing buildings, concrete sidewalk, asphalt parking area, fencing and on-site vegetation. During the demolition and grading phase, the anticipated construction vehicles and equipment would include loaders, dump trucks, bulldozers, backhoes, scrapers and water trucks. During building construction, the major construction vehicles and equipment would include excavators, cranes, drilling rigs, forklifts, concrete trucks, and temporary generators.

Section 2. Methods

2.1 Background Review

Prior to conducting a site visit, H. T. Harvey and Associates ecologists reviewed background information on the sensitive biological resources potentially present in and immediately adjacent to the project site. The information reviewed included records from the California Natural Diversity Database (CNDDB 2021) and the California Native Plant Society's (CNPS's) Online Rare Plant Inventory (2021), focused on the *San Mateo, California* U.S. Geological Survey (USGS) 7.5-minute quadrangle (which includes the project site) and three adjacent quadrangles to the north, northwest, and west: *San Francisco South*, *Hunter's Point, Montara Mountain*. Our searches focused on the distribution and habitats of vascular plants designated as California Rare Plant Rank (CRPR) 1A, 1B, 2A, 2B, or 3 that occur in any of the USGS quadrangles listed above. We also considered the CNPS plant list for San Mateo County, as the CNPS does not maintain quadrangle-level records for CRPR 4 species.

We reviewed CNDDB records for special-status animals and natural communities of concern in the vicinity of the project site, defined in this report as the area within a 2-mile (mi) radius of the project site. A map of CNDDB plant and animal records in the project site's vicinity is shown as Figure 3. This generalized map shows areas where special-status species are known to occur or have occurred historically. Additionally, the Natural Resources Conservation Service (NRCS) Web Soil Survey was used to identify soils that underlay the project site (NRCS 2021), and the USFWS's National Wetland Inventory (NWI) Wetlands Mapper was consulted to review pre-existing mapping of aquatic features, including wetlands, streams, and sloughs, that may be present in the project site (NWI 2021). Historical aerial imagery of the project site obtained from Google Earth Pro (Google, Inc. 2021) was also evaluated. Other information reviewed included various technical publications available through the USFWS, California Department of Fish and Wildlife (CDFW), and other sources.

We also reviewed the Burlingame General Plan draft and final EIRs (MIG 2018, City of Burlingame 2018). The project site is part of the Burlingame General Plan area, and development on the site is therefore subject to requirements of the General Plan and its EIR, as appropriate. We also reviewed the Initial Study/Mitigated Negative Declaration (IS/MND) for the 1300 Old Bayshore Highway SFO@Technology Center Project (ESA 2020), a former proposal for a different project within a portion of the project site, and the IS/MND for the 1499 Bayshore Project (ICF 2019), located directly west of the project site, to provide more context for this analysis.

H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 3. CNDDB-Mapped Records of Special-Status Plants and Animals
1200-1340 Old Bayshore Highway Project (4498-02)
July 2022

2.2 Site Visits

H. T. Harvey & Associates wildlife ecologist Kim Briones, M.S. and plant ecologist Jillian Pastick, M.S., surveyed the project site on January 15, 2021. The purpose of this initial survey was to (1) assess existing biotic habitats and plant and animal communities in the project site, (2) assess the site for its potential to support special-status species and their habitats, and (3) identify potential jurisdictional habitats (such as Waters of the U.S./State), although a formal wetland delineation was not conducted at that time.

H. T. Harvey & Associates mapped biotic habitats within the project site using a combination of field observations (recorded via the Apple iPad GIS Kit Pro application) and aerial imagery signatures. Habitat types were distinguished using natural community descriptions discussed in Holland (1986), Sawyer et al. (2009), and CDFW's Vegetation Classification and Mapping (CDFW 2021). Plant species within each habitat were identified using Baldwin et al. (2012). Habitat acreages were calculated using geographic information systems (GIS) and aerial imagery interpretation.

Subsequently, on September 13, 2021, Jill Pastick performed a technical delineation of wetlands and other waters in the project site, in accordance with the Corps of Engineers 1987 Wetlands Delineation Manual (Corps Manual) (Environmental Laboratory 1987). In addition, the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (Regional Supplement) (USACE 2008) was followed to document site conditions relative to hydrophytic vegetation, hydric soils, and wetland hydrology. The purpose of the survey was to identify the extent and distribution of wetlands and other waters that may be subject to regulation by the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW) and the San Francisco Bay Conservation and Development Commission (BCDC). The site was surveyed on foot to locate potential features within and adjacent the project site, which was defined as an area comprising the parcels proposed for development, plus a buffer extending into the San Francisco Bay. Regulated habitats were mapped using aerial imagery in ArcGIS and field-based ground-truthing techniques. Data points were mapped using a submeter Global Positioning System (GPS).

H. T. Harvey & Associates senior wildlife ecologist Steve Rottenborn, Ph.D., visited the project site on December 18, 2021 to assess existing site conditions.

Section 3. Regulatory Setting

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

3.1 Federal Regulations

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 Corps of Engineers (USACE) jurisdiction extends to the ordinary high water (OHW) mark, which is defined in Title 33, Code of Federal Regulations, 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 to waters of the U.S. are termed "isolated wetlands" and, depending on the circumstances, may be 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 Code of Federal Regulations 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 delineation of regulated habitats (H. T. Harvey & Associates 2021) identified waters of the U.S. on and adjacent to the project site. Easton Creek and San Francisco Bay, as well as narrow areas of tidal wetlands along these features, are considered waters of the U.S. In addition, a small area of tidal salt marsh connected to the Bay is present in the southeastern part of the project site. The proposed project will replace two existing outfalls on Easton Creek with new outfalls, necessitating some impact to tidal wetlands and other waters along Easton Creek. A Section 404 permit from the USACE will be necessary for these activities.

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/or 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 and/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 dredged or fill material and/or introduce 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.

<u>Project Applicability:</u> Easton Creek within the project site, and San Francisco Bay adjacent to the site, represent Section 10 waters, and tidal wetlands below the mean high water elevation are also regulated under Section 10. Because replacement of stormwater outfalls to Easton Creek will necessitate work within Section 10 waters, a Letter of Permission from the USACE would be required (concurrently with the Section 404 permit).

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. 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.

<u>Project Applicability</u>: No federally listed plant species occur on or near the site, but several federally listed or candidate animal species could occur. No suitable nesting habitat for the federally endangered California Ridgway's rail (*Rallus obsoletus obsoletus*) is present on or near the project site, and what little vegetated tidal marsh

is present is of very low quality for this species. At best, California Ridgway's rail may occur as a very infrequent dispersant, possibly stopping briefly along Easton Creek before dispersing elsewhere for higher-quality habitat. Small numbers of California least terns (*Sternula antillarum browni*), which are federally listed as endangered, may forage over Bay waters immediately adjacent to the site, but they would not forage in Easton Creek due to its very small size, or nest, roost, or forage elsewhere on the site. The monarch butterfly (*Danaus plexippus*), a federal candidate, is expected to occur on the project site as an occasional migrant, and adults may nectar at flowers on the site. However, no suitable hostplants (milkweeds [*Asclepias* spp.]) are present on the site, so this species does not breed there, and this species is not known or expected to form winter roost aggregations on or very near the site.

The federally threatened Central California Coast steelhead (*Oncorhynchus mykiss*) and southern green sturgeon (*Acipenser medirostris*), and the federal candidate longfin smelt (*Spirinchus thaleichthys*), occur in Bay waters and are expected to occur at least occasionally in the portion of the Bay adjacent to the project site. Although these species could enter the lower reach of Easton Creek during high tide, they likely do so very infrequently, if at all, due to the absence of high-quality habitat, the narrow and shallow nature of the creek, and the absence of suitable habitat upstream from the project site. San Francisco Bay and Easton Creek are located within designated critical habitat for the steelhead and green sturgeon.

It is unlikely that the project will result in take of any federally listed or candidate species. During Section 404/Section 10 permitting, documentation of potential effects (or lack thereof) of the project on listed species will be prepared, and the USACE will consult as necessary with the USFWS and NMFS regarding any such effects.

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 the 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 the NMFS regarding potential adverse effects of their actions on EFH, and respond in writing to recommendations by the NMFS.

<u>Project Applicability</u>: Intertidal habitats within Easton Creek on the project site up to the elevation of mean higher high water are considered to be EFH for a number of species that are federally managed under one or more of the following three FMPs:

- Coastal Pelagic FMP – northern anchovy (*Engraulis mordax*), Pacific sardine (*Sardinops sagax*), mackerel, squid
- Pacific Groundfish FMP – various rockfish, soles, and sharks
- Pacific Salmon FMP – Chinook salmon (*Oncorhynchus tshawytscha*)

FMP-managed fish species may occasionally enter Easton Creek to forage during high tide, but due to the very narrow and shallow nature of the creek and the low quality of fish habitat upstream from the project site, nursery habitat for these species is not present in Easton Creek, and FMP-managed fish are expected to make limited use of the creek. Because the project may impact EFH during replacement of stormwater outfalls, consultation between the USACE and NMFS regarding potential project effects on EFH would occur concurrently with Section 7 consultation under FESA, as described above.

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.

Project Applicability: All native bird species that occur within the project footprint are protected under the MBTA.

3.1.6 Marine Mammal Protection Act

The Marine Mammal Protection Act prohibits the take of marine mammals, with certain exceptions, in waters under the jurisdiction of the U.S. or by citizens of the U.S. on the high seas, as well as the importation of marine mammals and marine mammal products into the U.S. Take is defined as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal." Harassment is defined as "any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild; or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering."

Project Applicability. Pacific harbor seals (*Phoca vitulina richardsi*) and California sea lions (*Zalophus californianus*), which are protected under the MMPA, are known to occur in open Bay waters in the vicinity of the study area. One of six recognized Pacific harbor seal haul-out sites in the South San Francisco Bay is located at Bair Island approximately 8 miles southeast of the project site (Fox 2008), and harbor seals may occasionally forage in open water near the project site. California sea lions do not breed in San Francisco Bay, but occasionally occur as common residents of the Bay year-round. Although tidal aquatic habitat is present within Easton Creek, sea lions and harbor seals are not expected to swim up this small open water channel into the project site due to its very narrow and shallow nature. Furthermore, there are no known haul-out or pupping sites located in or near the study area. While a narrow band of sandy and rocky habitat is present adjacent to and east of the study area, which could potentially be visited by harbor seals and sea lions, the high level of human disturbance along the San Francisco Bay Trail and shoreline reduces the potential for these species to occur here regularly.

Therefore, these species are expected to occur in the project vicinity only as occasional visitors to Bay waters adjacent to the project site.

3.2 State Regulations

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 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 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 a 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 require Water Quality Certification even if the area occurs outside of USACE jurisdiction. Moreover, the RWQCB may impose mitigation requirements even if the USACE does not. 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.

<u>Project Applicability</u>: All areas considered waters of the U.S., as described in Section 3.1.1 above, are also waters of the State. Waters of the State may additionally extend landward to the tops of the banks along Easton Creek. The ruderal levee slope along the creek's banks may be considered a "buffer" of waters of the State by the RWQCB. Replacement of two existing outfalls on Easton Creek will necessitate some impact to tidal wetlands and other waters of the State along Easton Creek, and therefore, a Section 401 water quality certification from the RWQCB will be necessary.

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 or proposed for listing as rare (plants only), threatened, or endangered. In accordance with 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: The only species listed under CESA that have any potential to occur in or close to the project site are the endangered California Ridgway's rail and California least tern, and the threatened longfin smelt. As described in Section 3.1.3 above, the California Ridgway's rail could possibly occur on the site as a very infrequent and brief dispersant, the California least tern may forage in adjacent Bay waters but not on the site itself, and the longfin smelt may occasionally occur in lower Easton Creek but more likely occurs only in adjacent Bay waters. No take of any of these species, as defined by CESA, will result from the project, so no incidental take permit from CDFW will be necessary for state-listed species.

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 avoid or reduce significant environmental impacts of projects that they approve when it is feasible to do so by adopting project 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 Natural Resources Agency promulgated guidelines for implementing CEQA 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 CEQA Guidelines Section 15380(b).

The CNPS, a non-governmental conservation organization, has developed CRPRs for plant species of concern in California in the CNPS Inventory of Rare and Endangered Plants. 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 to these species may be considered significant. Impacts on plants that are listed by the CNPS on 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 natural communities of special concern, in addition to plant and wildlife species. 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 (VegCAMP's) currently accepted list of vegetation alliances and associations (CDFW 2021).

Project Applicability: All potential impacts on biological resources will be considered during CEQA review of the project in the context of this biological resources report. 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 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 follows 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. 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 (e.g., 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: CDFW jurisdiction under Section 1602 of the California Fish and Game Code would extend up to the top of bank of Easton Creek on the project site. Replacement of outfalls along the creek, and possibly shading of wetland vegetation by a bridge proposed over the creek, would necessitate obtaining an LSAA from CDFW.

Most native bird, mammal, and other wildlife species that occur on the project site and in the immediate vicinity are protected under the California Fish and Game Code. Project impacts on these species are discussed in Section 6.

3.2.5 State Water Resources Control Board Stormwater Regulation

Construction Phase. 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, as amended and administratively extended). Prior to the start of construction/demolition, a Notice of Intent must be filed with the SWRCB describing the project. A Storm Water Pollution Prevention Plan 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 requires that the applicant utilize various measures including: on-site sediment control BMPs, damp street sweeping, temporary cover of disturbed land surfaces to control erosion during construction, and utilization of stabilized construction entrances and/or wash racks, among other factors. Additionally, the Construction General Permit does not extend coverage to projects if stormwater discharge-related activities are likely to jeopardize the continued existence, or result in take of any federally listed endangered or threatened species.

Post-Construction Phase. In many Bay Area counties, including San Mateo County, projects must also comply with the California RWQCB, San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit (Water Board Order No. R2-2015-0049, as amended). This permit requires that all projects implement BMPs and incorporate Low Impact Development practices into the design that prevent stormwater runoff pollution, promote infiltration, and hold/slow down the volume of water coming from a site. In order to meet these permit and policy requirements, projects must incorporate the use of green roofs, pervious surfaces, tree planters, grassy swales, bioretention and/or detention basins, among other factors.

Project Applicability. The project will comply with the requirements of the NPDES Statewide Storm Water Permit and Statewide General Construction Permit. Therefore, construction-phase activities would not result in detrimental water quality effects on biological or regulated resources.

3.3 Local Regulations

3.3.1 City of Burlingame Tree Ordinance

The City of Burlingame Municipal Code, Section 11.06.020 defines a tree with protected status as: 1) Any tree with a circumference of forty-eight (48) inches or more when measured fifty-four (54) inches above natural grade; or 2) A tree or stand of trees so designated by the city council based upon findings that it is unique and of importance to the public due to its unusual appearance, location, historical significance or other factor; or 3) A stand of trees in which the director has determined each tree is dependent upon the others for survival.

Requirements regarding removal of or work significantly affecting protected trees are described in the City of Burlingame Municipal Code, Section 11.06.060: and include notices and permits required for removal or work significantly affecting protected trees. Requirements regarding tree replacement of removed protected trees are further described in the City of Burlingame Municipal Code, Section 11.06.090. Avoidance and minimization measures for trees to be preserved would include implementation of tree protection zones (i.e., protecting trees that are intended to remain on the site from incidental project disturbance) and development of a tree protection plan by a certified arborist. In addition, the project proponent would be required to comply with the City of Burlingame Municipal Code and submit permit applications for removal or damage of all trees covered by the ordinance. Any City street trees, or private protected ordinance-sized trees to be removed may require replacement with newly planted trees according to the discretion of Parks and Recreation Department. The City's tree ordinance requires that the tree replacement at a ratio of 1:1 include a 24-inch box size single stem landscape tree(s) (no fruit or nut trees), which may be planted anywhere on the project site. Municipal Code, Section 11.06.090 also describe the penalties for violation of the ordinance, or if conditions are not met within the allotted time as specified in Chapter 11.06.090. (b)(5), and could include payment into the tree replacement fund.

Project Applicability: Trees potentially subject to the City's tree ordinance are present on the site, and some will likely be removed by project construction. The project will comply with the City of Burlingame tree replacement guidelines and policies for any protected trees that will be removed as part of the project.

3.3.2 The McAteer-Petris Act

The McAteer-Petris Act, enacted on September 17, 1965, serves as a legal provision under California state law to preserve San Francisco Bay from indiscriminate filling. The act initially established the San Francisco Bay Conservation and Development Commission (BCDC) as a temporary state agency charged with preparing a plan for the long-term use of the San Francisco Bay. In August 1969, the McAteer-Petris Act was amended to make BCDC a permanent regulatory agency to incorporate the policies of the Bay Plan (BCDC 2012). BCDC jurisdiction includes a 100-foot wide band along the shoreline of the San Francisco Bay. The *shoreline* is defined as all areas that are subject to tidal action from the south end of the San Francisco Bay to the Golden Gate (Point Bonita–Point Lobos), and to the Sacramento River line (a line between Stake Point and Simmons Point, extended northeasterly to the mouth of Marshall Cut). The BCDC will claim all sloughs (specifically marshlands lying between mean high tide and up to 5 feet above mean sea level where marsh vegetation is present); tidelands (lands between mean high tide and mean low tide); and submerged lands (land lying below mean low tide) in this region. The McAteer-Petris Act also requires that "maximum feasible public access, consistent with a project be included as part of each project to be approved by the BCDC."

Project Applicability: Along the majority of the Bay shoreline, where the land is bordered by the open waters of the Bay to the east and vegetated marsh is absent, BCDC's Bay jurisdiction is defined by the mean high water (MHW) elevation, which is 6.21 feet NAVD88 (Figure 4). Along the tidal channel of Easton Creek, where narrow bands of tidal salt marsh are present, BCDC's Bay jurisdiction is defined as MHW plus the upper extent of marsh vegetation. A remnant tidal channel with tidal salt marsh habitat exists along the southern edge of the study area. The BCDC Bay shoreline boundary extends along the edge of the tidal salt marsh occupying this swale and extends and additional 75 feet to the edge of Bayshore Highway, where this tidal channel previously extended, prior to partial filling of the swale in 2016. A 100-foot area extending landward of the extent of Bay jurisdiction is defined as the BCDC Shoreline Band. Work within BCDC's Bay jurisdiction (e.g., for replacement of stormwater outfalls along Easton Creek) and within the 100-foot shoreline band will require a permit from BCDC.

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Figure 4. BCDC Jurisdiction

1200-1340 Old Bayshore Highway Project(4498-02)

July 2022

Section 4. Environmental Setting

4.1 General Project Area Description

The study area is located in the Burlingame Bayfront area in the City of Burlingame. The study area is bounded by San Francisco Bay to the east, the One Bay Plaza office building and associated parking lots to the north, Old Bayshore Highway and commercial and industrial development to the west, and Airport Boulevard to the south (Figure 2). The San Francisco Bay Trail (existing and planned), which is a pedestrian/bicycle trail that links to open spaces around the Bay Area, parallels the northern half of the eastern boundary of the study area. The engineered tidal channel of Easton Creek bisects the study area in the southern third of the study area. Easton Creek originates as a nontidal, freshwater creek in the hills to the west of the City of Burlingame, though within the study area it is a tidal, saltwater channel subject to tidal fluctuations.

The Burlingame Bayfront area, including the project site, consists of land that was historically tidal marsh lands that were filled in the 1950s and 1960s. The study area is generally topographically uniform and flat with elevations ranging from approximately 4 to 14 feet (ft) (WGS84) (Google, Inc. 2021). Soils are mapped as Urban land-Orthents, reclaimed complex, 0 to 2 percent slopes, which is a common soil classification for locations along the San Francisco Bay Shoreline that consists of fill soils.

4.2 Land Cover/Habitat Types

The project site is predominantly developed, including existing commercial buildings, surrounding pavement, and associated landscaping; approximately 11.54 acres of the site are considered developed. Additional land cover/habitat types mapped within the study area are tidal salt marsh (0.18 acre), open water/tidal aquatic (0.20 acre), and ruderal grassland/levee slope (0.11 acre). These habitat types are depicted on Figure 5 and are described in detail below. Plant species observed during the reconnaissance survey and wetland delineation field work are listed in Appendix A, and representative photos of Easton Creek (including the two existing outfalls) and the tidal salt marsh in the southern portion of the site are provided in Appendix B.

4.2.1 Developed

Vegetation. Developed areas comprise the most dominant land cover type in the study area. This land cover type includes all buildings, paved walkways and parking areas, and any portions of the Bay Trail that intersect the study area. The developed land cover also includes areas that have been planted with landscaping and are maintained on an ongoing basis. Landscaping on the site consists of ornamental trees, shrubs, and groundcovers that are typical of commercial developments in the area. The developed habitat also includes the un-paved, but heavily disturbed areas around the muted tidal salt marsh in the very southern portion of the study area. An examination of historical imagery in Google Earth indicates that while not currently paved and developed, this area may have been more previously leveled and developed, perhaps as a gravel staging area, or construction yard (Google, Inc. 2021). Small patches of ruderal vegetation were present in this vacant lot during our site

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Figure 5. Habitats Map
1200-1340 Old Bayshore Highway Project (4498-02)
July 2022

visits, consisting of non-native grasses and forbs such as wild oats (*Avena* sp.), ripgut brome (*Bromus diandrus*), black mustard (*Brassica nigra*), milk thistle (*Silybum marianum*), and Italian thistle (*Carduus pycnocephalus*).

Wildlife. Developed areas that are devoid of vegetation do not provide high-quality wildlife habitat; however, lizards, such as the western fence lizard (*Sceloporus occidentalis*), may bask on these surfaces. Other wildlife most often associated with developed/landscaped areas are those that are tolerant of periodic human disturbance, 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*). The native striped skunk (*Mephitis mephitis*) and raccoon (*Procyon lotor*) also often occupy developed or ruderal habitats near the Bay and likely occur on the site. Some common, native bird species are also able to utilize these habitats for nesting and roosting, especially around the ornamental trees. These include the American crow (*Corvus brachyrhynchos*), Anna's hummingbird (*Calypte anna*), Bewick's wren (*Thryomanes bewickii*), and bushtit (*Psaltriparus minimus*), all of which were observed on the project site during the reconnaissance surveys. Additional species, such as the ruby-crowned kinglet (*Corthylio calendula*), yellow-rumped warbler (*Setophaga coronata*), white-crowned sparrow (*Zonotrichia leucophrys*), and golden-crowned sparrow (*Zonotrichia atricapilla*), occur in landscape vegetation during the nonbreeding season.

Marginally suitable roosting habitat for crevice-roosting bats such as the pallid bat (*Antrozous pallidus*), Yuma myotis (*Myotis yumanensis*), and Mexican free-tailed bat (*Tadarida brasiliensis*) is present on the buildings and trees on the project site. Likewise, several trees provide potentially suitable habitat for the foliage-roosting hoary bat (*Lasiurus cinereus*). Although a majority of the trees in the study area are small, several larger trees are present that could provide roosting habitat for these species (e.g., crevices, cavities, foliage). Likewise, several of the buildings appeared to have potentially suitable features (e.g., exterior crevices) that could support crevice-roosting bats. Birds such as the black phoebe (*Sayornis nigricans*), barn swallow (*Hirundo rustica*), cliff swallow (*Petrochelidon pyrrhonota*), house finch (*Haemorhous mexicanus*), and mourning dove (*Zenaida macroura*) could potentially nest on buildings on the project site.

4.2.2 Tidal Salt Marsh

Vegetation. A narrow tidal inlet at the south end of the project site is approximately 15 feet wide and extends from the Bay edge inland for approximately 150 feet. The swale is occupied by tidal salt marsh habitat, though tidal action in the swale is somewhat muted by the presence of the berm at the east end. Additional tidal salt marsh is present in narrow strips on either side of the Easton Creek channel. The plant species composition of the tidal salt marshes within the study area is dominated by pickleweed (*Salicornia pacifica*) and other halophytic vegetation. Pickleweed is an obligate wetland species and is exclusively found in wetland settings. The tidal marsh along Easton Creek is also dominated by pickleweed, but with a greater co-dominance of other wetland species including smooth cordgrass (*Spartina alterniflora*) and Russian thistle (*Salsola soda*). The tidal salt marsh in the southern portion of the study area contains a small area lacking vegetation in the center of the channel where water is likely to pond longer during the highest tides. The area surrounding this mudflat is dominated by pickleweed and marsh jaumea (*Jaumea carnosa*). Vegetation transitions into Algerian sea lavender (*Limonium* *ramosissimum*) and salt grass (*Distichlis spicata*) at the eastern portion of the wetland as it approaches the Bay, before transitioning back to pickleweed-dominated tidal salt marsh closer to the Bay.

Wildlife. Due to the very limited extent of salt marsh on the project site and its lack of connectivity to more expansive salt marsh, animals characteristic of San Francisco Bay salt marshes are expected to make little use of these habitats on the project site. Although California Ridgway's rails dispersing along the bayshore could potentially rest or forage briefly in the salt marsh on the site, this habitat is of low quality even for foraging, and due to its limited extent it does not provide suitable cover for rails. This habitat is not sufficiently extensive or structurally diverse (e.g., dense/tall) to provide suitable nesting habitat for the San Francisco common yellowthroat (*Geothlypis trichas sinuosa*), Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*), or Alameda song sparrow (*Melospiza melodia pusillula*), and those species would occur on the project site only as occasional dispersants. Ducks such as mallards (*Anas platyrhynchos*) and gadwalls (*Mareca strepera*) could forage in the southern salt marsh when it is inundated. Wildlife using the salt marsh habitats on the project site would consist primarily of species associated with adjacent habitats. House finches, bushtits, yellow-rumped warblers, American crows, and other birds, as well as house mice, black rats, raccoons, and striped skunks, forage in the limited salt marsh on the project site.

4.2.3 Open Water/Tidal Aquatic

Vegetation. Easton Creek is an engineered tidal channel that emerges from a large box culvert under Old Bayshore Highway and flows eastward, perpendicular to the shoreline, in the southern half of the study area. The on-site segment of Easton Creek is fully tidal, with no tidal gates or other restrictions to flow. Open water/tidal aquatic habitat is also present in San Francisco Bay adjacent to the project site.

Wildlife. Open waters of San Francisco Bay immediately east of the project site support a variety of fish, waterbirds, and marine mammals. Fish include the bat ray (*Myliobatis californica*), Pacific herring (*Clupea pallasii*), threespine stickleback (*Gasterosteus aculeatus*), and starry flounder (*Platichthys* stellatus). Northern anchovy and topsmelt (*Atherinops affinis*) are also uncommon visitors that may infrequently forage in the area. Some of these fish, such as the stickleback, are expected to occur in Easton Creek as well, though due to its narrow and shallow nature, Easton Creek is expected to support relatively low abundance and diversity of fish. No high-quality breeding or nursery habitat for any fish is present on or immediately adjacent to the project site.

A variety of non-breeding waterbirds that frequently forage for fish and marine invertebrates in Bay waters adjacent to the project site include surf scoter (*Melanitta perspicillata*), lesser scaup (*Aythya affinis*), greater scaup (*Aythya marila*), western gull (*Larus occidentalis*), Caspian tern (*Hydroprogne caspia*), bufflehead (*Bucephala albeola*), mallard, and Clark's grebe (*Aechmophorus clarkii*). However, during the December 18, 2021 reconnaissance survey, only a few scaup and gulls were present on the Bay adjacent to the project site. Due to the narrow and shallow nature of Easton Creek, waterbird abundance and diversity on the project site is expected to be very limited, though mallards, American coots (*Fulica americana*), and green-winged teal (*Anas crecca*) may forage in the creek in small numbers. Though no haulout sites for marine mammals are known in the project vicinity, harbor seals and California sea lions could occasionally forage in Bay waters near the site; these species would not enter Easton Creek.

The intertidal areas along the Bay shoreline, which barely extend onto the site at the mouth of Easton Creek, provide foraging habitat for a variety of gulls and shorebirds, including the western gull, California gull (Larus californicus), western sandpiper (*Calidris mauri*), least sandpiper (*Calidris minutilla*), dunlin (*Calidris alpina*), willet (*Tringa semipalmata*), greater yellowlegs (*Tringa melanoleuca*), and black-bellied plover (*Pluvialis squatarola*). Shorebirds are most abundant during fall and spring migration and during the winter non-breeding season. Due to the limited extent of mudflat and intertidal habitat immediately adjacent to the project site, numbers of birds using these intertidal areas adjacent to, and especially on, the project site are expected to be low.

4.2.4 Ruderal Levee Slope

Vegetation. Along Easton Creek, banks transitioning between the developed upland portions of the project site and the wetland/aquatic habitats downslope are dominated by ruderal vegetation. This vegetation includes a variety of upland and facultative-upland species such as coyote brush (*Baccharis pilularis*), firethorn (*Pyracantha angustifolia*), Chilean sea fig (*Carpobrotus chilensis*), black mustard (*Brassica nigra*), and ruderal grass species such as wild oats (*Avena fatua*) and ripgut brome (*Bromus diandrus*).

Wildlife. Due to the very limited extent of ruderal levee slope on the project site, no distinctive animal communities (such as grassland-associated species) are associated with this habitat type. California ground squirrels (*Otospermophilus beecheyi*) occur along the upper banks of Easton Creek, and bird species associated with the surrounding developed and landscaped areas forage, roost, and may nest on the ruderal levee slopes in low numbers.

4.3 Wildlife Movement

Wildlife movement within and in the vicinity of the project footprint takes many forms, and is different for the various suites of species associated with these lands. Bird and bat species move readily over the landscape in the project vicinity, foraging over and within both natural lands and landscaped areas. Mammals of different species move within their home ranges, but also disperse between patches of habitat. Generally, reptiles and amphibians similarly settle within home ranges, sometimes moving to central breeding areas, upland refugia, or hibernacula in a predictable manner, but also dispersing to new areas. Some species, especially among the birds and bats, are migratory, moving into or through the project vicinity during specific seasons. Aside from bats, there are no other mammal species in the vicinity of the site that are truly migratory. However, the young of many mammal species disperse from their natal home ranges, sometimes moving over relatively long distances in search of new areas in which to establish.

Movement corridors are segments of habitat that provide linkage for wildlife through the mosaic of suitable and unsuitable habitat types found within a landscape while also providing cover. On a broader level, corridors also function as paths along which wide-ranging animals can travel, populations can move in response to environmental changes and natural disasters, and genetic interchange can occur. In California, environmental corridors often consist of riparian areas along streams, rivers, or other natural features.

Due to the density of development in the project region and the lack of continuous, well-vegetated pathways through the nearby urban areas, there are currently no well-defined movement corridors for animals within or through the project site. Wildlife species may move through the area using cover and refugia as they find them available, and mammals and reptiles may move along the bayshore. However, connectivity along Easton Creek is interrupted by Old Bayshore Highway, U.S. 101, and other roads and culverted areas.

Migratory birds, including waterbirds associated with the Bay and terrestrial species, migrate along the edge of San Francisco Bay. For example, nocturnal migrant birds that find themselves over the Bay in the morning will seek roosting and foraging areas along the edge of the Bay. As a result, numbers of migrant birds on the project site, or at least moving through/past the project site, would be higher than expected based on the low quality of habitat currently present on the predominantly developed site.

In summary, the project footprint is not a particularly important area for movement by non-flying wildlife, and it does not contain any high-quality corridors allowing dispersal of such animals. However, migratory birds are expected to occur on, or at least fly through/past, the project site in moderate abundance.

Section 5. Special-Status Species and Sensitive Habitats

CEQA requires assessment of the effects of a project on species that are protected by state, federal, or local governments 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 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 on the project site was collected from several sources and reviewed by H. T. Harvey & Associates biologists as described in Section 2.1 above. Figure 3 depicts CNDDB records of special-status plant and animal species in the general vicinity of the project site. These generalized maps show areas where special-status species are known to occur or have occurred historically.

5.1 Special-Status Plant Species

A list of 110 special-status plant species thought to have some potential for occurrence in the general vicinity of Burlingame was compiled using CNPS lists (CNPS 2021) and CNDDB records (CNDDB 2021). Analysis of the documented habitat requirements and occurrence records associated with all of the species considered allowed us to reject all but one of the 110 species as not having a reasonable potential to occur in or immediately adjacent to 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; and/or (4) the species is presumed extirpated. The study area is a developed site and is situated on Bay fill that would have historically been either open waters or tidal marsh but that, in most areas, does not provide suitable habitat for special-status plants. The muted tidal wetland in the southern portion of the study area is not expected to provide suitable habitat for special-status plant species that are typically found in salt marsh due to the disturbed nature of this feature and the likelihood that it was formed after the fill placement that formed the current shoreline.

Suitable habitat, edaphic requirements, and elevation range are present within and adjacent to the study area for only one special-status plants species – Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*). Congdon's tarplant, which is a ranked as CRPR 1B.1 by the CNPS, occurs on alkaline soils in valley and foothill grassland in depressions, swales, and floodplains, often in disturbed areas with non-native grasses. Within this broad habitat type, Congdon's tarplant is most successful along the boundaries of seasonal wetlands or in other areas where competing vegetation is sparse (i.e., heavily grazed areas or recently disturbed areas). It has a variable blooming period extending from May through November. The closest occurrence of Congdon's tarplant to the project site is within the Ravenswood Open Space Preserve, more than 10 miles south of the project site. This occurrence consists of a single, small population of 17 individuals that was last observed in 2017 (CNDDB 2021). Because this species has the potential to occur in disturbed habitats, there is potential (albeit low) for it to occur along the edges of the muted tidal wetland in the southern portion of the study area as well as along the banks of Easton Creek.

5.2 Special-Status Animal Species

The legal status and likelihood of occurrence on the project site of special-status animal species known to occur, or potentially occurring, in the project region are presented in Table 1. Most of the special-status species listed in Table 1 are not expected to occur on the project site because it lacks suitable habitat, is outside the known range of the species, and/or is isolated from the nearest known extant populations by development or otherwise unsuitable habitat. Animal species not expected to occur on the project site for these reasons include the Bay checkerspot butterfly (*Euphydryas editha bayensis*), mission blue butterfly (*Icaricia icarioides missionensis*), San Bruno elfin butterfly (*Callophrys mossii bayensis*), Callippe silverspot butterfly (*Speyeria callippe callippe*), Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*), western bumble bee (*Bombus occidentalis occidentalis*), Crotch's bumble bee (*Bombus crotchii*), California red-legged frog (*Rana draytonii*), San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), western snowy plover (*Charadrius alexandrinus nivosus*), California black rail (*Laterallus jamaicensis coturniculus*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), burrowing owl (*Athene cunicularia*), salt marsh harvest mouse (*Reithrodontomys raviventris*), long-eared owl (*Asio otsu*), Townsend's big-eared bat

(*Corynorhinus townsendii*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), salt marsh wandering shrew (*Sorex vagrans halicoetes*), and western pond turtle (*Emys pallida*)[1].

A number of special-status bird species can occasionally occur on or immediately adjacent to the project site as nonbreeding foragers (i.e., they do not nest on the project site). These are the California Ridgway's rail, California least tern, tricolored blackbird (*Agelaius tricolor*), Vaux's swift (*Chaetura vauxi*), olive-sided flycatcher (*Contopus cooperi*), San Francisco common yellowthroat, yellow warbler (*Setophaga petechia*), Alameda song sparrow, Bryant's savannah sparrow, western red bat (*Lasiurus blossevillii*), American peregrine falcon (*Falco peregrinus anatum*), and California brown pelican (*Pelecanus occidentalis californicus*). None of these species are expected to occur regularly or in large numbers on the site, though.

Although the California sea lion and Pacific harbor seal occur in the Bay immediately adjacent to the project site, these species would not occur on the site itself (e.g., entering Easton Creek) or regularly haul out onto the shoreline adjacent to the site. The open waters of San Francisco Bay immediately adjacent to the site provide potential foraging habitat for the Central California Coast steelhead, green sturgeon, longfin smelt, Pacific lamprey (*Entosphenus tridentatus*), and Central Valley fall-run Chinook salmon. Although these species could enter the lower reach of Easton Creek during high tide, they likely do so very infrequently, if at all, due to the absence of high-quality habitat, the narrow and shallow nature of the creek, and the absence of suitable habitat upstream from the project site. Pacific herring spawn approximately 2.5 miles east of the site at Coyote Point and elsewhere in the San Francisco Bay (CDFW 2019b), but the limited and small areas of rock and concrete rubble along the bayshore immediately adjacent to the project site does not provide suitable spawning habitat. The Olympia oyster (*Ostrea lurida*) occurs throughout the San Francisco Bay along rocky shorelines, but as with the Pacific herring, the shoreline adjacent to the project site provides low-quality habitat at best due to the absence of extensive or large rocks and other hard substrates.

The monarch butterfly is not known to breed or overwinter on the project site or in the nearby vicinity, but it could occasionally forage in the area and roost on the trees on site during their fall and spring migration.

[1] A recent court decision ruled against listing the western bumble bee and Crotch's bumblebee under the California Endangered Species Act; however, this decision is currently being appealed (Xerces Society 2021). Thus, these species are still being treated as special-status and included herein.

Table 1. Special-Status Animal Species, Their Status, and Potential Occurrence on the Project Site

Name	*Status	Habitat	Potential for Occurrence on the Project site
Federal or State Endangered, Threatened, or Candidate Species			
Bay checkerspot butterfly (*Euphydryas editha bayensis*)	FT	Restricted to areas with shallow serpentine-derived or similar soils that have substantial populations of dwarf plantain, a primary larval host plant, and purple owl's clover, a secondary larval and adult host plant.	Absent. No suitable serpentine grassland habitat or larval host plants are present on the project site. Thus, this species is determined to be absent.
Mission blue butterfly (*Icaricia icarioides missionensis*)	FE	Coastal chaparral and coastal grasslands. Larval host plants are *Lupinus* spp.	Absent. The closest known population is located at San Bruno Mountain approximately 5.5 miles north of the project site (CNDDB 2021). No suitable chaparral or grassland habitat is present on or near the project site. Thus, this species is determined to be absent.
San Bruno elfin butterfly (*Callophrys mossii bayensis*)	FE	Coastal mountains near San Francisco Bay in the fog-belt of steep, north-facing slopes. Lives near abundant growth of broadleaf stonecrop (*Sedum spathulifolium*), its larval host plant that grows on rocky outcrops on steep north facing slopes.	Absent. All known San Bruno elfin butterfly populations are restricted to San Bruno Mountain, Milagra Ridge, the San Francisco Peninsula Watershed, and Montara Mountain. No suitable habitat or the larval host plant is present on the project site. Determined to be absent.
Callippe silverspot butterfly (*Speyeria callippe callippe*)	FE	Grasslands of the northern San Francisco Bay region. Larval host plant is *Viola pedunculata*.	Absent. Callippe silverspot butterfly populations in the project vicinity are only known to occur on San Bruno Mountain, Milagra Ridge, the San Francisco Peninsula Watershed, and Montara Mountain. No suitable habitat or the larval host plant is present on the project site. Determined to be absent.
Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*)	FE	Coastal dune and prairie habitat. Larval host plants are violets, typically Viola adunca.	Absent. Although the historical distribution of this species included San Mateo County, its current extant range is believed to be restricted to the region within or near the Point Reyes National Seashore. Additionally, no suitable habitat or the larval host plant are present on the project site. Determined to be absent.

Name	*Status	Habitat	Potential for Occurrence on the Project site
Monarch butterfly (*Danaus plexippus*)	FC	Adults forage on a wide variety of flowers for nectar and occur in a variety of habitats, but egg-laying and larval development occurs on milkweeds, which are more limited in distribution. Typically roosts on the branches and leaves of trees which receive appropriate sun exposure and thermal buffering.	Absent as Breeder. No milkweed has been observed on the project site, so this species is not expected to breed here. The closest documented overwintering sites are located along the western coastline in San Mateo County and across the San Francisco Bay in Alameda County, approximately 10 miles west and east of the site. No overwintering sites are known from the project area (https://www.westernmonarchcount.org/find-an-overwintering-site-near-you/). Individuals may occur on the project site as occasional migrants, but this species is not expected to form large roosts or to breed on the site.
Western bumble bee (*Bombus occidentalis*)	SC	Meadows and grasslands with abundant floral resources.	Absent. Although the species was historically found throughout much of central and northern California (CDFW 2019a), including the project vicinity, it is not expected to occur on the site due to recent range contractions. Further, this species has not been observed in the project vicinity since the 1960s (CNDDB 2021). Determined to be absent.
Crotch's bumble bee (*Bombus crotchii*)	SC	Grasslands and shrublands with abundant floral resources, undisturbed nesting and overwintering sites.	Absent. Although the species was historically found throughout much of central California and portions of northern California (CDFW 2019a), including the project vicinity, it is not expected to occur on the site due to recent range contractions. Further, this species has not been observed in the project vicinity since the 1909 (CNDDB 2021). Determined to be absent.

Name	*Status	Habitat	Potential for Occurrence on the Project site
Central California coast steelhead (*Oncorhynchus mykiss*)	FT	Cool streams with suitable spawning habitat and conditions allowing migration between spawning and marine habitats.	May be Present. Central California Coast steelhead occur in the San Francisco Bay and are known to spawn in the San Mateo Creek watershed (Spence et al. 2008, Becker and Reining 2008), and adults and yearling juveniles may be present as occasional foragers in adjacent open waters of the San Francisco Bay. Designated critical habitat includes San Francisco Bay up to the perimeter of the Bay water or the elevation of extreme high water, whichever is higher (NMFS 2000, 2005). Critical habitat extends onto the project site along Easton Creek, and this species may occasionally forage within Easton Creek at high tide, albeit infrequently and in low numbers (if at all) given the shallow and narrow nature of aquatic habitat within the creek.
Green sturgeon (*Acipenser medirostris*)	FT, CSSC	Spawns in large river systems such as the Sacramento River; forages in nearshore oceanic waters, bays, and estuaries.	May be Present. Green sturgeon occur in the San Francisco Bay between the spring and fall (Kelly et al. 2006). All tidally influenced areas of the Bay, up to the elevation of mean higher high water, have been designated as critical habitat for this species. Spawning of this southern distinct population segment occurs predominantly in the upper Sacramento River (Adams et al. 2007). Green sturgeon have been captured in the central portion of the Bay north of the San Mateo Bridge (K. Hieb, CDFW, pers. comm.) in the vicinity of the project site, and may forage infrequently, and in low numbers, in San Francisco Bay waters adjacent to the project site. Critical habitat extends onto the project site along Easton Creek, and this species may occasionally forage within Easton Creek at high tide, albeit infrequently and in low numbers (if at all) given the shallow and narrow nature of aquatic habitat within the creek.

Name	*Status	Habitat	Potential for Occurrence on the Project site
Longfin smelt (*Spirinchus thaleichthys*)	FC, ST	Spawns in fresh water in the upper end of the San Francisco Bay; may occur year-round in the South Bay.	May be Present. Longfin smelt occur in the San Francisco Bay, and adults and yearling juveniles may be present as occasional foragers in the open Bay waters adjacent to the project site. However, these open waters do not provide suitable spawning habitat for this species, and it is likely that longfin smelt only occur in small numbers, primarily in winter. This species may occasionally forage within Easton Creek at high tide, albeit infrequently and in low numbers (if at all) given the shallow and narrow nature of aquatic habitat within the creek.
California red-legged frog (*Rana draytonii*)	FT, CSSC	Streams, freshwater pools, and ponds with emergent or overhanging vegetation. May use the undersides of old boards and other debris to rest or aestivate within riparian areas.	Absent. California red-legged frogs are known to occur approximately 2 miles northwest of the site in wetland habitat near the San Francisco Airport, and have been recorded as close as 1.25 miles to the northwest (CNDDB 2021). However, no suitable aquatic breeding or dispersal habitat is present on or surrounding the project site, and intensive development and numerous roadways between areas of known occurrence and the project site preclude dispersal to the site. Thus, California red-legged frogs are determined to be absent from the project site.
San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)	FE, SE, SP	Prefer densely-vegetated ponds with an open water component near open hillsides where they can sun themselves, feed, and find cover in rodent burrows (Larsen 1994 as cited in USFWS 2007). May also occupy ponds or pools in or next to streams, streams, lakes, and reservoirs. The species prefers a dense cover of vegetation, such as willows (Salix spp.), bulrushes (*Schoenoplectus* spp.), and cattails (*Typha* spp).	Absent. The San Francisco garter snake occurs at very few locations in San Mateo County. The only known population of San Francisco garter snakes on the east side of the San Francisco peninsula occurs near the San Francisco International Airport, approximately 2-3 miles to the northwest. No suitable habitat for this species is present on the project site, and the site is isolated from the nearest known remaining populations by extensive urbanization. Thus, this species is determined to be absent.

Name	*Status	Habitat	Potential for Occurrence on the Project site
Western snowy plover (*Charadrius alexandrinus nivosus*)	FT, CSSC	Sandy beaches on marine and estuarine shores and salt pannes in San Francisco Bay saline managed ponds.	Absent. No suitable habitat is present on or immediately adjacent to the project site. In the project vicinity, the western snowy plover is restricted to broader coastal beaches and salt panne habitat within former salt ponds. Snowy plovers may occasionally forage along the sandy shoreline of Coyote Point 2 miles east of the project site, but this species is not expected to occur on or close enough to the site to be impacted by the project. Determined to be absent from the project site.
California least tern (*Sternula antillarum browni*)	FE, SE, SP	Nests along the coast on bare or sparsely vegetated, flat substrates. In San Francisco Bay, nests primarily on an old airport runway at the former Alameda Naval Air Station. Forages for fish in open waters.	Absent. Least terns are not known or expected to nest on or adjacent to the project site, and this species does not currently nest in the San Mateo County. Least terns forage over open water habitat off the shoreline near Coyote Point 2 miles east of the project site, and likely forage in small numbers in open waters of the Bay adjacent to the project site. However, no suitable nesting habitat is present on or near the site, and the closest known breeding colony occurs at Alameda Point, over 13 miles north of the project site. Easton Creek is too narrow to be used as foraging habitat.
Tricolored blackbird (*Agelaius tricolor*)	ST, CSSC	Nests near fresh water in dense emergent vegetation.	Absent as Breeder. Tricolored blackbirds typically nest in extensive stands of tall emergent herbaceous vegetation in non-tidal freshwater marshes and ponds, which are not present in the study area. This species is not known to nest in tidal habitats along the Bay, and has not been recorded nesting in the project vicinity. However, individuals could occasionally forage on site during the nonbreeding season (albeit irregularly and in low numbers).

Name	*Status	Habitat	Potential for Occurrence on the Project site
California Ridgway's rail (*Rallus obsoletus obsoletus*)	FE, SE, SP	Salt marsh habitat dominated by pickleweed and cordgrass.	Absent as Breeder. The California Ridgway's rail is resident in salt marsh habitat in San Mateo County, particularly where broader areas of well-developed tidal salt marsh are present. The species has been documented near Bayfront Park approximately 1 mile northwest of the site and occasionally near Coyote Point, 2 miles to the east (CNDDB 2021). However, no marsh habitat suitable for breeding occurs on or adjacent to the project site. Occasional dispersants could possibly stop briefly along lower Easton Creek, though the lack of refugia along this narrow channel would not attract rails to forage or linger there, and this species may not occur on the site at all.
California black rail (*Laterallus jamaicensis coturniculus*)	ST, SP	Breeds in fresh, brackish, and tidal salt marsh.	Absent. Few black rails have been observed in marshes on the east side of the San Francisco peninsula, and most records are from the nonbreeding season (CNDDB 2021, Cornell Lab of Ornithology 2021). The closest suitable nonbreeding habitat is present along the shoreline of the San Francisco International Airport, approximately 1 mile north of the project site. This species is not expected to occur on the site even as a dispersant. Determined to be absent.
Salt marsh harvest mouse (*Reithrodontomys raviventris*)	FE, SE, SP	Diked and tidal wetlands supporting a mix of halophytic vegetation including common pickleweed, alkali heath (*Frankenia salina*), and fat hen (*Atriplex prostrata*).	Absent. The closest occurrences of the salt marsh harvest mouse were in the early 1990s approximately 9 miles south of the project site at Bair Island, and recent live-trapping documented salt marsh harvest mice in small numbers at Faber Marsh, over 14 miles south of the project site (Statham et al. 2021). The salt marsh harvest mouse is not known to occur on the San Francisco Peninsula north of the San Mateo Bridge (CNDDB 2021). Furthermore, no suitable habitat is present on the project site. Determined to be absent.

Name	*Status	Habitat	Potential for Occurrence on the Project site
California Species of Special Concern			
Pacific lamprey (*Entosphenus tridentatus*)	CSSC	Occupies anadromous habitat in large streams entering the San Francisco and San Pablo Bays. Spawns in cool (shaded), clear, slow-moving rivers and streams supporting gravel, silt, and sand substrates (Moyle et al. 2015).	May be Present. In San Mateo County, the Pacific lamprey was historically documented in San Mateo Creek, approximately 3 miles southeast of the project site (Goodman and Reid 2017), but is no longer considered to be present likely due to an impassible barrier (Crystal Springs Dam). In the project vicinity, they are currently known from the Alameda Creek watershed, approximately 12 miles east of the project site (Goodman and Reid 2017). Pacific lamprey adults may infrequently forage in open Bay waters, but no suitable spawning habitat is present on or immediately adjacent to the project site. This species may occasionally forage within Easton Creek at high tide, albeit infrequently and in low numbers (if at all) given the shallow and narrow nature of aquatic habitat within the creek.
Central Valley Fall-Run Chinook Salmon (*Oncorhynchus tshawytscha*)	CSSC	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	May be Present. Central Valley fall-run Chinook salmon occur in San Francisco Bay, and small numbers of juveniles or fall-run adults may be present as occasional foragers in the open waters of the Bay adjacent to the project site. However, no suitable spawning habitat for this species is present on or adjacent to the project site. This species may occasionally forage within Easton Creek at high tide, albeit infrequently and in low numbers (if at all) given the shallow and narrow nature of aquatic habitat within the creek.
Northern harrier (*Circus cyaneus*)	CSSC (nesting)	Nests in marshes and moist fields, forages over large open areas.	Absent. No suitable nesting or foraging habitat is present on this mostly developed site. 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 suitable nesting or foraging habitat is present on this mostly developed site.

Name	*Status	Habitat	Potential for Occurrence on the Project site
Long-eared owl (*Asio otus*)	CSSC (nesting)	Frequents dense riparian and live oak thickets near meadow edges, and nearby woodland and forest habitats, but also may be found in dense conifer stands at higher elevations. This species forages over open areas, where it hunts for rodents and small birds. Breeds from valley foothill hardwood up to ponderosa pine habitats from early March to late July.	Absent. This species is not expected to visit or breed on the project site or in the nearby vicinity of the site. Determined to be absent.
Vaux's swift (*Chaetura vauxi*)	CSSC (nesting)	Nests in snags in coastal coniferous forests or, occasionally, in chimneys; forages aerially.	Absent as Breeder. No suitable nesting habitat is present on or in the vicinity of the site. However, this species forages over the site during migration.
Olive-sided flycatcher (*Contopus cooperi*)	CSSC (nesting)	Breeds in mature forests with open canopies, along forest edges in more densely vegetated areas, in recently burned forest habitats, and in selectively harvested landscapes (Altman and Sallabanks 2000, Robertson and Hutto 2007).	Absent as Breeder. No suitable nesting habitat is present on the site or in the vicinity of the site. May occur as an occasional spring and fall migrant.
San Francisco common yellowthroat (*Geothlypis trichas sinuosa*)	CSSC	Nests in herbaceous vegetation, usually in wetlands or moist floodplains.	Absent as Breeder. No suitable nesting habitat is present on or immediately adjacent to the site, as vegetation along Easton Creek and the Bay shoreline, and around the southern wetland, is not sufficiently extensive and lacks suitable structure to support this species. May occur as a scare nonbreeding visitor on the site.
Yellow warbler (*Setophaga petechia*)	CSSC (nesting)	Nests in riparian habitat, especially that dominated by cottonwoods, willows, and sycamores.	Absent as Breeder. No suitable nesting habitat is present on or adjacent to the site. Occurs as a common spring and fall migrant.

Name	*Status	Habitat	Potential for Occurrence on the Project site
Alameda song sparrow (*Melospiza melodia pusillula*)	CSSC	Nests in salt marsh, primarily in marsh gumplant and cordgrass along channels.	Absent as Breeder. No suitable nesting habitat is present on or immediately adjacent to the site, as vegetation along Easton Creek and the Bay shoreline, and around the southern wetland, is not sufficiently extensive and lacks suitable structure to support this species. May occur as a scare nonbreeding visitor on the site.
Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*)	CSSC	Nests in pickleweed dominant salt marsh and adjacent ruderal habitat.	Absent as Breeder. No suitable nesting habitat is present on or immediately adjacent to the site, as vegetation along Easton Creek and the Bay shoreline, and around the southern wetland, is not sufficiently extensive and lacks suitable structure to support this species. May occur as a scare nonbreeding visitor on the site.
Pallid bat (*Antrozous pallidus*)	CSSC	Forages over many habitats; roosts in caves, rock outcrops, buildings, and tree crevices or cavities.	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, and is not expected to breed on the project site. Marginally suitable roosting habitat is present in crevices in trees and buildings on the site, and occasional dispersants may occur on the site.
Townsend's big-eared bat (*Corynorhinus townsendii*)	CSSC	Roosts in caves, mine tunnels, and occasionally in deep crevices in trees such as redwoods or in abandoned buildings, in a variety of habitats.	Absent. No known extant populations of the Townsend's big-eared bat occur in the site vicinity, and no suitable cavernous roosting habitat is present on the project site. Determined to be absent.
Western red bat (*Lasiurus blossevillii*)	CSSC	Roosts in foliage in forest or woodland habitat, especially in or near riparian habitat.	Absent as Breeder. This species may occur as a migrant and winter resident, but does not breed in the Bay Area. Small numbers of bats may occasionally roost within foliage of trees on the project site, but due to the absence of riparian habitat on or in the vicinity of the site, the potential for occurrence is low.

Name	*Status	Habitat	Potential for Occurrence on the Project site
San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)	CSSC	Nests in a variety of habitats including riparian areas, oak woodlands, and scrub.	Absent. No woodrat stick nests were observed on the project site. Do to the heavily urbanized nature of the surrounding areas this species does not likely occur on the project site. Determined to be absent.
Salt marsh wandering shrew (*Sorex vagrans halicoetes*)	CSSC	Medium-high marsh 6-8 feet above sea level with abundant driftwood and common pickleweed.	Absent. This species is likely present in broader salt and brackish marshes along the Bay, although its distribution is poorly known. There is a low probability of occurrence in the marsh habitat approximately 1 mile northwest of the site near the San Francisco Airport. However, there is no suitable habitat on the site. Thus, the species is determined to be absent.
Southwestern pond turtle (*Emys pallida*)	CSSC	Permanent or nearly permanent water in a variety of habitats with abundant emergent or riparian vegetation. Females lay eggs in upland habitats, in clay or silty soils in unshaded (often south-facing) areas (Jennings and Hayes 1994).	Absent. The closest known occurrence of western pond turtle is located approximately 4.5 miles west of the site at Crystal Springs Reservoir and potentially suitable aquatic habitat is present approximately 2.5 miles east of the project site just south of the Coyote Point Yacht Club. However, this species is not expected to occur along such urban creeks as Easton Creek. Determined to be absent.
California Fully Protected Species			
American peregrine falcon (*Falco peregrinus anatum*)	SP	Nests on ledges and caves on steep cliffs, as well as on human-made structures such as buildings, bridges, and electrical transmission towers.	Absent as Breeder. No suitable nesting habitat is present on the project site. May occasionally forage on the site.
White-tailed kite (*Elanus leucurus*)	SP	Nests in tall shrubs and trees, forages in grasslands, marshes, and ruderal habitats.	Absent. No suitable nesting or foraging habitat is present on this mostly developed site. Determined to be absent.
California Brown pelican (*Pelecanus occidentalis californicus*)	SP	Undisturbed islands near estuarine, marine, subtidal, and marine pelagic waters.	Absent. Brown pelicans are regular nonbreeding visitors in San Mateo County. They forage in open-water Bay habitat immediately adjacent to the project site (Cornell Lab of Ornithology 2021), but Easton Creek is too small for use by this species, and brown pelicans are not expected to use the site at all.

Name	*Status	Habitat	Potential for Occurrence on the Project site
Other Special-Status Species			
Pacific herring (*Clupea pallasii*)	CEQA	Spawns in sheltered areas of bays, estuaries, and harbors, and sometimes in nearshore coastal waters. May spawn in intertidal or subtidal waters on manmade structures such as pier pilings and riprap (Watters et al. 2004).	May be Present. Pacific herring spawn approximately 2.5 miles east of the site at Coyote Point and elsewhere in the San Francisco Bay (CDFW 2019b), but the limited and small areas of rock and concrete rubble along the bayshore immediately adjacent to the project site does not provide suitable spawning habitat. Forages in Bay waters immediately adjacent to the project site. This species may occasionally forage within Easton Creek at high tide, albeit infrequently and in low numbers (if at all) given the shallow and narrow nature of aquatic habitat within the creek.
Olympia oyster (*Ostrea lurida*)	CEQA	Attaches to hard substrates such as rocks, and artificial structures in intertidal habitats of the San Francisco Bay. May also occur in subtidal habitats.	Absent. Occurs throughout the San Francisco Bay along rocky shorelines, but the shoreline adjacent to the project site provides low-quality habitat at best due to the absence of extensive or large rocks and other hard substrates. Not expected to occur on the project site itself.
California sea lion (*Zalophus californianus*)	MMPA	Occurs in shallow waters along the eastern North Pacific Ocean and in portions of the San Francisco Bay. Prefers sandy beaches, rocky shorelines, and floating docks.	Absent. Does not breed inside San Francisco Bay, and is not expected to haul out on the shoreline adjacent to the site. Occurs in the Bay adjacent to the project site, but Easton Creek is too small for use by this species, which would not occur on the site itself.
Pacific harbor seal (*Phoca vitulina richardsi*)	MMPA	Throughout the northern Atlantic and Pacific Oceans along coastal waters, river mouths, and bays.	Absent. Harbor seals are permanent residents of the San Francisco Bay. No pupping sites or suitable haul-out sites are present on or adjacent to the project site, and this species is not expected to haul out on the shoreline adjacent to the site. Occurs in the Bay adjacent to the project site, but Easton Creek is too small for use by this species, which would not occur on the site itself.

SPECIAL-STATUS SPECIES CODE DESIGNATIONS

FE = Federally listed Endangered

FT = Federally listed Threatened

FC	=	Federal Candidate for listing
SE	=	State listed Endangered
ST	=	State listed Threatened
SC	=	State Candidate for listing
CSSC	=	California Species of Special Concern
SP	=	State Fully Protected Species
MMPA	=	Marine Mammal Protection Act
CEQA	=	Species not currently protected by statute or regulation, but considered rare, threatened, or endangered under Section 15380 of the CEQA Guidelines.

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 reflect the condition of a habitat within natural communities and 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 VegCAMP's 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.

Sensitive Natural Communities. A query of sensitive habitats in the CNDDB (2021) identified five sensitive natural communities as occurring within the twelve 7.5-minute USGS quadrangles containing or surrounding the project site: (1) northern coastal salt marsh (Rank G3/S3.2), (2) northern maritime chaparral (Rank G1/S1.2), (3) serpentine bunchgrass (Rank G2/S2.2), (4) valley needlegrass grassland (Rank G3/S3.1), and (5) valley oak woodland (Rank G3/S2.1). Northern coastal salt marsh is characterized by Holland (1986) as occurring along sheltered inland margins of bays, often co-dominated by pickleweed, cordgrass, and sometimes saltgrass. The tidal salt marsh on the project site, along Easton Creek and in the southern wetland, is dominated by pickleweed, cordgrass, and saltgrass in various areas and therefore represents northern coastal salt marsh. The other sensitive habitats recorded in the region by CNDDB (northern maritime chaparral, serpentine bunchgrass, valley needlegrass grassland, and valley oak woodland) are all absent from the project site.

Sensitive Vegetation Alliances. Much of the northern coastal salt marsh on the project site qualifies as a *Sarcocornia pacifica* (*Salicornia depressa*) (Pickleweed mats) Alliance (CDFW 2021). This alliance is ranked as G4/S3; globally it is "apparently secure", but on a state-wide level it is "vunerable" (S3), and therefore would be considered by CDFW as sensitive natural community.

Sensitive Habitats (Wetlands and Waters of the U.S./State). The delineation of regulated habitats identified waters of the U.S. and waters of the State on and adjacent to the project site (H. T. Harvey & Associates 2021). Easton Creek and San Francisco Bay, narrow areas of tidal wetlands along these features, and the tidal salt marsh in the southern part of the project site are all considered waters of the U.S. Waters of the State on the project site include the same areas that were delineated as waters of the U.S., and waters of the State may additionally extend landward to the tops of the banks along Easton Creek. The ruderal levee slope along the creek's banks may be considered a "buffer" of waters of the State by the RWQCB. The bed and banks of Easton Creek would also be regulated by the CDFW under Section 1602 of the California Fish and Game Code.

Essential Fish Habitat. As discussed in Section 3.1.4, the intertidal and subtidal habitats within and adjacent to the project site are considered EFH by the NMFS. EFH is habitat that is essential to the long-term survival and health of a fishery and includes those habitats that support all life stages and all habitats that support breeding, spawning, feeding, and growth to maturity of a managed species. The San Francisco Bay has been designated EFH for three FMPs within the project vicinity: the Pacific Coast Groundfish, Coastal Pelagic Species, and Pacific Coast Salmon. Of the 89 species federally managed under these plans, the following thirteen are expected to occur in the South-Central Bay (i.e., from the Bay Bridge south to San Mateo Bridge) based on NMFS's evaluation of FMP species distributions in San Francisco, San Pablo, and Suisun Bays (NMFS 2013). These are the northern anchovy and Pacific sardine of the Coastal Pelagic FMP; leopard shark (*Triakis semifasciata*), soupfin shark (*Galeorhinus galeus*), spiny dogfish (*Squalus acanthias*), big skate (*Raja binoculata*), lingcod (*Ophiodon elongatus*), brown rockfish (*Sebastes auriculatus*), English sole (*Parophrys vetulus*), sand sole (*Psettichthys melanostictus*), starry flounder, cabezon (*Scorpaenichthys marmoratus*) of the Pacific Groundfish FMP; and Chinook salmon of the Pacific Coast Salmon FMP.

On the project site, intertidal habitats within Easton Creek up to the elevation of mean higher high water are considered to be EFH, and FMP-managed fish species may occasionally enter Easton Creek to forage during high tide. However, due to the very narrow and shallow nature of the creek and the low quality of fish habitat upstream from the project site, nursery habitat for these species is not present in Easton Creek, and FMP-managed fish are expected to make limited use of the creek.

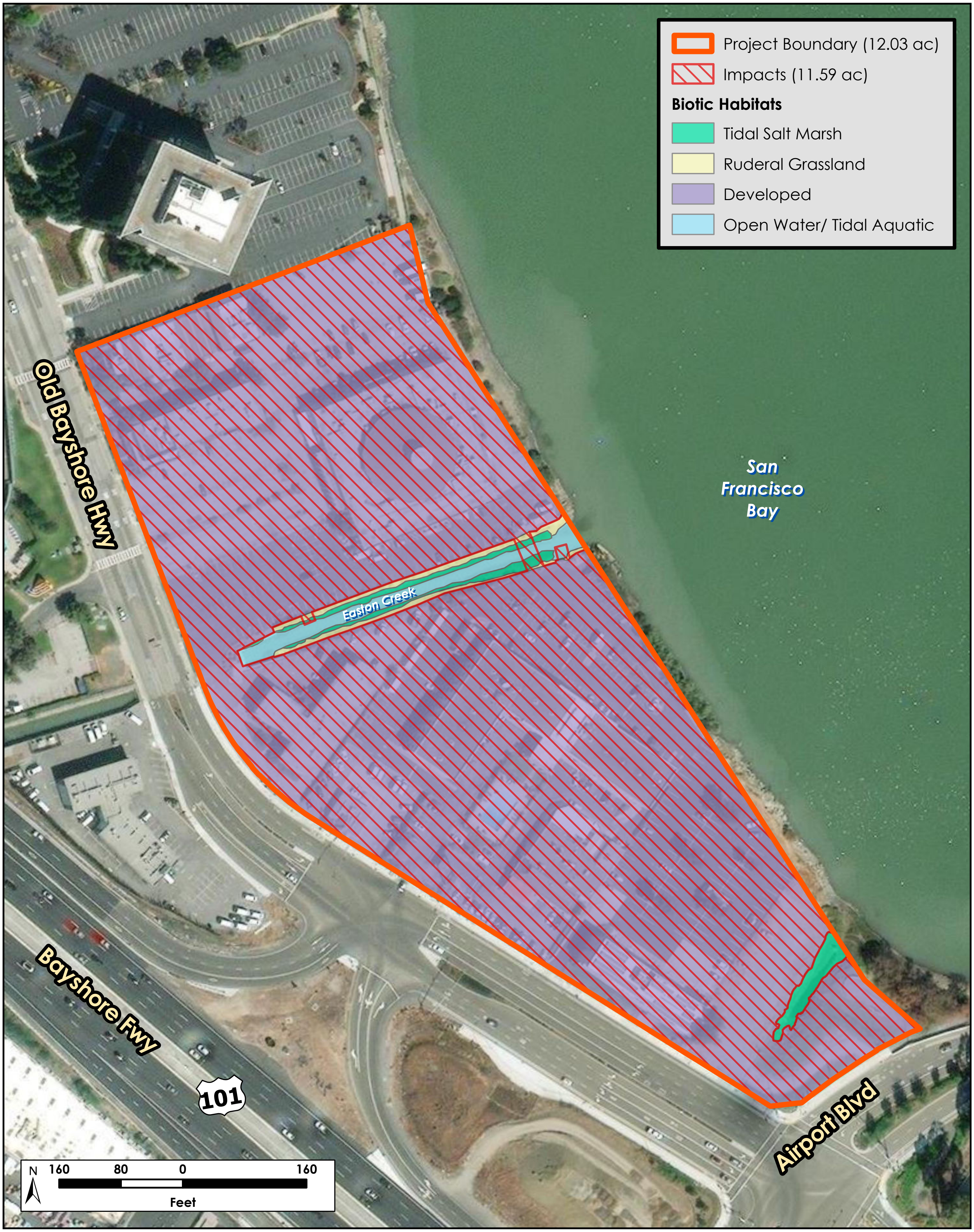
Section 6. Impacts and Mitigation Measures

CEQA and the State CEQA Guidelines provide guidance in evaluating impacts of projects on biological resources and determining which impacts will be significant. The Act defines "significant effect on the environment" as "a substantial adverse change in the physical conditions which exist in the area affected by the proposed project."

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 (Chapter IV) 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"

Potential impacts on biological resources as a result of the proposed project were systematically evaluated at the project level. These impacts were first evaluated to qualitatively describe how proposed project activities could impact biological resources, and whether impacts would be temporary (i.e., occurring only during project construction and the period immediately following) or permanent. Figure 6 depicts the areas that will be impacted by project activities.



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Ecological Consultants

Figure 6. Impacts Map

Burlingame Bayshore California Environmental Quality Act Assistance (4498-02)

July 2022

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 Common Species and Habitats (Less than Significant)

The project will impact virtually all 11.54 acres of developed land uses on the project site in some way, either through conversion to other developed areas or from landscaping. Landscaping will include revegetation with plant species specifically selected to provide wildlife benefits, and the quality of habitat for birds and some other animals (e.g., pollinators such as butterflies and bees) is expected to improve as a result of the project. Nevertheless, individuals of the common plant and animal species that currently inhabit the project site will be impacted through the removal of trees and buildings, construction of new structures and amenities, and landscaping. Those common plant and animal species that occur on the site are regionally abundant and are present in widely available habitats in the region. As a result, the project would impact only a very small proportion of their regional populations. Furthermore, once the project is completed, the site will support higher-quality habitat and many of those species that occupy the site now will occupy the site after construction. Thus, these impacts do not meet the CEQA standard of having a *substantial* adverse effect, and would not be considered significant under CEQA.

6.1.2 Impacts on Congdon's Tarplant (Less than Significant with Mitigation)

Only one special-status plant species, Congdon's tarplant, has the potential to occur on the project site. There is a low probability of its occurrence, due to the distance between the site and the nearest occurrence (more than 10 miles) and the very limited extent of habitat on the site. Nevertheless, because this species has the potential to occur in disturbed habitats, there is potential (albeit low) for it to occur along the edges of the muted tidal wetland in the southern portion of the study area as well as along the banks of Easton Creek.

If Congdon's tarplant is present on the project site, construction activities could potentially result in the mortality of individuals through grading and fill, and operation of construction equipment. Impacts will be very limited in the areas providing potential Congdon's tarplant habitat, but some impacts could still occur. Due to the rarity of this species and the significance of any occurrence so far north along the San Francisco Peninsula, any impact on Congdon's tarplants would be considered significant. Implementation of Mitigation Measures BIO-1, 2, and 3 would reduce project impacts on Congdon's tarplant to less-than-significant levels.

> **Mitigation Measure BIO-1. Preconstruction Survey.** Prior to the initiation of any construction or ground-disturbing activity in undeveloped areas along Easton Creek or in the southern portion of the project site, a qualified biologist will conduct a focused survey during the appropriate bloom season for Congdon's tarplant (June through October, and possibly later if conducted prior to the first heavy rains of the fall). The survey will include all undeveloped areas that are to be impacted by the project,

and that are within 50 feet of proposed project impacts. The survey shall take place no more than 3 years before ground disturbance and should be conducted in a year with near-average or above-average precipitation. Alternatively, these surveys may be conducted in a year of below-average precipitation if the biologist verifies that the species is flowering and detectable at a South Bay reference population despite the below-average rainfall. If no Congdon's tarplants are detected, then Mitigation Measures BIO-2 and BIO-3 would be unnecessary.

Mitigation Measure BIO-2. Congdon's Tarplant Avoidance and Minimization. If Congdon's tarplant is found in the impact area or 50-foot survey buffer, then in consultation with a qualified plant ecologist, the project shall be designed to avoid direct and indirect impacts to the species to the extent feasible. For example, avoidance of impacts might be feasible if the species is found in the southeastern part of the site near the muted tidal salt marsh, where construction will be more limited. If the plant ecologist determines that direct and indirect impacts will be avoided, then Mitigation Measure BIO-3 would be unnecessary.

Mitigation Measure BIO-3. Compensatory Mitigation for Congdon's Tarplant. If Congdon's tarplant is found in the impact area or 50-foot survey buffer and the project cannot avoid impacts, compensatory mitigation will be provided via the management of currently occupied habitat or the establishment of a new population for the species impacted. The mitigation habitat shall be of equal or greater habitat quality compared to the impacted areas, as determined by a qualified plant ecologist, in terms of soil features, extent of disturbance, vegetation structure, and dominant species composition, and shall contain at least as many individuals of the species as are impacted by project activities. Habitat occupied by the affected species will be preserved and managed in perpetuity at a minimum 1:1 mitigation ratio (at least one plant preserved for each plant affected, and at least one occupied acre preserved for each occupied acre affected). Alternately, seed from the population to be impacted may be harvested and used either to expand an existing population (by a similar number/occupied area to compensate for impacts) or establish an entirely new population in suitable habitat. The area to be landscaped around the wetland in the southeastern part of the site could potentially serve as an on-site mitigation area.

A Habitat Mitigation and Management Plan (HMMP) shall be developed by a qualified plant or restoration ecologist and implemented for the mitigation lands. The HMMP shall be approved by the City of Burlingame prior to the start of ground-disturbing activities. The HMMP shall include, at a minimum, all of the following information:

- Summary of habitat impacts and the proposed mitigation;
- Description of the location and boundaries of the mitigation site and description of existing site conditions;

- Description of measures to be undertaken to enhance (e.g., through focused management that may include removal of invasive species in adjacent suitable but currently unoccupied habitat) the mitigation site for Congdon's tarplant;
- Description of measures to transplant individual plants or seeds from the impact area to the mitigation site, if appropriate (which will be determined by a qualified plant or restoration ecologist);
- Proposed management activities to maintain high-quality habitat conditions for Congdon's tarplant;
- Description of habitat and species monitoring measures on the mitigation site, including specific, objective final and performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule, etc. At a minimum, performance criteria shall include demonstration that any Congdon's tarplant population fluctuations over the monitoring period do not indicate a downward trajectory in terms of reduction in numbers and/or occupied area for the preserved mitigation population that can be attributed to management (e.g., that are not the result of local weather patterns, as determined by monitoring of a nearby reference population, or other factors unrelated to management); and
- Annual monitoring should be conducted for a period of 5 years following seeding or the initiation of monitoring (e.g., for a mitigation site where the species is already present) to ensure that the population is healthy.
- Description of the management plan's adaptive component, including potential contingency measures for mitigation elements that do not meet performance criteria.

6.1.3 Impacts on Special-Status Fish, Designated Critical Habitat, and Essential Fish Habitat (Less than Significant with Mitigation)

The only project activities that will occur within aquatic habitats consist of the replacement of the existing stormwater outfalls. That activity will require some excavation of existing material from the banks of Easton Creek, removal of the existing outfall pipes, and installation of new materials and any necessary erosion protection. Outfall replacement will result in impacts (mostly permanent) to approximately 0.001 acre of tidal salt marsh and 0.006 acre of open water/tidal aquatic habitat.

As described previously, Easton Creek does not provide important or high-quality habitat for fish, and there is a very low probability that special-status fish would occur within the instream work areas when outfall replacement is occurring. Nevertheless, special-status fish could occur in the on-site reach of the creek during high tide. Outfall replacement has the potential to result in fish stranding if fish are trapped in excavated areas or within coffer dams around work areas; reduction in water quality in the creek and Bay waters at the mouth of the creek due to mobilization of sediments or contaminants (e.g., leaks from construction equipment) during construction; and loss of a very limited area of fish habitat. Thus, EFH and designated critical habitat for Central

California Coast steelhead and southern green sturgeon will be impacted, and there is some potential (albeit very low) for individual special-status fish to be impacted.

Benthic macroinvertebrates and other marine organisms that are prey for fish might be killed or their abundance reduced when the outfall replacement work areas are dewatered. However, the effect on prey species resulting from dewatering would be temporary because construction activities would be short-lived, and the area to be dewatered is very limited relative to amount of available prey in the surrounding bay waters. Thus, the loss of aquatic prey species because of dewatering and in-water work activities is not expected to adversely affect special-status fish. Further, these prey species are expected to recolonize impact areas once the project is complete.

Although critical habitat and EFH that would be impacted by outfall replacement represents a minute fraction of available habitat in the Bay, this impact on special-status fish, critical habitat, and EFH would be significant, in the absence of mitigation, due to the importance of critical habitat to steelhead and green sturgeon, and EFH to the ecology of the San Francisco Bay. Implementation of Mitigation Measures BIO-4, BIO-5, BIO-6, and BIO-7 would minimize any adverse effects on fish and their habitats.

Installation of sheet piles for the sea wall along both sides of Easton Creek and the bay shoreline of the project site will not result in significant impacts on fish. Sheet piles will be driven entirely outside of aquatic habitats, so sound pressure levels will not be high enough as to cause injury or mortality of fish. Additionally, it is expected that these sheet piles will be driven using a vibratory hammer, which will further reduce sound levels produced by pile driving.

Mitigation Measure BIO-4. Worker Environmental Awareness Training. Personnel involved in outfall replacement and bridge construction over Easton Creek shall be trained by a qualified biologist (experienced in construction monitoring, as approved by the City/Agency) in the importance of the marine environment to special-status fish and other aquatic animals and plants, and the environmental protection measures put in place to prevent impacts to these species, their habitats, and EFH. The training shall include, at a minimum, the following:

- A review of the special-status fish, other aquatic animals and plants, and sensitive habitats that could be found in or downstream from work areas
- Measures to avoid and minimize adverse effects to special-status fish, other aquatic animals and plants, their habitats, and EFH
- A review of all conditions and requirements of environmental permits, reports, and plans (e.g., USACE permits)

Mitigation Measure BIO-5. Erosion and Sedimentation Control. During construction, the project shall employ standard construction best management practices (BMPs) to treat and minimize runoff.

Construction BMPs shall be reviewed and coordinated with the RWQCB, as necessary, for implementation during work and may include but are not limited to the following:

- All work for outfall replacement will occur in dewatered work areas.
- Prior to re-watering the outfall replacement areas, any concrete installed shall be allowed to fully dry and cure to maintain water quality.
- Sediment mitigation measures shall be in place prior to the onset of project construction and shall be monitored and maintained until construction activities have been completed. Temporary stockpiling of excavated or imported material shall occur only in approved construction staging areas. Stockpiles that are to remain on the site throughout the wet season shall be protected to prevent erosion.
- No litter, debris, or sediment shall be dumped into storm drains. Daily trash and debris removal shall occur at the site.
- All litter and construction debris shall be disposed of off-site in accordance with state and local regulations. All trash and debris within the work area shall be placed in containers with secure lids before the end of work each day in order to reduce the likelihood of predators being attracted to the site by discarded food wrappers and other rubbish that may be left on-site. If containers meeting these criteria are not available, all rubbish shall be removed from the project site at the end of each work day.
- Equipment staging and parking of vehicles shall occur on established access roads and flat surfaces.
- The integrity and effectiveness of construction fencing and erosion control measures shall be inspected on a daily basis. Corrective actions and repairs shall be carried out immediately for fence breaches and ineffective BMPs.
- Fueling, washing, and maintenance of vehicles shall occur in developed habitat, away from San Francisco Bay, Easton Creek, and the wetland in the southern part of the site. Equipment shall be regularly maintained to avoid fluid leaks. Any leaks shall be captured in containers until equipment is moved to a repair location. Hazardous materials shall be stored only within the developed habitat. Containment and cleanup plans shall be prepared and put in place for immediate cleanup of fluid or hazardous materials spills.
- Absorbent materials designated for spill containment and clean-up activities shall be available on site for use in an accidental spill.
- At no time shall sediment-laden water be allowed to enter San Francisco Bay, Easton Creek, or the wetland in the southern part of the site.

Mitigation Measure BIO-6. Seasonal Restrictions. In-water work for outfall replacement shall be conducted between June 1 through November 30, based on the standard work windows for steelhead and Pacific herring. If completion of in-water work within this period is not feasible due to scheduling issues, new timing guidelines shall be established and approved by NMFS and CDFW prior to initiation of in-water work.

Mitigation Measure BIO-7. Fish Exclusion at Dewatering Sites. Prior to outfall replacement cofferdams will be installed to dewater the work areas. Cofferdams would be constructed with materials to effectively dewater the work area (e.g., inflatable rubber dams, sheet piles, or other materials). If inflatable rubber cofferdams are used, they would be installed at low tide when the work area is fully drained. If sheet pile cofferdams or other materials are used, the two sidewalls of the cofferdam would be placed first, followed by the final wall of the cofferdam on the downslope side (closest to the Easton Creek centerline). The final wall would be placed at low tide to minimize the amount and depth of water present within the cofferdam. Just before the final wall is installed, if water is present within the coffer dam, qualified biologists would use nets (with a maximum mesh size of 9.5 millimeters) to exclude fish from the construction area. At low tide, qualified biologists would walk from the upper edge of the work area to the lower edge of the work area with a seine stretched across any wetted portion of the work area to encourage fish to move out of the construction area (without actually catching the fish) through the gap where the final wall would be installed. When the lower end of the construction area is reached, a block net would be installed in that gap to prevent fish from moving back into the cofferdam. This procedure would be repeated until no fish remain in the dewatered area. The final sheet pile would then be installed. Upon completion of in-water work activities, coffer dams shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

6.1.4 Impacts on Nonbreeding Special-Status Birds (Less than Significant)

Several special-status bird species may occur within the project footprint as nonbreeding migrants, transients, or foragers, but they are not known or expected to breed or occur in large numbers within or near the project impact area. These are the California Ridgway's rail, California least tern, tricolored blackbird, Vaux's swift, olive-sided flycatcher, San Francisco common yellowthroat, yellow warbler, Alameda song sparrow, Bryant's savannah sparrow, American peregrine falcon, and California brown pelican.

The California least tern (a federal and state endangered, and fully protected species) primarily nests in Alameda County, and no suitable nesting habitat is present on or near the site. The California brown pelican (a fully protected species) does not breed in the San Francisco Bay area but occurs in the Bay during the fall and winter months. Both species may forage over the open waters adjacent to the project site.

The California Ridgway's rail is unlikely to occur on the project site due to the absence of suitable habitat; if it occurs at all, it would do so as a very infrequent dispersant that would not breed, and is unlikely even to forage, on the project site due to the absence of suitable foraging habitat and cover. The tricolored blackbird (a state threatened species) is not expected to occur on the project site as a breeder due to the absence of suitable breeding habitat, but individuals may occur occasionally as foragers during the non-breeding season. The Vaux's swift and olive-sided flycatcher (both California species of special concern), breed in forested habitats, which are not present on the project site. However, they may occur as migrants. Other avian California species of special concern, including the San Francisco common yellowthroat, Alameda song sparrow, Bryant's savannah sparrow, and yellow warbler, breed in or near wetland or riparian habitats; no suitable breeding habitat for these species is present on the site, but these species may occur on the project site as nonbreeding visitors. The American peregrine falcon nests on tall ledges cliffs or analogous man-made habitats that are absent from the project site, but this species may occasionally occur on the site as a nonbreeding visitor.

Project activities would result in some loss or disturbance of foraging habitats and could disturb foraging or roosting individuals of these species. Construction activities might result in a temporary direct impact through the alteration of foraging patterns (e.g., avoidance of work sites because of increased noise and activity levels during project construction) but would not result in the loss of individuals, as individuals of these species would be able to move away from any construction areas or equipment before they could be injured or killed. Further, the project site does not provide important foraging habitat used regularly or by large numbers of individuals of any of these species. As a result, the project will have very little impact on these species' regionally available foraging habitat and no substantive impact on regional populations of these species. Rather, the project may improve habitat for some of these species through restoration of more natural habitat, and it is possible that the Alameda song sparrow and San Francisco common yellowthroat could even breed on the project site after the project's landscaping is installed. For all these reasons, impacts of the project on nonbreeding special-status invertebrates, birds, and mammals would be less than significant.

6.1.5 Impacts on the Monarch Butterfly (Less than Significant)

Monarch butterflies are not known to form roost aggregations along the San Francisco Bay shoreline in San Mateo County, and there is no expectation that such roosts will form in the future on or near the project site. Further, this species is not expected to breed on the project site due to the absence of milkweed, its larval host plant. Rather, monarch butterflies are expected to occur on the site only as occasional visitors during migration. Project construction and operation are not expected to result in injury or mortality of monarchs, or the loss of any important foraging habitat for migrant individuals. Therefore, impacts on this species will be less than significant.

6.1.6 Impacts on Nonbreeding Special-Status Mammals (Less than Significant)

The western red bat (a California species of special concern) usually roosts in the foliage of trees (Pierson et al. 2006). Day and night roosts are often located along the edges of riparian areas, near streams, grasslands, and even urban areas. During the breeding season, western red bats establish individual tree roosts and occasionally small maternity colonies in riparian habitats (Zeiner et al. 1990). Western red bats do not breed in San Mateo County, but may occasionally be present on the project site as a migrant or winter resident. Unlike most birds, bats experience daily bouts of torpor to save energy during seasonally cool periods. As a result, torpid bats cannot immediately fly away when disturbed, and typically require upwards of 40 minutes to arouse and flee. Therefore, there is some potential for tree removal to injure or kill individual red bats. Although little is known about the habitat use of western red bats during the nonbreeding season (Pierson et al. 2006), western red bats are uncommon, and no more than one or two individuals could be impacted by the project.

The pallid bat is a crevice-roosting bat, and there is some potential that dispersing individuals could roost in crevices in trees or in buildings on the project site. Removal of trees or demolition of existing buildings could result in injury or mortality of individual pallid bats if any area present at the time. However, due to the intensity of urban development in the project area, there is no expectation that a maternity colony or large roost of pallid bats would occur on the site. Therefore, the number of individuals that could be impacted is very low, if any are impacted at all.

Because of the low probability of such impacts, and because such limited impacts on the western red bat and pallid bat would affect only a very small proportion of regional populations of these species, project impacts would not rise to the CEQA standard of having a *substantial* adverse effect and would therefore be less than significant.

Harbor seals and California sea lions would not occur on the project site itself, but they may occur occasionally (and in low numbers) in the Bay immediately adjacent to the site. Individuals could be disturbed by construction activity on the project site, potentially causing them to move farther from the project site. However, due to the human activity along the shoreline and noise from such human activity and aircraft at the nearby San Francisco International Airport, any seals or sea lions occurring in the bay near the project site are sufficiently habituated to noise and human activity that there is a low probability of any adverse effect, and no injury or mortality of seals or sea lions would result from the project. Installation of sheet piles for the sea wall along both sides of Easton Creek and the bay shoreline of the project site will not result in significant impacts on marine mammals. Sheet piles will be driven entirely outside of aquatic habitats, so sound pressure levels will not be high enough as to cause injury or mortality of marine mammals. Additionally, it is expected that these sheet piles will be driven using a vibratory hammer, which will further reduce sound levels produced by pile driving. Thus, project impacts on these species would be less than significant.

6.1.7 Impacts on Animals due to Increased 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.

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.

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.

The project will result in the construction of buildings and other features (e.g., pedestrian walkways and open space areas) that will necessitate lighting within and around the project footprint. Lighting from the project would be the result of light fixtures illuminating buildings, building architectural lighting, and parking lot and pedestrian lighting. Depending on the location, direction, and intensity of exterior lighting, this lighting can potentially spill into adjacent natural areas such as Easton Creek or San Francisco Bay. Much of the project site is currently lit at night, so it is unknown whether the project will result in an increase in lighting relative to existing conditions. Further, the project intends to minimize light spillage offsite as described in Section 1.1.6.

However, no detailed information regarding the project's proposed lighting design was available for review as part of this assessment. If lighting of Easton Creek and San Francisco Bay were to increase, animals using these areas may be subject to increased predation, decreased habitat availability (for species that show aversions to increased lighting), and alterations of physiological processes if development under the proposed project produces appreciably greater illuminance than the existing conditions. This impact on local wildlife populations is potentially significant under CEQA due to the high ecological value of the adjacent portion of San Francisco Bay (and to a lesser extent, Easton Creek). In addition, lighting from the project also 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 (bird collision impacts are described further in Section 6.4.2). Mitigation Measure BIO-8 would reduce impacts of lighting on animals to a less-than-significant level.

Mitigation Measure BIO-8. Lighting Impact Reduction Measures. The following measures will be implemented to reduce spillover of lighting into, or glare/increased luminance perceived by animals using, Easton Creek and San Francisco Bay, as well as adverse effects of lighting on migratory birds.

- Through a combination of proper fixture selection, low mounting height, glare shielding, and orientation/aiming of light fixtures, the design team shall actively control undesirable spill light towards sensitive habitat areas. All exterior lighting shall be fully shielded to block illumination from shining outward towards Easton Creek and San Francisco Bay, and to prevent the lit portions of these fixtures (i.e., the lamps) from being visible to fish, birds, or mammals in the water or mudflats in these adjacent areas. Limited uplighting may apply to select building facade areas and landscape features that are at least 50 feet from the high tide line along the Bay and at least 35 feet from the high tide line along Easton Creek. These uplight fixtures shall incorporate glare shields and strategic aiming to control undesirable spill light; shall incorporate timeclock control to turn off uplighting from 10pm until the next evening; and shall use 40-Watt maximum lamps to minimize light output.

  The project shall demonstrate, initially via computer calculations and via field measurements following project construction, that the increase in illumination from all exterior site and façade lighting shall not exceed 0.1 footcandles (fc) as measured on the surface of the water of the Bay and Easton Creek.

- Except as indicated in the previous bullet (and the exceptions for public streets below), 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 project site is 2.5 lumens per square foot of hardscape, and the BUG rating for individual fixtures shall not exceed B3 or 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)
  - G2: 225 lumens (forward/back light 80–90 degrees), 5,000 lumens (forward 60–80 degrees), 1,000 lumens (back light 60–80 degrees asymmetrical fixtures), 5,000 lumens (back light 60–80 degrees quadrilateral symmetrical fixtures)

Lighting for public streets, roadways, highways, and traffic signage lighting, including lighting for driveway entrances occurring in the public right-of-way, shall be excluded from these BUG rating limitations to support public safety and proper illumination of public streets.

- Exterior lighting shall be minimized in accordance with recommendations from the International Dark-Sky Association (2011) from midnight until dawn, at a minimum, except as needed for safety and City code compliance.

- Spillage of lighting from building interiors shall be minimized using occupancy sensors, dimmers, or other mechanisms from midnight until dawn, at a minimum, during bird migration seasons (February–May and August–November). If desired, this measure may be voluntarily implemented year-round.

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 CDFW or USFWS (Less than Significant with Mitigation)

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

The CDFW defines sensitive natural communities and vegetation alliances using NatureServe's standard heritage program methodology (CDFW 2021), as described above in Section 5.3. 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 (see Section 6.3 below). Project impacts on sensitive natural communities, vegetation alliances/associations, or any such community identified in local or regional plans, policies, and regulations, were considered and evaluated.

The project will have direct and indirect impacts on tidal salt marsh (considered a sensitive natural community as "northern coastal salt marsh"), open water/tidal aquatic habitat, and ruderal levee slope habitat along Easton Creek. The only project activities that will occur within aquatic and wetland habitats consist of the replacement of the existing stormwater outfalls. That activity will require some excavation of existing material from the banks of Easton Creek, removal of the existing outfall pipes, and installation of new materials and any necessary erosion protection. Outfall replacement will result in impacts (mostly permanent) to approximately 0.001 acre of tidal salt marsh and 0.006 acre of open water/tidal aquatic habitat.

A pedestrian bridge will be constructed over Easton Creek. The bridge will avoid direct impacts to tidal salt marsh, open water/tidal aquatic habitat, and ruderal levee slopes along the banks of Easton Creek. The abutments will be entirely above the top of bank along Easton Creek, and construction will occur in non-sensitive areas outside of these wetland/aquatic habitats. As a result, no direct impacts, permanent or temporary, to sensitive habitats will result from construction of the bridge. However, this feature is expected to shade habitat below them, including 0.010 acre of tidal salt marsh, 0.007 acre of open water/aquatic habitat, and 0.005 acre of ruderal levee slope. The effects of this shading will depend on the height of the bridge and the materials used to construct the bridge; for example, bridge decking that allows light penetration would reduce the effects of shading on vegetation below. Nevertheless, it is possible that vegetation in 0.010 acre of tidal salt marsh and 0.005 acre of ruderal levee slope could be lost due to shading (shading of 0.007 acre of open water is not expected to result in a substantial adverse effect on vegetation or other biological resources).

Shading from buildings constructed on either side of Easton Creek, and north of the wetland in the southern part of the site, could also have some effect on vegetation in wetlands. The buildings on either side of Easton Creek are proposed to be approximately 213 feet in height above proposed grade. Although the lower 1-2 floors may be as close as approximately 50 feet from the top of the creek's banks, the taller portions are expected to be approximately 60 feet or more from the banks. Being situated on the northwest and southeast sides of the creek, these buildings will cast a shadow over the creek at times. However, the setbacks between the buildings and the creek, and the eastern and western exposure of the creek to the sun (without shading from buildings), are expected to minimize any adverse effects of shading from buildings on wetlands or other sensitive habitats along Easton Creek.

The building that would be constructed on the north side of the wetland in the southern part of the site would provide some shading of the wetland during the summer when the sun is more northerly in the sky. However, the wetland would be open to the sky to the east, south, and west, and is expected to receive enough light that shading from the buildings would not result in substantial adverse effects on wetland vegetation.

In addition, construction could result in impacts on water quality, which would degrade these sensitive habitats, as described in Section 6.1.3. Implementation of Mitigation Measures BIO-4 and BIO-5 would reduce such water-quality impacts to less-than-significant levels. In addition, 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.

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.

The project will result in very limited impacts to sensitive habitats, including the direct loss of 0.001 acre of tidal salt marsh and 0.006 acre of open water/tidal aquatic habitat from outfall construction and indirect impacts from bridge shading on 0.010 acre of tidal salt marsh, 0.007 acre of open water/aquatic habitat, and 0.005 acre of ruderal levee slope. None of the habitats to be impacted represents exemplary or high-quality wetland or aquatic habitat, and the shading of 0.007 acre of open water/aquatic habitat and 0.005 acre of ruderal levee slope will not result in a significant impact due to the minimal adverse effects of shading on aquatic habitat and the low habitat value/quality of the ruderal levee slope habitat. Nevertheless, direct and indirect impacts on tidal salt marsh, and direct impacts on open water/aquatic habitats, are considered significant (in the absence of mitigation) due to the loss of such sensitive habitats that has occurred regionally and the proportionately high ecological value of wetland and aquatic habitats. Implementation of Mitigation Measures BIO-9 and BIO-10 would reduce project impacts on sensitive habitats to a less-than-significant level.

Mitigation Measure BIO-9. In-Situ Restoration of Temporary Impacts. Although much of the impact on tidal salt marsh and open water/tidal aquatic habitat in Easton Creek resulting from outfall replacement will be permanent, some of the impacts may be temporary, occurring only during removal of the existing outfalls and installation of new ones. All temporarily impacted areas (i.e., areas where new hardened material will not be placed) will be restored by the Project Sponsor following construction by restoring topography and soils. 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.

Mitigation Measure BIO-10. Compensatory Mitigation for Permanent Impacts. Compensatory mitigation will be provided for permanent loss of tidal salt marsh and open water/tidal aquatic habitat resulting from direct fill from outfall replacement, and for potential loss of tidal salt marsh from shading from bridges. The Project Sponsor will provide new wetland or aquatic habitat of the same type that was impacted to offset this impact, either through the creation 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 at a 1:1 ratio, on an acreage basis, 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.

If 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 for tidal salt marsh will be dominated by native hydrophytic vegetation.

The Wetland Mitigation and Monitoring Plan must be approved by the City of Burlingame prior to the wetland impacts, and implementation of the Plan must begin within one year after the discharge of fill into or construction of a bridge over tidal salt marsh or open water/tidal aquatic habitat.

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 (Less than Significant with Mitigation)

Wetlands and other waters of the U.S./State will be impacted directly by outfall replacement and indirectly by shading from bridges, as described in Section 6.2. Specifically, replacement of the two outfalls along Easton Creek will result in placement of fill in approximately 0.001 acre of tidal salt marsh and 0.006 acre of open water/tidal aquatic habitat, both of which are considered waters of the U.S. and State. Construction of the pedestrian bridge over Easton Creek will not result in fill, but could potentially result in the loss or degradation due to shade of 0.010 acre of tidal salt marsh that constitutes waters of the U.S. and State, as well as 0.005 acre of ruderal levee slope that the RWQCB may regulate as waters of the State.

These impacts are as described in Section 6.2, and implementation of Mitigation Measures BIO-9 and BIO-10 would reduce project impacts on state and federally protected wetlands and other waters 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 with Mitigation)

6.4.1 Impacts on Terrestrial Wildlife Movement (Less than Significant)

As discussed in Section 4.3, the project site does not provide well-defined movement pathways for animals within or through the project site due to the density of development in the project region and the lack of continuous, well-vegetated pathways through the nearby urban areas. Wildlife species may move through the area using cover and refugia as they find them available, and mammals and reptiles may move along the bayshore. However, connectivity along Easton Creek is interrupted by Old Bayshore Highway, U.S. 101, and other roads and culverted areas. The project footprint is not a particularly important area for movement by non-flying wildlife, and it does not contain any high-quality corridors allowing dispersal of such animals. The sea walls to be constructed along Easton Creek and the bay shoreline are not proposed to extend high above the surrounding lands, but rather will be embedded (and largely buried) within project landscaping. For all these reasons, the project will not result in a significant impact on terrestrial animal movement corridors. Rather, the planting of more extensive landscaping than is currently present on the site, with a specific emphasis on plant palettes and planting configurations that are useful to native animals, is expected to improve conditions for dispersing wildlife by providing better cover and higher-quality resources (such as food and resting sites) than currently exists.

6.4.2 Impacts due to Bird Collisions with Buildings (Less than Significant with Mitigation)

Development of the project would result in the construction of new buildings that are taller, and occupy more of the project site, than existing buildings. Construction of the new buildings may increase the risk of avian mortality due to collisions. 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. These risks are highest for buildings in or near areas of high avian activity or movement, such as migratory corridors, large open spaces, large water bodies, and riparian habitats. Bird collision risk can be exacerbated by artificial lighting, as described in Section 6.1.7 above.

The project site is located along the Pacific Flyway and is within 2.5 miles of Coyote Point Recreation Area, which supports large numbers of resident and migratory bird species (Cornell Lab of Ornithology 2021). Currently, avian abundance and diversity is relatively low on the project site, despite the site's proximity to Coyote Point, due to the low-quality habitat that currently exists on the site and the surrounding development. However, due to the site's position along the edge of San Francisco Bay, moderate numbers of birds move through or past the site, and once the project is completed, it is anticipated that avian abundance on the site will increase as a result of landscaping specifically intended to improve habitat for native birds. Though many of the species associated with the bay's aquatic and shoreline habitats are not expected to use the upland habitats on the project site, many resident and migratory species will move between the project site and nearby habitats or will fly through the site. Thus, following construction of the project, birds using on-site habitats or flying through the area (from any direction) have some potential to collide with the new buildings.

The zoning code for the City of Burlingame references bird-safe design requirements within the design guidelines of the Bay Front Commercial (BFC) zoning district in which the 1200-1340 Old Bayshore Highway Project is located. Section 25.12.060 (Design Principles for Bayfront Commercial Zoning District) includes the following:

> Bird Friendly Design. All development shall incorporate bird-friendly design that minimizes potential adverse impacts to native and migratory birds, such as fritted or patterned glass, projecting architectural features, lighting design, and screening with trees.

As described in Section 1.1.3, the project team is working with bird-safe design experts to incorporate bird-safe measures into the design in accordance with the City's zoning code. However, because the details of the facades (e.g., with respect to locations of glass and bird-safe glazing features) and lighting are still being determined, there is some potential for avian collisions to be occur frequently enough to result in a significant impact under CEQA, in the absence of mitigation measures. Therefore, Mitigation Measure BIO-8 for lighting impacts, and

Mitigation Measure BIO-11 for bird-safe design, will be implemented to reduce avian collision impacts to less-than-significant levels.

Mitigation Measure BIO-11. Implement Bird-Safe Building Design. Due to the potential for glazed facades on new buildings constructed by the project, the project shall implement the following bird-safe building design measures.

- Minimize continuously glazed zones on facades. Break up areas of glazing on facades by non-glazed, articulated features such as louvers, mullions, muntins, fins, solar shades, opaque panels, or other patterning so that the facades of buildings do not overall appear like smooth glazed surfaces. Where feasible, break up glass surfaces into panels less than 24 square feet in extent.
- Avoid the use of highly reflective glass that will reflect the sky, water, or vegetation. Reflectance between 10 and 20 percent is preferable. Glass that is treated to be "bird-friendly", as described below, shall have a reflectance value no more than 15 percent so that frit or other glazing treatment is readily visible to birds, unless the glazing treatment is on the outside surface and a qualified biologist examines a sample of the glass and confirms that the bird-safe treatment is sufficiently visible.
- Bird-friendly glazing includes, but is not limited to, opaque glass, fritting, netting, permanent stencils, frosted glass, exterior screens, physical grids placed on the exterior of glazing, or ultraviolet patterns visible to birds. Elements of the bird-safe glazing patterns should be at least 0.25 inch wide at a maximum spacing of 2 inches horizontally and 2 inches vertically, or should be certified by the American Bird Conservancy to have a "threat factor" of no more than 20 for the measure below addressing the primary bird collision zone and no more than 15 for the measure below addressing feature-related hazards.
- Within the primary bird collision zone (0-60 feet above the ground), no more than 10% of façade surface area shall have non-bird-friendly glazing.
- Avoid or minimize areas where birds will perceive a clear flight path through a solid surface, such as transparent free-standing glass walls, skyways, railings, or building corners. Any such "feature-related hazards" will be 100% treated with bird-friendly glazing.
- Avoid having vegetation inside buildings near glass (e.g., in areas where birds will try to access the vegetation).
- Proposed landscaping should be designed so that birds using such landscaping are not funneled into areas where they are surrounded by glazing. Minimizing vegetation near extensively glazed facades (e.g., having less extensive vegetation, and restricting vegetation to low-growing grasses, forbs, or scattered shrubs as opposed to more extensive shrubs and trees) would be ideal. Vegetation near heavily glazed facades should not include plant species that provide high-quality foraging habitat, such as plants that provide fruits that are frequently eaten by birds.

6.4.3 Impacts on Nesting Birds (Less than Significant)

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 paucity of sensitive habitats on 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, birds are expected to nest and forage on the project site in greater abundance after project construction is completed due to the proposed landscaping. Therefore, project impacts on nesting 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. Nevertheless, all native bird species are protected from direct take by federal and state statutes (see Sections 3.1.5 and 3.2.4). Therefore, Improvement Measures BIO-A, B, C, and D shall be implemented to ensure that project activities comply with the MBTA and California Fish and Game Code.

Improvement Measure BIO-A. Seasonal Avoidance. To the extent feasible, tree removal, demolition, and the start of construction activities should be scheduled to avoid the nesting season. If such activities 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.

Improvement Measure BIO-B. 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 biologist to ensure that no nests of migratory birds will be disturbed during project implementation. These surveys shall be conducted no more than 7 days prior to the initiation of tree removal, demolition, ground disturbance, or construction activities for each construction phase. During this survey, the biologist will inspect all trees and other potential nesting habitats (e.g., trees, shrubs, buildings, and the ground) in and immediately adjacent to the impact areas for migratory bird nests.

Improvement Measure BIO-C. Buffers. If an active nest is found within areas that would be disturbed by project 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.

Improvement Measure BIO-D. 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.

6.4.4 Impacts on Roosting Bats (Less than Significant with Mitigation)

Common bat species, such as the Mexican free-tailed bat and Yuma myotis, could potentially roost in crevices within trees on the site, and possibly in buildings that are to be demolished. Demolition of these structures would result in the direct physical disturbance of any roosting bats that may be present as well as the loss of roosting sites. In addition, demolition of structures during the bat maternity season (approximately March 15 to August 31) could result in the injury or mortality of young and lactating females within a roost site. Impacts on a large day roost (i.e., 100 or more bats) of common species of bats would be considered a significant impact under CEQA, as this could have a substantial effect on regional populations of the species. Implementation of Mitigation Measures BIO-12, 13, and 14 would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-12. Conduct Pre-Activity Surveys for Roosting Bats. A pre-activity survey for roosting bats shall be conducted by a qualified biologist within 14 days prior to removal of any tree or demolition of any structure that could support roosting bats, for each construction phase. If no active roosts are found, then no further measures are warranted. If a roost is present, a qualified bat biologist shall determine the species and number of individuals present.

Mitigation Measure BIO-13. Avoid Disturbance of Maternity Roosts. If an active maternity roost is present within a tree to be removed or a building to be demolished, disturbance shall not take place during the maternity season (as determined by the qualified biologist, but approximately April 15 to August 31), and an appropriate disturbance-free buffer zone (also determined by the qualified biologist) shall be observed during this period to avoid disturbing the roosting bats.

Mitigation Measure BIO-14. Exclude Bats Prior to Disturbance. If disturbance of an active non-breeding roost cannot be avoided, the individuals shall be safely evicted outside the bat maternity season (approximately April 15 – August 31) and the winter torpor period (approximately October 15 – February 28). Bats may be evicted through exclusion, as directed by a qualified biologist, after notifying the CDFW. The qualified biologist must be present for removal of trees or structures occupied by bats.

- For eviction from roost trees, trimming or removal of trees shall follow a two-step removal process whereby limbs and branches not containing roost habitat are removed on day 1 to disturb the roost, and then the entire tree is removed on day 2.
- Disturbance of or removal of structures containing or suspected to contain active (non-maternity or hibernation) or potentially active common bat roosts shall be done in the evening and after bats have emerged from the roost to forage. Structures shall be partially dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost. Removal will be completed the subsequent day. Alternatively, exclusion methods may include the installation of one-way doors and/or use of ultrasonic deterrence devices. One-way doors and/or deterrence devices should be left in place for a minimum of two weeks with a minimum of five fair-weather nights with no rainfall and temperatures no colder than 50°F.

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 Due to the Removal of Ordinance-Sized Trees (Less than Significant)

The proposed project will remove trees on the project site, likely including trees that meet the definition of "protected" trees by City of Burlingame. Per the City of Burlingame Tree Ordinance, permits from the City's planning and building department and payment of a fee are required for the removal of any trees which meet the definition of "protected" tree, as defined in Section 3.3 above. The removal of trees protected by the City of Burlingame's tree ordinance, in the absence of compliance with the City's Municipal Code, would be considered potentially significant under CEQA. In accordance with the provisions of the City of Burlingame tree protection ordinance, the project will comply with standard City of Burlingame tree removal permit conditions and replace trees that are removed in accordance with these tree removal policies. Such compliance will reduce any potential impacts due to conflicts with the City's tree preservation ordinance to less-than-significant levels under CEQA.

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 (Less Than Significant)

The San Bruno Mountain Habitat Conservation Plan is the only Habitat Conservation Plan that has been approved in San Mateo County, but this plan does not cover the project site or the surrounding vicinity. No Natural Community Conservation Plans have been approved or are in preparation in San Mateo County. Therefore, the proposed project would not conflict with any adopted Habitat Conservation Plans or Natural Community Conservation Plans, or with any other approved local, regional, or state habitat conservation plans.

6.7 Cumulative Impacts

Cumulative impacts arise due to the linking of impacts from past, current, and reasonably foreseeable future projects in the region. The cumulative impact on biological resources resulting from the project in combination with other projects in the project vicinity 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.

Future development activities in this part of Burlingame may result in impacts on the same habitat types and species that will be affected by the project. Implementation of the 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 fish and EFH, federally or state protected wetlands and waters, habitat for nonbreeding special-status species, migratory birds, and roosting bats. Other projects within the vicinity that may affect similar habitats and species include the proposed office/r&d projects at 620 and 777 Airport Boulevard, 1669/1699 Old Bayshore Highway, and 810/821 Malcolm Road; the Park at 410 Airport Boulevard project; the Burlingame Point Project; an office/life science campus located at 300 Airport Boulevard immediately adjacent to the project site; the 567 Airport Blvd. Project; a new, eight-story office/research and development building and parking garage located adjacent to the project site at 567 Airport Boulevard; and the Topgolf - 250 Anza Boulevard Project. These projects will all comply with conditions of their City approvals (e.g., CEQA mitigation measures) as well as the conditions of any applicable regulatory agency permits, to avoid, minimize, and mitigate impacts on these resources, thus reducing cumulative impacts.

The 1200-1340 Old Bayshore Highway Project would implement mitigation measures to reduce impacts on common and special-status species, sensitive habitats, migratory birds, and roosting bats, as described above. Thus, the project will not have a cumulatively considerable contribution to cumulative impacts on biological resources.

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Appendix A. Plant Species Observed on the Project Site

Family	Scientific Name	Common Name	WIC[1]
Aizoaceae	*Carpobrotus chilensis*	Sea fig	FACU
Amaranthaceae	*Salicornia pacifica*	Pickleweed	OBL
Amaranthaceae	*Salsola soda*	Alkali Russian thistle	FACW
Anacardiaceae	*Pistacia chinensis*	Chinese pistache	UPL
Anacardiaceae	*Schinus molle*	Peruvian pepper tree	FACU
Anacardiaceae	*Schinus Terebinthifolius*	Brazilian pepper tree	FAC
Apiaceae	*Foeniculum vulgare*	Fennel	UPL
Araliaceae	*Hedera helix*	English ivy	UPL
Arecaceae	*Phoenix canariensis*	Canary Island date palm	UPL
Arecaceae	*Washingtonia robusta*	Mexican fan palm	UPL
Asphodelaceae	*Hemerocallis sp.*	Daylilly	UPL
Asphodelaceae	*Phormium tenax*	New Zealand Flax	UPL
Asteraceae	*Achillea millefolium*	Common yarrow	FACU
Asteraceae	*Artemisia californica*	California sage	UPL
Asteraceae	*Baccharis pilularis*	Coyote brush	UPL
Asteraceae	*Carduus pycnocephalus*	Italian thistle	UPL
Asteraceae	*Dittrichia graveolens*	Stinkwort	UPL
Asteraceae	*Erigeron bonariensis*	Flax leaved horseweed	FACU
Asteraceae	*Grindelia camporum*	Gumplant	FACW
Asteraceae	*Helminthotheca echioides*	Bristly ox-tongue	FAC
Asteraceae	*Jaumea carnosa*	Marsh jaumea	OBL
Asteraceae	*Lactuca serriola*	Prickly lettuce	FACU
Asteraceae	*Pseudognaphalium luteoalbum*	Jersey cudweed	UPL
Brassicaceae	*Brassica nigra*	Black mustard	UPL
Brassicaceae	*Raphanus raphanistrum*	Wild radish	UPL
Brassicaceae	*Silybum marianum*	Milk thistle	UPL
Chenopodiaceae	*Atriplex lentiformis*	Big saltbush	FAC
Chenopodiaceae	*Atriplex prostrata*	Fat-hen	FACW
Cupressaceae	*Hesperocyparis macrocarpa*	Monterey cypress	UPL
Cupressaceae	*Juniper sp.*	Juniper sp.	UPL
Cupressaceae	*Sequoia sempervirens*	Coast redwood	UPL
Cyperaceae	*Cyperus eragrostis*	Tall flat sedge	FACW
Fabaceae	*Acacia dealbata*	Silver wattle	UPL
Fabaceae	*Acacia sp.*	Acacia	UPL

Family	Scientific Name	Common Name	WIC[1]
Fabaceae	*Albizia lophantha*	Albizia	UPL
Fabaceae	*Medicago polymorpha*	Bur clover	FACU
Fabaceae	*Oxalis pes-caprae*	Bermuda buttercup	UPL
Fabaceae	*Vicia sativa*	Garden vetch	FACU
Fagaceae	*Quercus agrifolia*	Coast live oak	UPL
Frankeniaceae	*Frankenia salina*	Alkali heath	FACW
Geraniaceae	*Erodium botrys*	Long-beak stork's-bill	FACU
Geraniaceae	*Geranium dissectum*	Wild geranium	UPL
Haemodoraceae	*Anigozanthos sp.*	Kangaroo paws	UPL
Juncaceae	*Juncus effusus*	Common bog rush	FACW
Lamiaceae	*Rosemarinus officinalis*	Rosemary	UPL
Malvaceae	*Malva sp.*	Cheeseweed	UPL
Myrtaceae	*Eucalyptus globulus*	Blue gum	UPL
Myrtaceae	*Melaleuca nesophila*	Showy honey-myrtle	UPL
Myrtaceae	*Metrosideros exselsa*	Coast evergreen tree	UPL
Pinaceae	*Pinus radiata*	Monterey pine	UPL
Pinaceae	*Pinus sp.*	Pine	UPL
Pittosporaceae	*Pittosporum crassifolium*	Thick leaf box	UPL
Plantaginaceae	*Plantago coronopus*	Buck-horn plantain	FAC
Plantaginaceae	*Plantago lanceolata*	English plantain	FAC
Plumbaginaceae	*Limonium ramosissimum*	Algerian sea lavender	FACW
Poaceae	*Avena fatua*	Wild oat	UPL
Poaceae	*Avena sp.*	Wild oat	UPL
Poaceae	*Briza maxima*	Rattlesnake grass	UPL
Poaceae	*Bromus diandrus*	Ripgut brome	UPL
Poaceae	*Bromus hordeaceus*	Soft chess	FACU
Poaceae	*Cortaderia selloana*	Pampas grass	FACU
Poaceae	*Distichlis spicata*	Salt grass	FAC
Poaceae	*Festuca perennis*	Italian rye grass	FAC
Poaceae	*Phalaris aquatica*	Harding grass	FACU
Poaceae	*Spartina alterniflora*	Smooth cordgrass	OBL
Poaceae	*Stipa miliaceae*	Smilo grass	UPL
Polygonaceae	*Polygonum aviculare*	Prostrate knotweed	FAC
Polygonaceae	*Rumex crispus*	Curly dock	FAC
Rosaceae	*Pyracantha angustifolia*	Firethorn	UPL
Rosaceae	*Rubus armeniacus*	Himalayan blackberry	FAC
Salicaceae	*Salix laevigata*	Arroyo willow	FACW

Family	Scientific Name	Common Name	WIC[1]
Scrophulariaceae	*Myoporum laetum*	Ngiao tree	FACU
Strelitziaceae	*Strelitzia sp.*	Birds of paradise	UPL
Typhaceae	*Typha sp.*	Cattail	OBL

1. WIC = Wetland Indicator Code - obtained from Lichvar et al. (2016). When species was not listed, species was assigned UPL Wetland Indicator Code.

Appendix B. Representative Photos of the Project Site

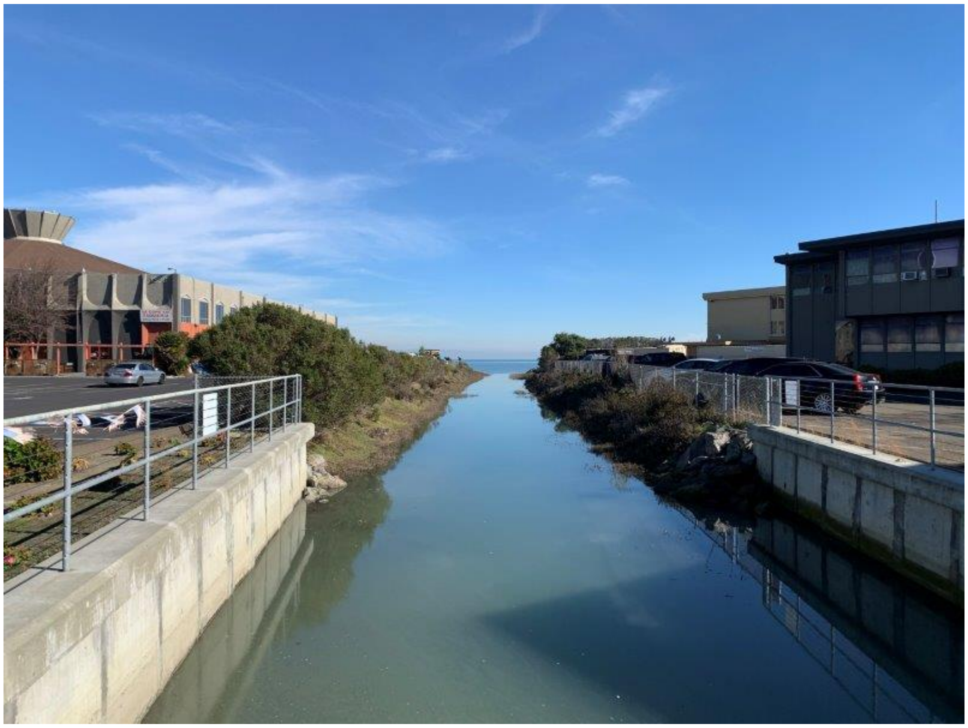

Photo 1. Easton Creek, looking downstream (east) from Old Bayshore Highway during high tide.

Photo 2. Easton Creek, looking upstream (west) at low tide.


Photo 3. Easton Creek, looking downstream (east) toward the creek mouth at low tide.


Photo 4. Existing stormwater outfall (to be replaced) near the mouth of Easton Creek, looking west at low tide.

Photo 5. Existing stormwater outfall (to be replaced) near the upper end of the on-site reach of Easton Creek, looking west at low tide.

Photo 6. Representative view of the tidal salt marsh in the southern portion of the study area. View to the west.

B.2 - Special-status Species Tables

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Table 1: Special-status Plant Species Evaluation

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale[5]
	USFWS[1]	CDFW[2]	CNPS[3]		
Dicots					
Amsinckia lunaris Bent-flowered fiddleneck	—	—	1B.2	Cismontane woodland, valley and foothill grassland, coastal bluff scrub. Elevation: 3-795 m. Blooming period: March-June	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Arctostaphylos montaraensis Montara manzanita	—	—	1B.2	Chaparral, coastal scrub on slopes on ridges. Elevation: 270-460 m. Blooming period: January-March	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Arctostaphylos regismontana Kings Mountain manzanita	—	—	1B.2	Broadleafed upland forest, chaparral, north coast coniferous forest on granitic or sandstone outcrops. Elevation: 240-7005 m. Blooming period: January- April	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Collinsia multicolor San Francisco collinsia	—	—	1B.2	Closed-cone coniferous forest, coastal scrub on decomposed shale mixed with humus; sometimes found on serpentine. Elevation: 10 – 275 m. Blooming period: March-May	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Dirca occidentalis Western leatherwood	—	—	1B.2	Broadleafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland. On brushy slopes, mesic sites; mostly in mixed evergreen and foothill woodland communities. Elevation: 20-640 m. Blooming period: November- March	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Eriophyllum latilobum San Mateo woolly sunflower	FE	SE	1B.1	Cismontane woodland, coastal scrub, lower montane coniferous forest. Often on roadcuts; found on and off of serpentine. Elevation: 30-610 m. Blooming period: May-June	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale[5]
	USFWS[1]	CDFW[2]	CNPS[3]		
Helianthella castanea Diablo helianthella	—	—	1B.2	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. Elevation: 45-1070 m. Blooming period: March-June	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Hemizonia congesta ssp. congesta Congested-headed hayfield tarplant	—	—	1B.2	Valley and foothill grassland. Grassy valleys and hills, often in fallow fields; sometimes along roadsides. Elevation: 5-520 m. Blooming period: April-November	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Hesperevax sparsiflora var. brevifolia Short-leaved evax	—	—	1B.2	Coastal bluff scrub, coastal dunes, coastal prairie. Sandy bluffs and flats. Elevation: 0-640 m. Blooming period: March-June	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Hesperolinon congestum Marin western flax	FT	ST	1B.1	Chaparral, valley and foothill grassland. In serpentine barrens and in serpentine grassland and chaparral. Elevation: 60-400 m. Blooming period: April-July	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Horkelia marinensis Point Reyes horkelia	—	—	1B.2	Coastal dunes, coastal prairie, coastal scrub. Sandy flats and dunes near coast; in grassland or scrub plant communities. Elevation: 2-775 m. Blooming period: May-September	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Lessingia arachnoidea Crystal Springs lessingia	—	—	1B.2	Coastal sage scrub, valley and foothill grassland, cismontane woodland. Grassy slopes on serpentine; sometimes on roadsides. Elevation: 90-200 m. Blooming period: July-October	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Malacothamnus arcuatus arcuate bush-mallow	—	—	1B.2	Chaparral, cismontane woodland. Often found growing on gravelly alluvium substrates. Elevation: 0–735 m. Blooming period: April–September	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale[5]
	USFWS[1]	CDFW[2]	CNPS[3]		
Monolopia gracilens Woodland woollythreads	—	—	1B.2	Chaparral, valley and foothill grassland, cismontane woodland, broadleafed upland forest, North Coast coniferous forest. Grassy sites, in openings; sandy to rocky soils. Often seen on serpentine after burns but may have only weak affinity to serpentine. Elevation: 120-975 m. Blooming period: March-July	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Pentachaeta bellidiflora White-rayed pentachaeta	FE	SE	1B.1	Valley and foothill grassland, cismontane woodland. Open dry rocky slopes and grassy areas, often on soils derived from serpentine bedrock. Elevation: 35-610 m. Blooming period: March-May	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Plagiobothrys chorisianus var. chorisianus Choris' popcornflower	—	—	1B.2	Chaparral, coastal scrub, coastal prairie. Mesic sites. Elevation: 5-705 m. Blooming period: March-June	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Polemonium carneum Oregon polemonium	—	—	2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest. Elevation: 15-1525 m. Blooming period: April-September	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Silene scouleri ssp. scouleri Scouler's catchfly	—	—	2B.2	Coastal bluff scrub, coastal prairie, valley and foothill grassland. Elevation: 5-315 m. Blooming period: June-August	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Silene verecunda ssp. verecunda San Francisco campion	—	—	1B.2	Coastal scrub, valley and foothill grassland, coastal bluff scrub, chaparral, coastal prairie. Often on mudstone or shale; one site on serpentine. Elevation: 30-645 m. Blooming period: March-June	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Triphysaria floribunda San Francisco owl's-clover	—	—	1B.2	Coastal prairie, coastal scrub, valley and foothill grassland. Elevation: 1-150 m. Blooming period: April-June	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale[5]
	USFWS[1]	CDFW[2]	CNPS[3]		
Monocots					
Allium peninsulare var. franciscanum Franciscan onion	—	—	1B.2	Cismontane woodland, valley and foothill grassland. Clay soils; often on serpentine; sometimes on volcanics. Dry hillsides. Elevation: 5-320 m. Blooming period: May-June	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Fritillaria biflora var. ineziana Hillsborough chocolate lily	—	—	1B.1	Cismontane woodland, valley and foothill grassland. Likely only on serpentine. Elevation: 90-170 m. Blooming period: March-April	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.
Fritillaria liliacea Fragrant fritillary	—	—	1B.2	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland. Often on serpentine; various soils reported though usually on clay, in grassland. Elevation: 3-385 m. Blooming period: February-April	**Not present.** The project site is entirely developed and does not contain suitable habitat to support this species.

Code Designations

[1] Federal Status: 2022 USFWS Listing	[2] State Status: 2022 CDFW Listing	[3] CNPS: 2022 CNPS Listing
ESU = Evolutionary Significant Unit is a distinctive population. **FE** = Listed as endangered under the FESA. **FT** = Listed as threatened under the FESA. **FC** = Candidate for listing (threatened or endangered) under FESA. **FD** = Delisted in accordance with the FESA. **FPD** = Federally Proposed to be Delisted. **MBTA** = protected by the Migratory Bird Treaty Act **—** = Not federally listed	**SE** = Listed as endangered under the CESA. **ST** = Listed as threatened under the CESA. **SSC** = Species of Special Concern as identified by the CDFW. **FP** = Listed as fully protected under FGC. **CFG** = FGC =protected by FGC 3503.5 **CR** = Rare in California. **—** = Not state listed	**Rank 1A** = Plants species that presumed extinct in California. **Rank 1B** = Plant species that are rare, threatened, or endangered in California and elsewhere. **Rank 2** = Plant species that are rare, threatened, or endangered in California, but more common elsewhere. **Rank 3** = Plants about which we need more information—A Review List **Rank 4** = Plants of limited distribution—A Watch List **Blooming period:** Months in parentheses are uncommon.

4 **Habitat Description**: Habitat description adapted from CNDDB and CNPS online inventory or other specified source.
5 **Potential to Occur and Rationale**: Location of recorded species occurrences determined by geospatial information from BIOS 5 or other specified source*.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale[5]
	USFWS[1]	CDFW[2]	CNPS[3]		

Sources:

California Department of Fish and Wildlife (CDFW). 2022. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed February 9, 2022.

California Native Plant Society (CNPS). 2022. California Native Plant Society Rare and Endangered Plant Inventory. Website: http://www.rareplants.cnps.org/. Accessed February 9, 2022.

California Department of Fish and Wildlife (CDFW). 2022. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed February 9, 2022.

Table 2: Special-status Wildlife Species Evaluation

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		
Amphibians				
Dicamptodon ensatus California giant salamander	—	— SSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.	**None.** The project site is entirely developed and does not contain aquatic habitat to support this species.
Rana boylii Foothill yellow-legged frog	—	SE SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	**None.** The project site is entirely developed and does not contain aquatic habitat to support this species.
Rana draytonii California red-legged frog	FT	— SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	**None.** The project site is entirely developed and does not contain aquatic habitat to support this species.
Birds				
Athene cunicularia burrowing owl	— MBTA	— SSC	Found in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. A subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.	**None.** The project site is entirely developed and does not contain suitable habitat to support this species.
Brachyramphus marmoratus Marbled murrelet	FE MBTA	SE	Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	**None.** The project site is entirely developed and does not contain suitable nesting habitat to support this species.
Falco peregrinus anatum American peregrine falcon	— MBTA	— FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	**None.** The project site does not contain suitable nesting or foraging habitat to support this species. The project site is entirely developed and is utilized as an active water treatment facility.
Geothlypis trichas sinuosa Saltmarsh common yellowthroat	— MBTA	— SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**None.** The project site is entirely developed and does not contain aquatic habitat or emergent vegetation to support this species.

Scientific Name Common Name	Status USFWS[1]	Status CDFW[2]	Habitat Description[3]	Potential to Occur and Rationale[4]
Melospiza melodia pusillula Alameda song sparrow	— MBTA	— SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits Salicornia marshes; nests low in Grindelia bushes (high enough to escape high tides) and in Salicornia.	**None.** The project site is entirely developed and does not contain marsh habitat to support this species.
Rallus obsoletus obsoletus California Ridgway's rail	FE MBTA	SE FP	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs	**None.** The project site is entirely developed and does not contain pickleweed habitat to support this species.
Fish				
Oncorhynchus mykiss irideus (pop. 8) steelhead (central California coast DPS)	FT	—	DPS includes all naturally spawned populations of steelhead (and their progeny) in streams from the Russian River to Aptos Creek, Santa Cruz County, California (inclusive). Also includes the drainages of San Francisco and San Pablo Bays.	**None.** The project site does not contain aquatic habitat to support this species.
Spirinchus thaleichthys Longfin smelt	FC	ST	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	**None.** The project site does not contain aquatic habitat to support this species.
Insects				
Callophrys mossii bayensis San Bruno elfin butterfly	FE	—	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County. Colonies are located on steep, north-facing slopes within the fog belt. Larval host plant is Sedum spathulifolium.	**None.** The project site does not contain coastal or mountainous habitat or the host plant to support this species.
Icaricia icarioides missionensis Mission blue butterfly	FE	—	Inhabits grasslands of the San Francisco peninsula. Three larval host plants: Lupinus albifrons, L. variicolor, and L. formosus, of which L. albifrons is favored.	**None.** The project site does not contain grassland habitat or the host plants to support this species.
Speyeria zerene myrtleae Myrtle's silverspot butterfly	FE	—	Restricted to the foggy, coastal dunes/hills of the Point Reyes peninsula; extirpated from coastal San Mateo County. Larval foodplant thought to be Viola adunca.	**None.** The project site does not contain coastal dune habitat or the host plant to support this species.

Scientific Name Common Name	Status USFWS[1]	Status CDFW[2]	Habitat Description[3]	Potential to Occur and Rationale[4]
Mammals				
Antrozous pallidus pallid bat	—	— SSC	Inhabits low elevation (below 1,830 m./6,000 feet) rocky arid deserts and canyonlands, shrub-steppe grasslands, karst formations, and higher elevation coniferous forests (below 2,100 m./7,000 feet). Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees, and various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings.	**None.** The project would not demolish the existing man-made structures. The project site is located adjacent to US-101 and San Francisco International Airport resulting in increased noise levels which further preclude this species.
Corynorhinus townsendii Townsend's big-eared bat	—	— SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	**None.** The project would not demolish the existing man-made structures. The project site is located adjacent to US-101 and San Francisco International Airport resulting in increased noise levels which further preclude this species.
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	—	— SSC	Forest habitats of moderate canopy and moderate to dense understory. May prefer chaparral and redwood habitats. Constructs nests of shredded grass, leaves and other material. May be limited by availability of nest-building materials.	**None.** The project site does not contain chaparral or redwood habitats to support this species.
Reptiles				
Emys marmorata western pond turtle	—	— SSC	Occurs in ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	**None.** The project site does not contain aquatic habitat to support this species.
Thamnophis sirtalis tetrataenia San Francisco gartersnake	FE	SE FP	Vicinity of freshwater marshes, ponds and slow-moving streams in San Mateo County and extreme northern Santa Cruz County. Prefers dense cover and water depths of at least one foot. Upland areas near water are also very important.	**None.** The project site does not contain aquatic habitat to support this species.

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		

Code Designations

[1] Federal Status: 2022 USFWS Listing	[2] State Status: 2022 CDFW Listing
ESU = Evolutionary Significant Unit is a distinctive population.	**SE** = Listed as endangered under the CESA.
FE = Listed as endangered under the FESA.	**ST** = Listed as threatened under the CESA.
FT = Listed as threatened under the FESA.	**SSC** = Species of Special Concern as identified by the CDFW.
FC = Candidate for listing (threatened or endangered) under FESA.	**FP** = Listed as fully protected under FGC.
FD = Delisted in accordance with the FESA.	**CFG** = FGC =protected by FGC 3503.5
FPD = Federally Proposed to be Delisted.	**CE** = Candidate endangered under the CESA.
MBTA = protected by the Migratory Bird Treaty Act	**WL** = Species monitored by CDFW “Watch List”.
— = Not federally listed	**—** = Not state listed

[3] **Habitat Description**: Habitat description adapted from CNDDB or other specified source*.
[4] **Potential to Occur and Rationale**: Location of recorded species occurrences determined by geospatial information from BIOS 5 or other specified source*.

Sources:

California Department of Fish and Wildlife (CDFW). 2022. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed February 9, 2022.

California Department of Fish and Wildlife (CDFW). 2022. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed February 9, 2022.

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B.3 - California Natural Diversity Database Search

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Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Montara Mountain (3712254) OR Hunters Point (3712263) OR San Francisco South (3712264) OR Half Moon Bay (3712244) OR San Mateo (3712253) OR Woodside (3712243))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Acanthomintha duttonii San Mateo thorn-mint	PDLAM01040	Endangered	Endangered	G1	S1	1B.1
Adela oplerella Opler's longhorn moth	IILEE0G040	None	None	G2	S2	
Agrostis blasdalei Blasdale's bent grass	PMPOA04060	None	None	G2	S2	1B.2
Allium peninsulare var. franciscanum Franciscan onion	PMLIL021R1	None	None	G5T2	S2	1B.2
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3	S3	WL
Amsinckia lunaris bent-flowered fiddleneck	PDBOR01070	None	None	G3	S3	1B.2
Aneides niger Santa Cruz black salamander	AAAAD01070	None	None	G3	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Arctostaphylos andersonii Anderson's manzanita	PDERI04030	None	None	G2	S2	1B.2
Arctostaphylos franciscana Franciscan manzanita	PDERI040J3	Endangered	None	GHC	S1	1B.1
Arctostaphylos imbricata San Bruno Mountain manzanita	PDERI040L0	None	Endangered	G1	S1	1B.1
Arctostaphylos montana ssp. ravenii Presidio manzanita	PDERI040J2	Endangered	Endangered	G3T1	S1	1B.1
Arctostaphylos montaraensis Montara manzanita	PDERI042W0	None	None	G1	S1	1B.2
Arctostaphylos pacifica Pacific manzanita	PDERI040Z0	None	Endangered	G1	S1	1B.1
Arctostaphylos regismontana Kings Mountain manzanita	PDERI041C0	None	None	G2	S2	1B.2
Astragalus pycnostachyus var. pycnostachyus coastal marsh milk-vetch	PDFAB0F7B2	None	None	G2T2	S2	1B.2
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Banksula incredula incredible harvestman	ILARA14100	None	None	G1	S1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	None	G2G3	S1	
Brachyramphus marmoratus marbled murrelet	ABNNN06010	Threatened	Endangered	G3	S2	
Caecidotea tomalensis Tomales isopod	ICMAL01220	None	None	G2	S2S3	
Calicina minor Edgewood blind harvestman	ILARA13020	None	None	G1	S1	
Callophrys mossii bayensis San Bruno elfin butterfly	IILEPE2202	Endangered	None	G4T1	S3	
Carex comosa bristly sedge	PMCYP032Y0	None	None	G5	S2	2B.1
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
Charadrius nivosus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2	SSC
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
Chorizanthe cuspidata var. cuspidata San Francisco Bay spineflower	PDPGN04081	None	None	G2T1	S1	1B.2
Chorizanthe robusta var. robusta robust spineflower	PDPGN040Q2	Endangered	None	G2T1	S1	1B.1
Cicindela hirticollis gravida sandy beach tiger beetle	IICOL02101	None	None	G5T2	S2	
Cirsium andrewsii Franciscan thistle	PDAST2E050	None	None	G3	S3	1B.2
Cirsium fontinale var. fontinale fountain thistle	PDAST2E161	Endangered	Endangered	G2T1	S1	1B.1
Cirsium occidentale var. compactum compact cobwebby thistle	PDAST2E1Z1	None	None	G3G4T2	S2	1B.2
Collinsia corymbosa round-headed Chinese-houses	PDSCR0H060	None	None	G1	S1	1B.2
Collinsia multicolor San Francisco collinsia	PDSCR0H0B0	None	None	G2	S2	1B.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Danaus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	Candidate	None	G4T2T3	S2S3	
Dicamptodon ensatus California giant salamander	AAAAH01020	None	None	G3	S2S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Dipodomys venustus venustus Santa Cruz kangaroo rat	AMAFD03042	None	None	G4T1	S1	
Dirca occidentalis western leatherwood	PDTHY03010	None	None	G2	S2	1B.2
Dufourea stagei Stage's dufourine bee	IIHYM22010	None	None	G1G2	S1	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Erethizon dorsatum North American porcupine	AMAFJ01010	None	None	G5	S3	
Eriophyllum latilobum San Mateo woolly sunflower	PDAST3N060	Endangered	Endangered	G1	S1	1B.1
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	
Eumetopias jubatus Steller sea lion	AMAJC03010	Delisted	None	G3	S2	
Euphydryas editha bayensis Bay checkerspot butterfly	IILEPK4055	Threatened	None	G5T1	S1	
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
Fritillaria biflora var. ineziana Hillsborough chocolate lily	PMLIL0V0M1	None	None	G3G4T1	S1	1B.1
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Geothlypis trichas sinuosa saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T3	S3	SSC
Gilia capitata ssp. chamissonis blue coast gilia	PDPLM040B3	None	None	G5T2	S2	1B.1
Gilia millefoliata dark-eyed gilia	PDPLM04130	None	None	G2	S2	1B.2
Grindelia hirsutula var. maritima San Francisco gumplant	PDAST470D3	None	None	G5T1Q	S1	3.2
Helianthella castanea Diablo helianthella	PDAST4M020	None	None	G2	S2	1B.2
Hemizonia congesta ssp. congesta congested-headed hayfield tarplant	PDAST4R065	None	None	G5T2	S2	1B.2
Hesperevax sparsiflora var. brevifolia short-leaved evax	PDASTE5011	None	None	G4T3	S3	1B.2
Hesperolinon congestum Marin western flax	PDLIN01060	Threatened	Threatened	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Heteranthera dubia water star-grass	PMPON03010	None	None	G5	S2	2B.2
Horkelia cuneata var. sericea Kellogg's horkelia	PDROS0W043	None	None	G4T1?	S1?	1B.1
Horkelia marinensis Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Hydroporus leechi Leech's skyline diving beetle	IICOL55040	None	None	G1?	S1?	
Hypogymnia schizidiata island tube lichen	NLT0032640	None	None	G2G3	S2	1B.3
Icaricia icarioides missionensis Mission blue butterfly	IILEPG801A	Endangered	None	G5T1	S1	
Icaricia icarioides pheres Pheres blue butterfly	IILEPG8019	None	None	G5TX	SX	
Ischnura gemina San Francisco forktail damselfly	IIODO72010	None	None	G2	S2	
Lasiurus cinereus hoary bat	AMACC05030	None	None	G3G4	S4	
Lasthenia californica ssp. macrantha perennial goldfields	PDAST5L0C5	None	None	G3T2	S2	1B.2
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Layia carnosa beach layia	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
Leptosiphon croceus coast yellow leptosiphon	PDPLM09170	None	Endangered	G1	S1	1B.1
Leptosiphon rosaceus rose leptosiphon	PDPLM09180	None	None	G1	S1	1B.1
Lessingia arachnoidea Crystal Springs lessingia	PDAST5S0C0	None	None	G2	S2	1B.2
Lessingia germanorum San Francisco lessingia	PDAST5S010	Endangered	Endangered	G1	S1	1B.1
Lichnanthe ursina bumblebee scarab beetle	IICOL67020	None	None	G2	S2	
Limnanthes douglasii ssp. ornduffii Ornduff's meadowfoam	PDLIM02039	None	None	G4T1	S1	1B.1
Malacothamnus arcuatus arcuate bush-mallow	PDMAL0Q0E0	None	None	G2Q	S2	1B.2
Melospiza melodia pusillula Alameda song sparrow	ABPBXA301S	None	None	G5T2?	S2S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Microcina edgewoodensis Edgewood Park micro-blind harvestman	ILARA47010	None	None	G1	S1	
Monardella sinuata ssp. nigrescens northern curly-leaved monardella	PDLAM18162	None	None	G3T2	S2	1B.2
Monolopia gracilens woodland woollythreads	PDAST6G010	None	None	G3	S3	1B.2
Mylopharodon conocephalus hardhead	AFCJB25010	None	None	G3	S3	SSC
Myotis thysanodes fringed myotis	AMACC01090	None	None	G4	S3	
Nannopterum auritum double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	AMAFF08082	None	None	G5T2T3	S2S3	SSC
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Northern Maritime Chaparral Northern Maritime Chaparral	CTT37C10CA	None	None	G1	S1.2	
Nyctinomops macrotis big free-tailed bat	AMACD04020	None	None	G5	S3	SSC
Oncorhynchus mykiss irideus pop. 8 steelhead - central California coast DPS	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
Pentachaeta bellidiflora white-rayed pentachaeta	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
Plagiobothrys chorisianus var. chorisianus Choris' popcornflower	PDBOR0V061	None	None	G3T1Q	S1	1B.2
Polemonium carneum Oregon polemonium	PDPLM0E050	None	None	G3G4	S2	2B.2
Polygonum marinense Marin knotweed	PDPGN0L1C0	None	None	G2Q	S2	3.1
Pomatiopsis californica Pacific walker	IMGASJ9020	None	None	G1	S1	
Potentilla hickmanii Hickman's cinquefoil	PDROS1B370	Endangered	Endangered	G1	S1	1B.1
Rallus obsoletus obsoletus California Ridgway's rail	ABNME05011	Endangered	Endangered	G3T1	S1	FP
Rana boylii foothill yellow-legged frog	AAABH01050	None	Endangered	G3	S3	SSC
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Reithrodontomys raviventris salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sanicula maritima adobe sanicle	PDAPI1Z0D0	None	Rare	G2	S2	1B.1
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
Serpentine Bunchgrass Serpentine Bunchgrass	CTT42130CA	None	None	G2	S2.2	
Silene scouleri ssp. scouleri Scouler's catchfly	PDCAR0U1MC	None	None	G5T4T5	S2S3	2B.2
Silene verecunda ssp. verecunda San Francisco campion	PDCAR0U213	None	None	G5T1	S1	1B.2
Speyeria callippe callippe callippe silverspot butterfly	IILEPJ6091	Endangered	None	G5T1	S1	
Speyeria zerene myrtleae Myrtle's silverspot butterfly	IILEPJ608C	Endangered	None	G5T1	S1	
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
Suaeda californica California seablite	PDCHE0P020	Endangered	None	G1	S1	1B.1
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis sirtalis tetrataenia San Francisco gartersnake	ARADB3613B	Endangered	Endangered	G5T2Q	S2	FP
Trachusa gummifera San Francisco Bay Area leaf-cutter bee	IIHYM80010	None	None	G1	S1	
Trifolium amoenum two-fork clover	PDFAB40040	Endangered	None	G1	S1	1B.1
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Triphysaria floribunda San Francisco owl's-clover	PDSCR2T010	None	None	G2?	S2?	1B.2
Triquetrella californica coastal triquetrella	NBMUS7S010	None	None	G2	S2	1B.2
Tryonia imitator mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	
Usnea longissima Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	

Record Count: 123

B.4 - California Native Plant Society–Rare Plant Inventory

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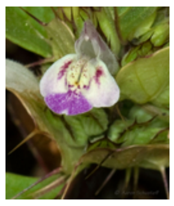
CNPS Rare Plant Inventory

California Native Plant Society

Search Results

9 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [**1A:1B:2A:2B:3**] Fed List is one of [**FE:FT:FC**] **and** State List is one of [**CE:CT:CR:CE:CT**] , 9-Quad include [**3712263:3712264:3712244:3712253:3712243:3712254**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Acanthomintha duttonii	San Mateo thorn-mint	Lamiaceae	annual herb	Apr-Jun	FE	CE	G1	S1	1B.1	 © 2011 Aaron Schusteff
Arctostaphylos montana ssp. ravenii	Presidio manzanita	Ericaceae	perennial evergreen shrub	Feb-Mar	FE	CE	G3T1	S1	1B.1	 © 2019 Susan McDougall
Cirsium fontinale var. fontinale	fountain thistle	Asteraceae	perennial herb	(Apr)May-Oct	FE	CE	G2T1	S1	1B.1	No Photo Available
Eriophyllum latilobum	San Mateo woolly sunflower	Asteraceae	perennial herb	May-Jun	FE	CE	G1	S1	1B.1	No Photo Available
Hesperolinon congestum	Marin western flax	Linaceae	annual herb	Apr-Jul	FT	CT	G1	S1	1B.1	 © 2009 Neal Kramer
Layia carnosa	beach layia	Asteraceae	annual herb	Mar-Jul	FE	CE	G2	S2	1B.1	 © 2007 Aaron Schusteff
Lessingia germanorum	San Francisco lessingia	Asteraceae	annual herb	(Jun)Jul-Nov	FE	CE	G1	S1	1B.1	 © 2019 Aaron Schusteff
Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	Mar-May	FE	CE	G1	S1	1B.1	No Photo Available
Potentilla hickmanii	Hickman's cinquefoil	Rosaceae	perennial herb	Apr-Aug	FE	CE	G1	S1	1B.1	No Photo Available

Showing 1 to 9 of 9 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website https://www.rareplants.cnps.org [accessed 9 February 2022].

CONTACT US

Send questions and comments to rareplants@cnps.org.

Developed by
Rincon Consultants, Inc.

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CONTRIBUTORS

The Calflora Database
The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

Appendix CUL
Cultural Resources

State of California Department of Parks and Recreation (DPR) Forms

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code　　Reviewer　　Date

***Resource Name or #:** 1288 Bayshore Highway

P1. Other Identifier:

***P2. Location:** ☐ Not for Publication ☒ Unrestricted　　***a. County:** San Mateo

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** Date: T ; R ; ¼ of ¼ of Sec ; M.D. B.M.

c. Address: 1288 Bayshore Highway　　City: Burlingame　　Zip: 94010

d. UTM: Zone: ; mE/ mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation:
APN # 026-142-070

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The subject property is a one-story commercial building that fronts Bayshore Highway near the intersection of Broadway and the Bayshore Freeway (US 101). The wood-frame building is rectangular in plan, is clad in stucco and brick, and terminates in a roof with flat and shed roof forms. A planter is located along the south façade along Bayshore Highway, and the building is surrounded by a paved parking lot. A V-shaped, billboard-style sign is raised above the building on three posts.

The primary (south) façade is clad in painted brick and features a series of three fixed aluminum-sash windows. The building is entered on either the east or west façades, which are clad in stucco. Each façade features a glazed aluminum door with fixed aluminum-sash sidelights. The east, north, and west façades feature single glazed aluminum doors, single flush doors, fixed aluminum-sash windows, and aluminum-sash sliding windows behind metal security grates. The building exterior appears to be in good condition.

(Continued on Page 3)

***P3b. Resource Attributes:** HP6. 1-3 story commercial building

***P4. Resources Present:** ■Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing

P5b. Description of Photo: Primary (south) façade, looking northeast, ESA 2017

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
Ca. 1954, original building plans

***P7. Owner and Address:**
Fox Bayshore Investments LLC
1308 Bayshore Hwy, #211
Burlingame, CA 94010

***P8. Recorded by:** (Name, affiliation, and address)
Johanna Kahn / ESA
550 Kearny Street, Suite 800
San Francisco, CA 94108

***P9. Date Recorded:** 3/21/2017

***P10. Survey Type:** (Describe)
Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")
None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ■Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #
HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 6Z

***Resource Name or #** 1288 Bayshore Highway

B1. Historic Name: None

B2. Common Name: 1288 Bayshore Highway

B3. Original Use: Pet hospital

B4. Present Use: Vacant

***B5. Architectural Style:** Midcentury Modern

***B6. Construction History:**

The subject property was built ca. 1954 and designed by Dr. B.I. Bearint for his own practice as a pet hospital. In 1978, the building use was changed to a car rental business (building permit #980G, 7 September 1978). The building was remodeled by architect Ellis L. Jacobs of Palo Alto in 1981 (building permit #3129), at which time a part of the building measuring 21 ft. x 15.5 ft. was demolished on the north façade, and several original windows as well as slate paving were replaced. The tar and gravel roof was replaced in 1987 (building permit #2238, 9 January 1987). Fascia was replaced on two sides of the building (building permit #9501639).

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** N/A **Original Location:** N/A

***B8. Related Features:** none

B9a. Architect: Dr. Beryl I. Bearint

b. Builder: unknown

***B10. Significance: Theme:** N/A

Area: Burlingame

Period of Significance: 1954 **Property Type:** Commercial **Applicable Criteria:** N/A

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The subject property and vicinity are within the Shoreline Area of the Burlingame Bayfront Planning Area. The entire Shoreline Area was historically marsh and tidal lands. This stretch of shoreline was filled in over the course of the 1950s and 1960s, and development occurred over the following decades. An aerial photo from 1946 shows the subject property as part of the San Francisco Bay, with no development north or east of Old Bayshore Highway. By 1954, some of the tidelands in the vicinity had been filled, and the subject property at 1288 Bayshore Highway was constructed. A 1956 aerial photo shows that a section of the tidelands had been filled in approximately from modern-day Anza Boulevard at Bayshore Freeway on the east to Millbrae Avenue on the west.

The subject property is part of a subdivision known as "Bearint Industrial Park." In a 1956 transaction, Dr. B.I. Bearint, the original owner of the subject property, was allowed "to separate a one-acre parcel from other acreage" along Bayshore Highway. By 1958, Bearint had "sold off four sections of his land" and had applied to sell an additional parcel of his tideland property. In 1959, the local planning commission "approved plans for a 4-lot industrial park owned by Dr. B.I. Bearint on the old bayshore highway."

(Continued on page 4)

B11. Additional Resource Attributes: none

***B12. References:** See page 4

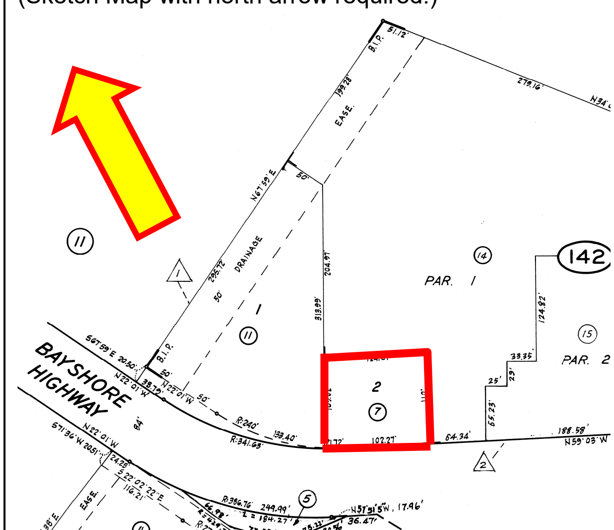
B13. Remarks: none

***B14. Evaluator:** Johanna Kahn, ESA
550 Kearny Street, Suite 800
San Francisco, CA 94108

Date of Evaluation: May 2017

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



Source: San Mateo County Assessor, edited by author

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI #
Trinomial

Page 3 **of** 4 ***Resource Name or #:** 1288 Bayshore Highway

***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

***P3a. Description: (continued from page 1)**

West façade, looking east.

East façade, looking west.

Rear (north) façade, looking south.

***Resource Name or #:** 1288 Bayshore Highway

***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

B10. Significance **(continued from page 2)**

Dr. Bearint built his veterinary clinic on the subject property in ca. 1954 and worked there for an unknown duration. Occupants in 1965 included Pixy-Pin-Ups Photographers, F.B. Schlageter (a lawyer), and Jon T. Benn (business unknown). In 1970, occupants included Secrest Watson International (meat brokers) and Thrifty Rent-A-Car. The building was occupied by American International Rent-A-Car in 1977, Budget Rent-A-Car in 1988, and Ace Rent-A-Car in 1997.

Evaluation
ESA staff evaluated the subject property for its potential historical significance under California Register of Historical Resources Criteria 1 through 4 and National Register of Historic Places Criteria A through D. The subject property at 1288 Bayshore Highway functioned as a commercial building that housed several businesses during the mid- and late 20th century. The land itself is part of Bearint Industrial Park, which featured in the shoreline development of Burlingame during the 1950s and 1960s. The building does not appear to have contributed to broad patterns of local or regional history or the cultural heritage of California or the United States, and for this reason is not recommended eligible for listing under Criterion 1/A. No one associated with the subject property was found to have been important to local, California, or national history. Research revealed little about original owner Dr. B.I. Bearint besides his profession as a veterinarian and the fact that he owned bayfront property in Burlingame. Research did not reveal associations with any other significant persons. It therefore is not recommended eligible for listing under Criterion 2/B. 1288 Bayshore Highway is a modest example of a Midcentury Modern-style commercial building that has been altered, and it was not designed by a trained architect. It does not embody distinctive characteristics of a type, region, or method of construction, represent the work of a master, or possess high artistic value, and are not recommended eligible for listing under Criterion 3/C. Research did not reveal that the subject property at 1288 Bayshore Highway would provide important information relevant to history or pre-history that was not already known. For these reasons, the subject property is not recommended eligible for listing under Criterion 4/D.

Integrity
1288 Bayshore Highway remains in its original locations and therefore retains integrity of location. However, the present commercial neighborhood developed in the years and decades following the construction of the subject property, and setting has been compromised. Similarly, the building has not been used for its original function – a veterinary clinic – since at least 1965 and has lost integrity of feeling and association with that use. As described above, the building has undergone alterations over the years, and as a result, integrity of design, materials, and workmanship are diminished. The subject property retains a low degree of integrity.

Summary
As the property at 1288 Bayshore Highway does not meet any of the California or National Register criteria and retains a low degree of integrity, ESA recommends it to be ineligible for listing in the California or National Registers.

B12. References **(continued from page 2)**

"Annexing of Hill Area Seen." *The Times, San Mateo, California.* 16 May 1956, p. 12.
"Burlingame Planners Grant Three Variances, Hear Pleas." *The Times, San Mateo, California.* 1 January 1959, p. 8.
"Burlingame's Apartment Zone Plea Opposed." *The Times, San Mateo, California.* 26 August 1958, p. 15.
City of Burlingame Community Development Department, Building Division.
City of Burlingame Planning Department. *Burlingame Bayfront Specific Plan*. Amended 18 June 2012, p. VI-1.
Polk's Burlingame City Directories. 1964, 1970, 1977.
San Mateo County Historical Association.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code   Reviewer   Date

    ***Resource Name or #:** 1290 Bayshore Highway

P1. Other Identifier:
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted**   ***a. County:** San Mateo
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:**   **Date:**   **T** ; **R** ; **¼ of** **¼ of Sec** ; M.D. **B.M.**
c. Address: 1290 Bayshore Highway   City: Burlingame   Zip: 94010
d. UTM: Zone: ; mE/ mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation:
APN # 026-142-110

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The subject property is a two-story office building on a roughly triangular lot that is bounded by Bayshore Highway on the southwest, Easton Creek on the northwest, and adjacent parcels on the east. The lot is occupied by a mid-size, multi-tenant office building that features an irregular-shaped plan, is clad in stucco and brick, and terminates in a flat roof with deep eaves. Hardscaping and landscaped areas with mature trees and plantings are located around the building's perimeter.

The building's primary façade faces southwest. The primary entry is located between two walls that are predominantly clad in blank stucco with vertical bands of textured brick at the outer corners. The entry features a pair of glazed aluminum doors within an expanse of glass on the first and second floors. The wall running perpendicular to the primary entry contains a single, glazed aluminum door with a fixed transom at the first floor flanked by multi-light, steel-sash windows. The second floor cantilevers over the first floor and features a band of eight multi-light, steel-sash windows. The primary entry wall and the perpendicular wall terminate in deep eaves at the second floor.
(Continued on Page 3)

***P3b. Resource Attributes:** HP6. 1-3 story commercial building
***P4. Resources Present:** ■Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing

P5b. Description of Photo: Primary (southwest) façade, looking northeast, ESA 2017

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1961, newspaper mentions

***P7. Owner and Address:**
Fox Bayshore Investments LLC
1308 Bayshore Hwy, #211
Burlingame, CA 94010

***P8. Recorded by:** (Name, affiliation, and address)
Johanna Kahn / ESA
550 Kearny Street, Suite 800
San Francisco, CA 94108

***P9. Date Recorded:** 3/21/2017

***P10. Survey Type:** (Describe)
Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ■Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency **Primary #**
DEPARTMENT OF PARKS AND RECREATION **HRI#**

BUILDING, STRUCTURE, AND OBJECT RECORD

 ***NRHP Status Code** 6Z

***Resource Name or #** 1290 Bayshore Highway

B1. Historic Name: None
B2. Common Name: 1290 Bayshore Highway
B3. Original Use: Office building B4. Present Use: Office building
***B5. Architectural Style:** Midcentury Modern
***B6. Construction History:**
According to early mentions of the building's address in the local newspaper, the subject property was built in 1961. The developers were David and George Keyston. The architect is unconfirmed, but it was probably Robert M. Blunk, who designed several other buildings of similar style for the same developers in the immediate vicinity.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** N/A **Original Location:** N/A
***B8. Related Features:** none

B9a. Architect: Robert M. Blunk (unconfirmed) b. Builder: unknown
***B10. Significance: Theme:** N/A **Area:** Burlingame
Period of Significance: 1961 **Property Type:** Commercial **Applicable Criteria:** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The subject property and vicinity are within the Shoreline Area of the Burlingame Bayfront Planning Area. The entire Shoreline Area was historically marsh and tidal lands. This stretch of shoreline was filled in over the course of the 1950s and 1960s, and development occurred over the following decades.

In 1958, an 8,000-s.f. office building was constructed directly across the street from the subject property at 1299 Bayshore Highway, and the Hyatt House Hotel was constructed adjacent to it that same year. Due to the high demand by tenants to rent commercial space near the brand new hotel, David and George Keyston, the developers of 1299 Bayshore Highway, built a new wing in 1959 that doubled that building's size. The architect of 1299 Bayshore Highway was Robert M. Blunk, and this office project was so successful that the Keyston brothers constructed another larger office building across the street at 1290 Bayshore Highway (the subject property) in 1961. Although no definitive record was found that names Blunk as the architect of 1290 Bayshore Highway, the building's design is remarkably similar to Blunk's design for 1299 Bayshore Highway. Both the developer and Blunk opened offices at 1290 Bayshore Highway when it opened in 1961, further suggesting that Blunk was the building's architect.

(Continued on page 4)

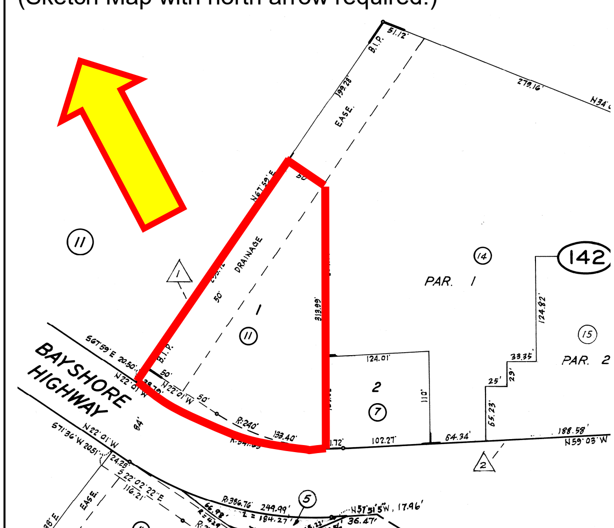
B11. Additional Resource Attributes: none

***B12. References:**
See page 6

B13. Remarks: none

***B14. Evaluator:** Johanna Kahn, ESA
550 Kearny Street, Suite 800
San Francisco, CA 94108
Date of Evaluation: May 2017

(Sketch Map with north arrow required.)



Source: San Mateo County Assessor, edited by author

(This space reserved for official comments.)

DPR 523B (1/95) ***Required information**

***Resource Name or #:** 1290 Bayshore Highway

***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

***P3a. Description: (continued from page 1)**

There are secondary entries located around the ground floor of the building on the northwest and southeast façades. Both the first and second floors of the northwest and southeast façades feature continuous bands of multi-light, steel-sash windows. The second floor cantilevers over the ground floor, and the façades terminates in deep eaves.

The building exterior appears to be in good condition.

Primary entry, looking northeast.

Southeast façade, looking north.

Northwest façade, looking southeast.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI #
Trinomial

***Resource Name or #:** 1290 Bayshore Highway

***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

***B10 Significance (continued from page 2)**

Advertisement for office space at 1299 Bayshore Highway, designed by architect Robert M. Blunk.
It is highly likely that Blunk also designed the subject property at 1290 Bayshore Highway.
Source: ***The San Mateo Times*****, 14 September 1963, p. 43.**

1290 Bayshore Highway and the surrounding area represents a concentration of buildings designed by local architect Robert M. Blunk. Research did not reveal how he initially became associated with the Keyston brothers, but this association proved to be an important one for Blunk. After completing the office building at 1299 Bayshore Highway (and likely also the subject property at 1290 Bayshore Avenue), Blunk became involved in the design of several buildings that were part of the Hyatt House Hotel complex. These include the Hyatt Music Theater at 1300-1308 Bayshore Highway (1964, extant), the restaurant and office building at 1310 Bayshore Highway (1965, extant), and a 102-room addition to the hotel (1965, likely demolished when the hotel was torn down ca. 1987). The hotel itself was designed by Richard Shelly of Long Beach and was constructed in 1959. Blunk designed other nearby buildings that were part of development near the San Francisco International Airport. These include a seven-story office building on Burlway Road in Burlingame (1965, extant), a complex for Avis Rent-A-Car at 1650 Bayshore Highway (1968, extant), and a restaurant at 1600 Bayshore Highway (1972, extant).

(Continued on page 5)

***Resource Name or #:** 1290 Bayshore Highway

***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

***B10 Significance (continued from page 4)**

Blunk's repertoire was wide-ranging. Other projects include an industrial complex for the Hockwald Company, which processed and distributed sanitation supplies, in nearby Brisbane (1959, exact location unknown); the residence of Mr. and Mrs. Ray Winters in Hillsborough (1964, landscape design by Thomas Church; demolished); the Hillbarn Theater in Foster City (1967, extant); the San Mateo Garden Center (1975, extant); and the design for the "Hexaplex," a pre-fabricated building system that used only triangular elements (1971).

1290 Bayshore Highway (the subject property) is a large office building, and during its existence has been occupied by a large and diverse number of companies. The 1965 city directory lists the following occupants of 1290 Bayshore Avenue: Robert M. Blunk (the architect who very likely designed the building), Anza Pacific Corp. (the real estate developer that owned the property), Fourteen Ninety-Nine Bayshore Corp. (rental agents), Scott Paper Co., Hyatt Music Theatre accounting department, Courtney Associates Inc., AMI Corp., Savage Service Co. Trucking, Wyandotte Chemical Corp., Goss Ardine Interiors, Chambers Manufacturing Co. (household appliance manufacturer), Freeman Sales Co. (food broker), Kordite Corp. (plastic products), Earle C. Call Associates, William B. Markey & Associates Inc. (frozen fish brokers), Simpson Lee Paper Co., Autolite Auto Accessories & Parts, United Community Funds & Councils of California, Research Corp., Coast Food Products Co. (food brokers, a division of W.C. Downey Co.), Baker Perkins, Inc. (bakers equipment), Hersey-Sparling Meter Co., and Pacific Produce Co. (exporters). Occupants in 1970 included Graphic Sciences Inc. (graphic communications), Clearwater Hydromechanical Corp., Hensel-Phelps Construction Co., Trent Tube Co., Aquaculture Corp., Robert A. Gilmore & Co., Durel Advertising, Goss Ardine Interiors, F & F Laboratories, Gordon-Sirex-Ayres (meat brokers), the division offices of E & J Gallo Winery, Freeman Sales Co. (food broker), Dennison Manufacturing Co. (paper converters), J.L. Tauster & Co. Inc. (insurance), Courtney Associates Inc. United Community Crusades & Councils of California, Owens-Illinois Inc. (scientific glassware), Soabar Co., Baker Perkins Inc. (bakers equipment), McCullagh Leasing Inc. (auto leasing), Instacall Inc. (telephone answering service), Wendell M. Delzell, Research Corp., Phi Epsilon Phi Sorority, and Pacific Produce Co. (exporters). In 1977, the occupants were Aviation Technical Assistance & Service Co. Inc. (personnel service), Fealty Realty, Uarco Inc. (business forms), Underwriters Laboratories Inc., Arth J. Interfield & Associates (consulting engineers), Willis C. Pray Co. (storage equipment handling), San Francisco Agency, Dwight Cochran, Flight Associates (consulting service), Econo-Car (auto rental), Robert G. Harless (lawyer), Sirex-Brokerage Inc. (meat brokers), Alfred D. Bell Jr., Honolulu Distributors Inc. (fruit and vegetable express), Associated Ranch Management, Brown Fruit of Washington (fruit growers), David McNair & Co. Ltd. (distributors of fresh fruit and vegetables), Alan W. Coon (architect), Courtney Associates Inc. (manufacturer's representative), Community Transit Services, A.S. Babcock & Co. (publishers), Pacific Power Industries Corp. (heavy equipment sales), Clinton Corn Processing Co. (food processors), Pacific Produce Inc. (exporters), Research Corp., Phi Epsilon Phi Sorority, and Hersey Products Inc. (water meter manufacturer).

Evaluation

ESA staff evaluated the subject property for its potential historical significance under California Register of Historical Resources Criteria 1 through 4 and National Register of Historic Places Criteria A through D.

Criterion 1/A (Events): The subject property at 1290 Bayshore Highway was constructed by developers David and George Keyston following the completion of their office building directly across the street at 1299 Bayshore Highway. The two office buildings, which are remarkably similar in design, were built adjacent to the then-new Hyatt House Hotel, though they are not associated with the hotel or the related complex of buildings that were constructed during the 1960s. The subject property does not appear to have contributed to broad patterns of local or regional history or the cultural heritage of California or the United States, and it is not recommended eligible for listing under Criterion 1/A.

Criterion 2/B (People): Over the course of its 55-year history, the subject property has been occupied by the offices of numerous businesses and individuals, and research did not reveal an association with anyone who was important to local, California, or national history. The Keyston Brothers, who developed 1290 Bayshore Highway and had their offices there for a period of time, were key players in the development of Bayfront property around the airport beginning in the 1960s. A 1974 newspaper article summarizes their prominent role: "In terms of bringing to Burlingame's former mudflats a string of tall buildings, the Keystons have been major contributors…" While the subject property was an early and successful project for the Keystons, it is not considered to be a significant project for the Keystons, and it is therefore not recommended eligible for listing under Criterion 2/B.

(Continued on page 6)

***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

***B10. Significance (continued from page 5)**

Criterion C/3 (Design/Construction): 1290 Bayshore Highway is an example of a Midcentury Modern-style office building that was likely designed by a master architect of local significance. Architect Robert Blunk was hired repeatedly by developer Anza Pacific, owned by the Keyston Brothers, to design a variety of commercial buildings in the vicinity of the subject property. 1290 Bayshore Highway, though not confirmed to have been designed by Blunk, would be one of his earliest designs for the Keystons. Considered as part of Blunk's body of work, 1290 Bayshore Highway does not express a particular phase in the development of his career and does not possess high artistic value. 1290 Bayshore Highway embodies some characteristics of the Midcentury Modern style of architecture, namely ribbon windows, deep eaves, and cantilevers, but as a mid-size, multi-tenant office building, it does not exemplify early-1960s commercial architecture. For these reasons, the subject property is not recommended eligible for listing under Criterion 3/C.

Criterion D/4 (Information Potential): Research did not reveal that the subject property at 1290 Bayshore Highway would provide important information relevant to history or pre-history that was not already known. For these reasons, the subject property is not recommended eligible for listing under Criterion 4/D.

Integrity
1288 Bayshore Highway remains in its original locations and therefore retains integrity of location. However, the present commercial neighborhood developed in the years and decades following the construction of the subject property, and setting has been compromised. The building continues to function as office space for multiple tenants, and it therefore retains integrity of feeling and association with its historic use. The building has not undergone any known alterations over the years, and as a result, it retains integrity of design, materials, and workmanship. The subject property retains a high degree of integrity.

Summary
Although the property at 1288 Bayshore Highway retains a high degree of integrity, it does not meet any of the California or National Register criteria, and ESA recommends it to be ineligible for listing in the California or National Registers.

***B12. References (continued from page 2)**

Advertisement. *The Times, San Mateo, California*. 14 September 1963, p. 43.
"Burlingame's Dave Keyston: The Man Behind Shore Development." *The Times, San Mateo, California*. 1 March 1974, pp. 25-26.
"Keystons' Gamble Pays Off; Investment In Land Near Airport Shows Quick Return." *The Times, San Mateo, California*. 14 September 1963, p. 53.
City of Burlingame Community Development Department, Building Division.
City of Burlingame Planning Department. *Burlingame Bayfront Specific Plan*. Amended 18 June 2012, p. VI-1.
Polk's Burlingame City Directories. 1965, 1970, 1977.
San Mateo County Historical Association.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code Reviewer Date

 *Resource Name or #: 1300-1308 Bayshore Highway

P1. Other Identifier:
***P2. Location:** ☐ Not for Publication ☒ Unrestricted ***a. County:** San Mateo
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** ; M.D. **B.M.**
c. Address: 1300-1308 Bayshore Highway City: Burlingame Zip: 94010
d. UTM: Zone: ; mE/ mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation:
APN # 026-113-480

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The subject property is a two-story commercial building on a T-shaped lot that is bounded by Bayshore Highway on the southwest, Easton Creek on the southeast, and the San Francisco Bay on the northeast. It is occupied by a former theater building that has a rectangular floor plan, is clad in smooth and pebble-dash stucco, and terminates in a flat roof with a distinctive tent-shaped roof form in the center. There are small landscaped areas on all four sides of the building, with more mature plantings located on the southwest and northwest sides. A landscaped median strip leads from the driveways on Bayshore Highway to the primary (southwest) façade of the building. The building is surrounded on all sides by paved parking lots.

The primary (southwest) façade is a continuous wall plane clad in pebble-dash stucco. The primary entry is located in the center of the façade and is composed of a series of fixed, aluminum-sash windows and pairs of glazed aluminum doors with fixed, aluminum sash windows above. The entry is located behind a covered porch with tall, parabolic arches on three sides. The porch structure is clad in smooth, molded stucco and is one of the building's most distinctive features. (Continued on Page 3)

***P3b. Resource Attributes:** HP6. 1-3 story commercial building
***P4. Resources Present:** ■Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing

P5b. Description of Photo: Primary (southwest) façade, looking northeast, ESA 2017

***P6. Date Constructed/Age and Sources:**
☒Historic ☐Prehistoric ☐Both
1964, newspaper articles

***P7. Owner and Address:**
Fox Bayshore Investments LLC
1308 Bayshore Hwy, #211
Burlingame, CA 94010

***P8. Recorded by:** (Name, affiliation, and address)
Johanna Kahn / ESA
550 Kearny Street, Suite 800
San Francisco, CA 94108

***P9. Date Recorded:** 3/21/2017

***P10. Survey Type:** (Describe)
Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")
None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ■Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
Primary #
HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 6Z

***Resource Name or #** 1300-1308 Bayshore Highway

B1. Historic Name: Hyatt Music Theater, Hyatt Cinema
B2. Common Name: 1300-1308 Bayshore Highway
B3. Original Use: Theater-in-the-round
B4. Present Use: Mixed-use commercial and office space
***B5. Architectural Style:** Midcentury Modern/Googie
***B6. Construction History:**

Designed by architect Robert M. Blunk, the subject property was built in 1964. In 1966, the interior of the building was essentially demolished, and architect Vincent G. Raney redesigned the building from a theater-in-the-round to a single-screen movie theater with office suites on the first and second floors. It is likely that fenestration on the north, east, and south façades as well as the porches on the north and south façades were added at this time. A second movie screen was added in 1972. Since the movie theater closed in 2007, the interior spaces have been stripped of all movie screens, seating, signage, and other design elements relating to the building's former use.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** N/A **Original Location:** N/A
***B8. Related Features:** none

B9a. Architect: Robert M. Blunk; Vincent G. Raney (1966 remodel)
b. Builder: unknown
***B10. Significance: Theme:** N/A
Area: Burlingame
Period of Significance: 1964-1966 **Property Type:** Theater/Cinema **Applicable Criteria:** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The subject property and vicinity are within the Shoreline Area of the Burlingame Bayfront Planning Area. The entire Shoreline Area was historically marsh and tidal lands. This stretch of shoreline was filled in over the course of the 1950s and 1960s, and development occurred over the following decades.

1300-1308 Bayshore Highway and the surrounding area represents a concentration of buildings designed by local architect Robert M. Blunk. After completing the office buildings at 1299 Bayshore Highway (1958) and 1290 Bayshore Highway (1961; likely designed by Blunk but not confirmed), Blunk became involved in the design of several buildings that were part of the Hyatt House Hotel complex. These include the Hyatt Music Theater at 1300-1308 Bayshore Highway (1964, extant), the restaurant and office building at 1310 Bayshore Highway (1965, extant), and a 102-room addition to the hotel (1965, likely demolished when the hotel was torn down ca. 1987). The hotel itself was designed by Richard Shelly of Long Beach and was constructed in 1959. Blunk designed other nearby buildings that were part of development near the San Francisco International Airport. These include a seven-story office building on Burlway Road in Burlingame (1965, extant), a complex for Avis Rent-A-Car at 1650 Bayshore Highway (1968, extant), and a restaurant at 1600 Bayshore Highway (1972, extant).

(Continued on page 5)

B11. Additional Resource Attributes: none

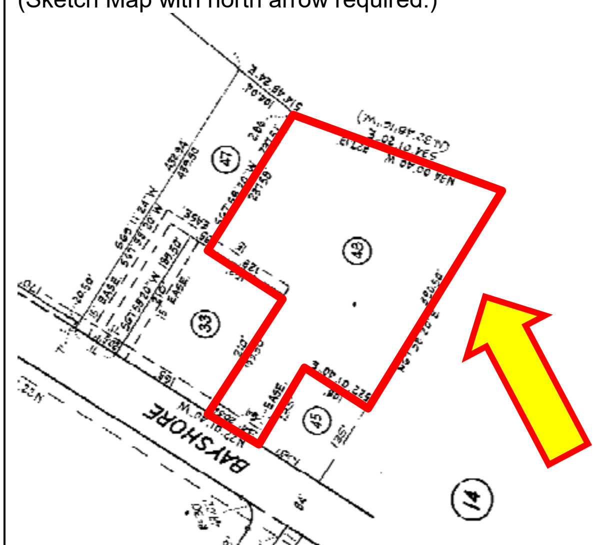
***B12. References:** See page 8

B13. Remarks: none

***B14. Evaluator:** Johanna Kahn, ESA
550 Kearny Street, Suite 800
San Francisco, CA 94108
Date of Evaluation: May 2017

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



Source: San Mateo County Assessor, edited by author

***Resource Name or #:** 1300-1308 Bayshore Highway

***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

***P3a. Description: (continued from page 1)**

Seven blank panels are mounted to the top of the porch. On either side of the porch, three-dimensional stucco ornament that mimics the pattern of the porch is applied to the façade's wall plane. The north end of the façade features a single flush door that provides access to the nightclub Caribbean Gardens, and the south end of the façade features a pair of glazed aluminum doors that provide access to the restaurant Se Come Asi Taqueria. The façade terminates in metal coping at the roofline. Set back from the edge of the roof is a distinctive roof form that is primarily decorative and resembles a shallow teepee, a circus tent, or an upside-down scalloped bowl.

The building's other three facades are nearly identical. Each façade is clad in pebble-dash stucco and is composed of eight structural bays, and the bays are delineated by corner and intermediate piers. Within each bay are two vertically-oriented panels of smooth stucco within molding with points on the top and bottom sides. Some of these panels contain windows or single or double glazed aluminum doors with fixed transoms or sidelights. A typical window is composed of a fixed, four-light, aluminum-sash window with two two-light, aluminum-sash awning windows below. The northwest and southeast façades feature covered porches like the one on the primary façade. All façades terminate in metal coping at the roofline.

The building exterior appears to be in good condition. (Continued on page 4)


Southeast façade, looking west.


Northeast façade, looking south.


Porch on northwest façade.

***Resource Name or #:** 1300-1308 Bayshore Highway

***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

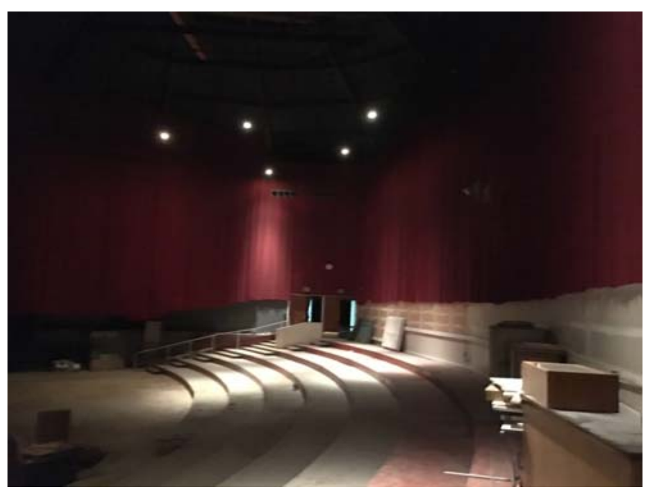
***P3a. Description: (continued from page 3)**

The subject property has not functioned as a theater-in-the-round since 1966, when the auditorium was bisected and turned into a single-screen movie theater. Additional screens opened in the 1970s, and the building ceased to function as a movie theater when it was closed permanently in 2007. Since that time, nearly all vestiges of the building's former entertainment uses have been removed. The auditorium spaces have been stripped of their large screens, seating, signage, and other details that represented their former use. Similarly, the lobby space has been stripped and partitions constructed, and it no longer resembles a movie box office. Office suites on the first and second floors that were constructed during the 1966 redesign are still in use.

The building interior appears to be in moderately good condition.

Interior view of former movie screening room 1.

Interior view of former movie screening room 2.



Interior views of former movie screening room with tiered seating.

***Resource Name or #:** 1300-1308 Bayshore Highway

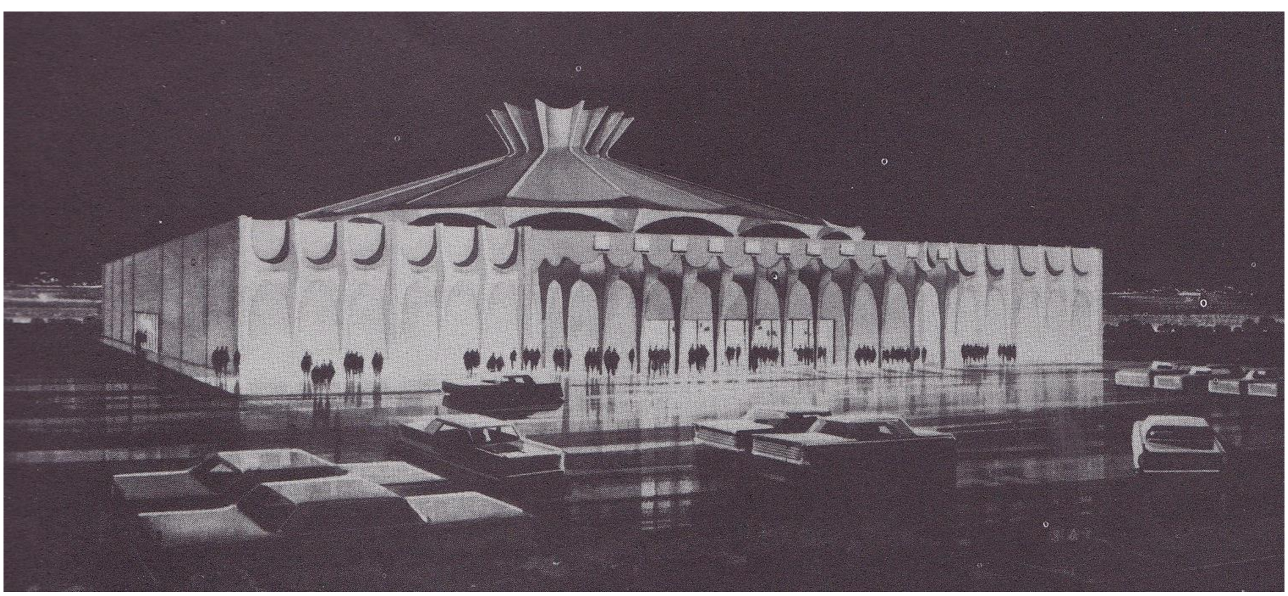
***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

***B10 Significance (continued from page 2)**

Blunk's repertoire was wide-ranging. Other projects include an industrial complex for the Hockwald Company, which processed and distributed sanitation supplies, in nearby Brisbane (1959, exact location unknown); the residence of Mr. and Mrs. Ray Winters in Hillsborough (1964, landscape design by Thomas Church; demolished); the Hillbarn Theater in Foster City (1967, extant); the San Mateo Garden Center (1975, extant); and the design for the "Hexaplex," a pre-fabricated building system that used only triangular elements (1971).

The 2,400-seat, theater-in-the-round-style Hyatt Music Theater opened on 15 September 1964 with a production of the musical "Flower Drum Song." The theater was billed as "a big step in the entertainment field for folks on the Peninsula. Everyone should make it their duty to get behind this project and make it a success." Newspaper coverage leading up to the theater's grand opening described the building's design:

> But, how are they going to fit [actress] Pat Suzuki, [producer] Herb Roger's selection of a hundred show people, a full orchestra, plus a nightly throng of 2,500 ticket buyers into the theatre?
>
> The answer is both positive and pleasant. If you're there as a spectator, you'll have to rub elbows with some of the cast. Not because the theatre is small or confined. Just the opposite. It's big, comfortable, efficient. But, because it's a theatre-in-the-round with the stage in the center, the cast must make entrances on stage using many of the same eight passageways as the audience uses, to get to the seats. In fact, some of the aisles double as playing areas for the cast.
>
> Even at intermission time you're likely to combine elbow-rubbing and elbow-bending with members of the cast. This can happen at either the fully stocked, 900 square feet of the backstage bar in the main lobby, or at any of the four, 3.2 refreshment and snack bars in the secondary lobbies surrounding the auditorium. […]
>
> The Hyatt Theatre architect planned that there would be no crowding, even after the show, unless a few wheel chairs block one of the eight exits to the 800-space parking lot outside. The theatre was designed, not only to permit excellent visibility from all the foam-filled seats, but to allow easy ingress and egress for those who may have to use wheelchairs. For them, there are level or ramped aisles, to the first row of seats.



Rendering of Hyatt Museum Theater, 1964. Source: Flickr (user Heather David).

(Continued on page 5)

***B10 Significance (continued from page 5)**

The last live theatrical performance in the building was "Peter Pan" in January 1966. The building was re-designed as a single-screen movie theater by architect Vincent G. Raney, and the Hyatt Cinema Theater opened on 29 March 1966. A newspaper article from March 1966 describes the extent of alterations for the newly reconstructed cinema:

> Forget [the former] Hyatt Music Theatre. It's gone. Dead and buried and excavated. Anza Pacific Corporation, headed by George Keyston Jr. and his brother David Keyston brought in bulldozers and gutted the entire theater. Such a hole you wouldn't believe. And then they started all over again. New concrete foundations, all new seat platforms, a projection room, offices, lobbies, restroom facilities, new air conditioning and exits. You wouldn't recognize the inside, except for a very small portion of the original lobby, the side bar and the exterior. The house has been cut in half, with leased offices facing the bay side and the theater in front.

Raney (1905-2002) was a renowned designer of movie theaters, having designed more than 40 in the western United States between 1938 and 1990s. These included enclosed and drive-in theaters. He designed more than 23 domed cinemas in the western United States between 1964 and 1993, including several for Ray Syufy who owned the Century Theater chain in the San Francisco Bay Area. He also designed churches, private schools, gas stations, private residences, and shopping centers. The website for the Bal Theatre in San Leandro, which Raney designed in 1946, states that "nearly all of his theaters have either been closed or demolished."

A second movie screen opened in December 1972. The cinema closed permanently in 2007. At this writing, the building is occupied by a number of commercial businesses and offices.

Hyatt Cinema Theater, 1966. Source: San Mateo County History Museum, catalog no. 2015.001.08912.

Aerial view showing the Hyatt Cinema Theater and vicinity, 1969.
Source: San Mateo County History Museum, catalog no. 2015.001.12066.36.

(Continued on page 7)

*Recorded by Johanna Kahn *Date May 2017 ☒Continuation ☐Update

***B10 Significance (continued from page 6)**

Evaluation
ESA staff evaluated the subject property for its potential historical significance under California Register of Historical Resources Criteria 1 through 4 and National Register of Historic Places Criteria A through D.

Criterion 1/A (Events): The Hyatt Music Theater was constructed in 1964 as part of a complex of commercial and office buildings related to the Hyatt House Hotel located directly across Bayshore Highway. The subject property was the first theater-in-the-round located on the San Francisco Peninsula, and it hosted touring productions of live shows and musicals. Its popularity waned partly because of fierce competition with the Circle Star Theater in nearby San Carlos (which opened in October 1964 and had a rotating stage), and the short-lived Hyatt Music Theater closed in 1966. From 1966 until 2007, the building operated as a movie theater. Although the subject property was an important part of the Hyatt House Hotel complex, the hotel itself, which was the centerpiece, was demolished ca. 1987, and it can be argued that the surrounding buildings ceased to be a "complex" at that time. For these reasons, the subject property does not appear to have contributed to broad patterns of local or regional history or the cultural heritage of California or the United States, it is not recommended eligible for listing under Criterion 1/A.

Criterion 2/B (People): During its two-year existence as the Hyatt Music Theater, the subject property was visited by many renowned actors and performers. Because of the brevity of the period that the building was a popular destination for live theater and because the celebrities' stays were intentionally transitory, the subject property is not clearly associated with the lives of persons significant in our past. It is therefore not recommended eligible for listing under Criterion 2/B.

Criterion C/3 (Design/Construction): 1300-1308 Bayshore Highway is an example of a Midcentury Modern-style theater building with distinctive "Googie" (i.e. futuristic, inspired by the Space Age) design elements that was designed by a master architect of local significance. Architect Robert Blunk, whose work is well represented in the immediate vicinity, created a design that was likely inspired by the futuristic architectural language of the Hyatt House Hotel located directly across Bayshore Highway (demolished ca. 1987), and he aimed to create a distinctive and unified expression that visually linked it and other adjacent buildings that were part of the hotel complex. The interior of Blunk's original design for a theater-in-the-round was completely demolished in 1966, at which time it was reconstructed as a movie theater/office building designed by architect Vincent G. Raney who was also a master architect of local significance in his own right. Sometime after the movie theater closed permanently in 2007, the interior theater-related spaces were gutted once again, and the building no longer retains the essential characteristics that once identified it as a place of public entertainment as a live performance or movie theater. The design of the building is fundamentally linked to its original function as a theater-in-the-round and its later existence as a movie theater, and nearly all vestiges of these uses have been removed. As such, 1300-1308 Bayshore Highway does not embody distinctive characteristics of a mid-century theater, and due to the removal of so many essential design features from the interior, it does not possess high artistic value. For these reasons, the subject property is not recommended eligible for listing under Criterion 3/C.

Criterion D/4 (Information Potential): Research did not reveal that the subject property at 1300-1308 Bayshore Highway would provide important information relevant to history or pre-history that was not already known. For these reasons, the subject property is not recommended eligible for listing under Criterion 4/D.

Integrity
1300-1308 Bayshore Highway remains on its original site and therefore retains integrity of location. Changes have occurred in the immediate vicinity and the surrounding commercial neighborhood—notably the demolition of the associated Hyatt House Hotel ca. 1987, the modernization of several nearby buildings, and new construction—and integrity of setting has diminished. The interior of the building was extensively reconstructed in 1966 and redesigned as a movie theater. Since closing to the public in 2007, the building has undergone extensive interior alterations that removed nearly all vestiges of its former uses. Because the building has not functioned as a theater-in-the-round for over 50 years and a movie theater for a decade, it does not retain integrity of feeling and association with those uses. The exterior remains fairly intact to the 1966 redesign, but because the interior spaces were crucial to conveying the significance of its design and function as a movie theater, integrity of design, materials, and workmanship are considerably diminished. Overall, the subject property retains a moderate degree of integrity.

(Continued on page 8)

 ***Resource Name or #:** 1300-1308 Bayshore Highway

***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

***B10 Significance (continued from page 7)**

Summary

As the subject property at 1300-1308 Bayshore Highway does not meet any of the California or National Register criteria and retains a moderate degree of integrity, ESA recommends it to be ineligible for listing in the California and National Registers.

B12. References (continued from page 2)

Bladen, Barbara. "The Marquee." *The Times, San Mateo, California*. 14 March 1966, p. 21.
"Burlingame Theaters." *Burlingame Memories.* Accessed 27 March 2017, www.burlingamememories.wordpress.com.
"CineArts at Hyatt." *Cinema Treasures.* Accessed 27 March 2017, www.cinematreasures.com.
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David, Heather. *Flickr.* Accessed 6 April 2017, www.flickr.com.
"History." *Bal Theatre.* Accessed 6 April 2017, www.baltheatre.com.
"Hyatt Music Theater and Banquet Room—Sept. 15." *The Times, San Mateo, California*. 14 August 1964, p. 29.
Inset. *The Times, San Mateo, California.* 8 April 1964, p. 5.
Newman, Bruce. "San Jose's Century 21 Theater: No Place Like Dome." *Mercury News, Bay Area News Group*. 8 July 2014, p. A4.
Polk's Burlingame City Directories. 1965, 1970, 1977.
"Raney, Vincent G." *DOCOMOMO/NOCA*. Accessed 6 April 2017, www.docomomo-noca.org.
San Mateo County Historical Association.
"The San Mateo County Historical Association Online Collections Database." *San Mateo County History Museum*. Accessed 6 April 2017, www.historysmc.org.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code | Reviewer | Date

 ***Resource Name or #:** 1310 Bayshore Highway

P1. Other Identifier:

***P2. Location:** ☐ Not for Publication ☒ Unrestricted ***a. County:** San Mateo

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** ; M.D. **B.M.**

c. Address: 1310 Bayshore Highway City: Burlingame Zip: 94010

d. UTM: Zone: ; mE/ mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation:
APN # 026-113-330

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The subject property is a one- and two-story commercial building on a rectangular lot that is bounded by Bayshore Highway on the southwest and paved parking lots and driveways on all other sides. The building is U-shaped in plan, is clad in both smooth and pebble-dash stucco, and terminates in a flat roof. Landscaped areas are located around the building's perimeter. A freestanding billboard-style sign on two metal posts is located near the center of the primary (southwest) façade.

The primary (southwest) façade is clad in smooth stucco and features a series of stepped parapets at the roofline that terminate in metal coping. A recessed entry is located at the building's southwest corner and is accessed by two sets of concrete steps and a ramp. A wood trellis projects over the entry area. Fixed, aluminum-sash windows below fabric awnings are located north of the recessed entry. Set back from the rest of the façade is a taller stucco-clad wall that terminates in wood fascia at the roofline.

(Continued on Page 3)

***P3b. Resource Attributes:** HP6. 1-3 story commercial building

***P4. Resources Present:** ■Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing

P5b. Description of Photo: Primary (southwest) façade, looking north, ESA 2017

***P6. Date Constructed/Age and Sources:**
☒Historic ☐Prehistoric ☐Both
1965, City of Burlingame Community Development Department, Building Division

***P7. Owner and Address:**
Fox Bayshore Investments LLC
1308 Bayshore Hwy, #211
Burlingame, CA 94010

***P8. Recorded by:** (Name, affiliation, and address)
Johanna Kahn / ESA
550 Kearny Street, Suite 800
San Francisco, CA 94108

***P9. Date Recorded:** 3/21/2017

***P10. Survey Type:** (Describe)
Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")
None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ■Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #
HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 6Z

***Resource Name or #** 1310 Bayshore Highway

B1. Historic Name: None

B2. Common Name: 1310 Bayshore Highway

B3. Original Use: Restaurant and office building B4. Restaurant and office building

***B5. Architectural Style:** Midcentury Modern with 21st-century alterations

***B6. Construction History:**

Built in 1965 (City of Burlingame, Community Development Department, Building Division Control #0973, 12 March 1965; no permit information). The architect was Robert M. Blunk and the owner was Anza Pacific Corp. The original freestanding porches were removed and the building was remodeled in 1973 by architects Iniguez Stoopenkoff Associates (building permit #U-1150). A second exterior remodel, this time by Robert Tittle Architect & Associates, took place in 1990, and most alterations were made to the primary (west) façade (building permit #11062). Awnings were first installed in 1992 (building permit #9111230), and illuminated awnings were installed in 1996 (building permit #9600361). The building was reroofed in 2000, and the contractor was Royal Roofing of San Jose (building permit #2000499).

***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** N/A **Original Location:** N/A

***B8. Related Features:** none

B9a. Architect: Robert M. Blunk b. Builder: unknown

***B10. Significance: Theme:** N/A **Area:** Burlingame

Period of Significance: 1965 **Property Type:** Commercial **Applicable Criteria:** N/A

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The subject property and vicinity are within the Shoreline Area of the Burlingame Bayfront Planning Area. The entire Shoreline Area was historically marsh and tidal lands. This stretch of shoreline was filled in over the course of the 1950s and 1960s, and development occurred over the following decades.

1310 Bayshore Highway and the surrounding area represents a concentration of buildings designed by local architect Robert M. Blunk. After completing the office buildings at 1299 Bayshore Highway (1958) and 1290 Bayshore Highway (1961; likely designed by Blunk but not confirmed), Blunk became involved in the design of several buildings that were informally part of the Hyatt House Hotel complex. These include the Hyatt Music Theater at 1300-1308 Bayshore Highway (1964, extant), the restaurant and office building at 1310 Bayshore Highway (1965, extant), and a 102-room addition to the hotel (1965, likely demolished when the hotel was torn down ca. 1987). The hotel itself was designed by Richard Shelly of Long Beach and was constructed in 1959. Blunk designed other nearby buildings that were part of development near the San Francisco International Airport. These include a seven-story office building on Burlway Road in Burlingame (1965, extant), a complex for Avis Rent-A-Car at 1650 Bayshore Highway (1968, extant), and a restaurant at 1600 Bayshore Highway (1972, extant).

(Continued on page 4)

B11. Additional Resource Attributes: none

***B12. References:** See page 6

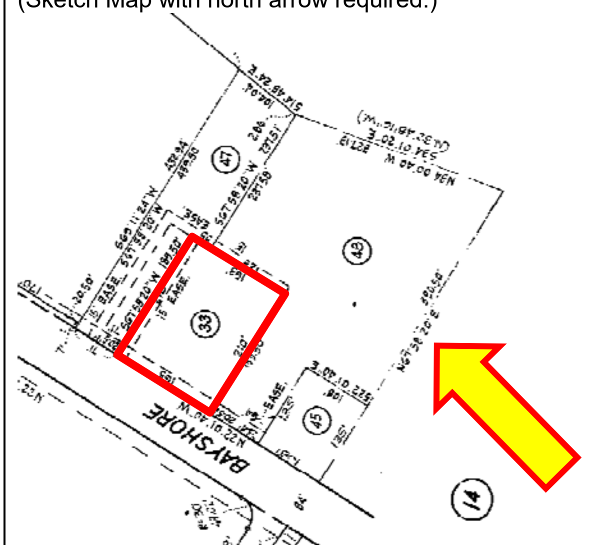
B13. Remarks: none

***B14. Evaluator:** Johanna Kahn, ESA
550 Kearny Street, Suite 800
San Francisco, CA 94108

Date of Evaluation: May 2017

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



Source: San Mateo County Assessor, edited by author

 ***Resource Name or #:** 1310 Bayshore Highway

***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

***P3a. Description: (continued from page 1)**

The northwest façade fronts a rear driveway and features the building's service entrances and utility access. The façade is clad in pebble-dash stucco with recessed, vertically-oriented panels of smooth stucco. The panels are rectangular with points on the top and bottom sides, and many of these panels contain windows on the first and second floors. A typical window is composed of a fixed, two-light, aluminum-sash window with a two-light, aluminum-sash awning window below. Some panels contain blank walls. At the ground level, two panels contain single flush doors, and one panel contains a glazed aluminum door with a transom. Near the east end of the façade, a concrete ramp and raised platform provides access to a flush door, and near the west end of the façade, a set of concrete steps lead to a multi-light, wood door. Near the center of the façade is a narrow, rectangular projection with a pointed bottom at the second floor; this is likely a chimney or exhaust duct. The façade terminates in wood fascia at the roofline.

The northeast façade has a similar design to the northwest façade. The first floor features four windows and one glazed aluminum door, and the second floor features five windows. The façade terminates in wood fascia at the roofline.

The southeast façade has a similar design to the northwest façade. The east end of the building features four windows on the first floor and four on the second floor. A one-story brick addition is located near the east end of the building and features a recessed entry with a pair of glazed aluminum doors with sidelights and transom. It terminates in wood fascia at the roofline. The central portion of the façade is slightly recessed from the east end of the building and features six windows on the second floor. On the first floor, fixed aluminum-sash windows are covered by a continuous fabric awning, and a set of concrete steps lead to a multi-light, wood door. The west end of the building features a stucco-clad addition with fixed, aluminum-sash windows below fabric awnings and stepped parapets at the roofline that terminate in metal coping.

The building exterior appears to be in good condition.

Northwest façade, looking east.

Southeast and northeast façades, looking north.

***Resource Name or #:** 1310 Bayshore Highway

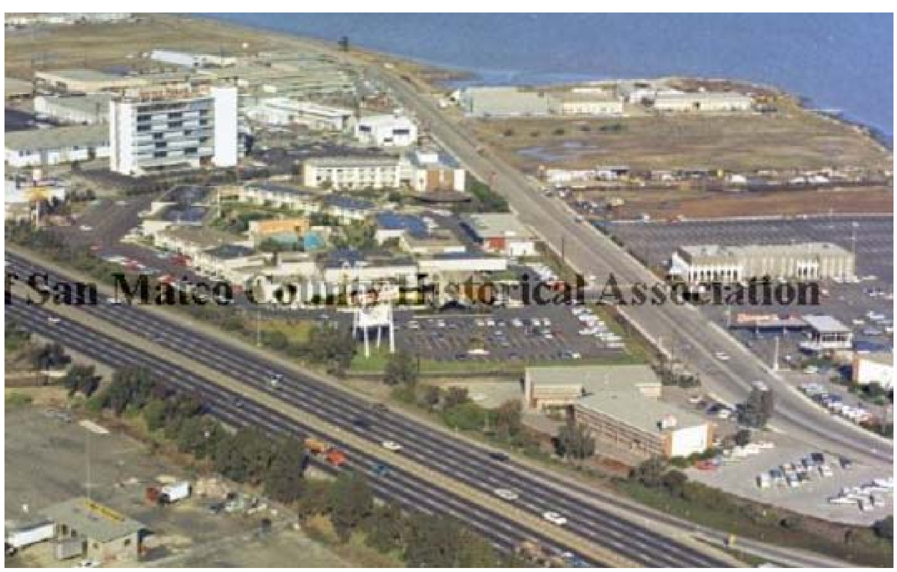
***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

***B10. Significance (continued from page 2)**

Blunk's repertoire was wide-ranging. Other projects include an industrial complex for the Hockwald Company, which processed and distributed sanitation supplies, in nearby Brisbane (1959, exact location unknown); the residence of Mr. and Mrs. Ray Winters in Hillsborough (1964, landscape design by Thomas Church; demolished); the Hillbarn Theater in Foster City (1967, extant); the San Mateo Garden Center (1975, extant); and the design for the "Hexaplex," a pre-fabricated building system that used only triangular elements (1971).

A 1964 site plan for the Music Fair Theater (the former Hyatt Music Theater building at 1300-1308 Bayshore Highway) identifies the subject property as the site of a "future bank." Research did not reveal that a bank has ever occupied the property. When it was constructed in 1965, the building had freestanding porches that wrapped around its southeast corner and on its southeast façade that resembled the front porch on the adjacent Hyatt Music Theater. The building was remodeled in 1973, and the original porches were likely removed at that time. At this writing, the building's appearance reflects a second exterior remodel that was undertaken in 1990 and that affected the southwest, southeast, and northwest façades.

1310 Bayshore Highway (left) and the Hyatt Music Theater, 1966. Note the distinctive freestanding porch on the subject property that matched the theater building and that was likely removed in 1973.
Source: San Mateo County History Museum, catalog no. 2015.001.08912.



Aerial view showing 1310 Bayshore Highway at right, 1966. Freestanding porches are visible on two façades.
Source: San Mateo County History Museum, catalog no. 2015.001.09992.

(Continued on page 5)

***Resource Name or #:** 1310 Bayshore Highway

***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

***B10. Significance (continued from page 4)**

Although the 1965 city directory lists no occupants of the subject property, the local newspaper reported that the Hersey-Sparling Meter Company, "one of the largest manufacturers of water measuring and control equipment as well as telemetering devices in the nation," occupied office space there. The 1970 city directory lists the following occupants: Blunk Associates (the architecture for that designed the building), Anza Pacific Corp. (the real estate developer that owned the property), Denny's Restaurant, Bryant Computer Products (memory devices), Liggett & Myers, Citrus Investments Inc., and Mills Norman Associates (consulting engineers). In 1977, the building's occupants were The Eggplant Restaurant, Avcar Rentals (auto rentals), Princeton Applied Research Corp., the Foundation for Advanced Continuing Education (F.A.C.E.), the and the Oral Arts Orthodontic Laboratory Inc. Between 1992 and 1998, the restaurant space was occupied by The Sizzler restaurant.

Evaluation
ESA staff evaluated the subject property for its potential historical significance under California Register of Historical Resources Criteria 1 through 4 and National Register of Historic Places Criteria A through D.

Criterion 1/A (Events): The subject property at 1310 Bayshore Highway was constructed in 1965 as part of the Hyatt House Hotel complex that introduced futuristic architecture and a range of new attractions to Burlingame and the Peninsula. The subject property functioned as a commercial building with a restaurant and office space occupied by numerous businesses and individuals. The hotel itself, which was the centerpiece of the complex of buildings, was demolished ca. 1987, and it can be argued that the surrounding buildings ceased to be a "complex" at that time. 1310 Bayshore Highway does not appear to have contributed to broad patterns of local or regional history or the cultural heritage of California or the United States, and for this reason is not recommended eligible for listing under Criterion 1/A.

Criterion 2/B (People): Over the course of its 52-year history, the subject property has been occupied by numerous businesses and individuals, and research did not reveal an association with anyone who was important to local, California, or national history. The Keyston Brothers, who developed 1310 Bayshore Highway and had their offices there for a period of time, were key players in the development of Bayfront property around the airport beginning in the 1960s. A 1974 newspaper article summarizes their prominent role: "In terms of bringing to Burlingame's former mudflats a string of tall buildings, the Keystons have been major contributors…" The subject property was not part of the Keystons' larger projects relating to the airport (e.g. Anza Airport Park), and it is therefore not recommended eligible for listing under Criterion 2/B.

Criterion 3/C (Design/Construction): 1310 Bayshore Highway is an example of a Midcentury Modern-style commercial building that was designed by a master architect of local significance. Robert Blunk, whose work is well represented in the immediate vicinity, created a design that was clearly inspired by the futuristic architectural language of the adjacent Hyatt Music Theater (also designed by Blunk) and aimed to create a distinctive and unified expression that visually linked it to the Hyatt House Hotel across the street (demolished ca. 1987). The subject property, however, has been considerably altered and has lost some of the distinctive characteristics that associate it to the design of the adjacent theater. Furthermore, it is not representative of a type, region, or method of construction and does not possess high artistic value. For these reasons, the subject property is not recommended eligible for listing under Criterion 3/C.

Criterion 4/D (Information Potential): Research did not reveal that the subject property at 1310 Bayshore Highway would provide important information relevant to history or pre-history that was not already known. For these reasons, the subject property is not recommended eligible for listing under Criterion 4/D.

Integrity
1310 Bayshore Highway remains in its original site and therefore retains integrity of location. Changes have occurred in the immediate vicinity and the surrounding commercial neighborhood—notably the demolition of the associated Hyatt House Hotel ca. 1987, the modernization of the subject building itself and several nearby buildings, and new construction—and integrity of setting has diminished. Research reveals that the building continues to be used for its original functions (i.e. a restaurant and offices), and it therefore retains some integrity of feeling and association with those uses. The building has undergone extensive exterior alterations over the years, and as a result, integrity of design, materials, and workmanship are diminished. The subject property retains a low-to-moderate degree of integrity.
(Continued on page 6)

***Resource Name or #:** 1310 Bayshore Highway

***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

***B10. Significance (continued from page 5)**

Summary

As the property at 1310 Bayshore Highway does not meet any of the California or National Register criteria and retains a low-to-moderate degree of integrity, ESA recommends it to be ineligible for listing in the California or National Registers.

***B12. References (continued from page 2)**

Advertisement. *The Times, San Mateo, California*. 14 September 1963, p. 43.
"Burlingame's Dave Keyston: The Man Behind Shore Development." *The Times, San Mateo, California*. 1 March 1974, pp. 25-26.
City of Burlingame Community Development Depart, Building Division.
City of Burlingame Planning Department. *Burlingame Bayfront Specific Plan*. Amended 18 June 2012, p. VI-1.
"Hyatt Music Theater and Banquet Room—Sept. 15." *The Times, San Mateo, California*. 14 August 1964, p. 29.
"New Quarters for Company." *The Times, San Mateo, California*. 27 October 1965, p. 47.
Polk's Burlingame City Directories. 1965, 1970, 1977.
San Mateo County Historical Association

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code Reviewer Date

 ***Resource Name or #:** 1338-1340 Bayshore Highway

P1. Other Identifier:
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** San Mateo
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** **Date:** **T** ; **R** ; **¼ of** **¼ of Sec** **;** M.D. **B.M.**
c. Address: 1338-1340 Bayshore Highway City: Burlingame Zip: 94010
d. UTM: Zone: ; mE/ mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation:
APN # 026-113-470

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The subject property is a one- and two-story commercial building on an L-shaped lot that is bounded by Bayshore Highway on the southwest and the San Francisco Bay on the northeast. The building is rectangular in plan, clad in brick, and terminates in a combination of flat roofs and sawtooth roof forms clad in wood shingles. Landscaped areas with mature plantings are located on the southwest, southeast, and northeast façades.

The primary (southeast) façade is accessed by a driveway from Bayshore Highway. The west end of the building is one story in height, and the east end is two stories. It features large expanses of painted brick-clad walls, and the irregular roofline terminates in metal coping. Near the west end of the façade, a one-story brick wall obscures a sliding glass door on a wall behind it. Near the center of the façade are concrete steps that lead to a recessed entry that includes a pair of flush metal doors below a metal cornice with abstract dentil molding. Toward the east end of the façade is a concrete ramp that leads to a single flush door.

(Continued on Page 3)

***P3b. Resource Attributes:** HP6. 1-3 story commercial building
***P4. Resources Present:** ■Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing

P5b. Description of Photo: Primary (south) façade, looking west, ESA 2017

***P6. Date Constructed/Age and Sources:**
☒Historic ☐Prehistoric ☐Both
1968, Original building permit

***P7. Owner and Address:**
Fox Bayshore Investments LLC
1308 Bayshore Hwy, #211
Burlingame, CA 94010

***P8. Recorded by:** (Name, affiliation, and address)
Johanna Kahn / ESA
550 Kearny Street, Suite 800
San Francisco, CA 94108

***P9. Date Recorded:** 3/21/2017

***P10. Survey Type:** (Describe)
Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")
None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ■Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 6Z

***Resource Name or #** 1338-1340 Bayshore Highway

B1. Historic Name: None
B2. Common Name: 1338-1340 Bayshore Highway
B3. Original Use: Office building
B4. Present Use: Office building
***B5. Architectural Style:** Midcentury Modern
***B6. Construction History:**

Built in 1968 (building permit #R351, 22 October 1968). The owner was the Hyatt Corporation of Burlingame, the architect was Goodwin B. Steinberg of San Jose, and the contractor was Northridge Inc. of Sepulveda, CA. Tenant improvements were carried out in 1994, when a handicap ramp and handrail were constructed at one of the building's entrances (building permit #9400840). A monument sign was installed in 1995 (building permit #9501659). Undocumented alterations include the construction of a second handicap ramp and handrail and a flush metal door on east end of the south façade and a sliding glass door near the center of the south façade.

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** N/A **Original Location:** N/A
***B8. Related Features:** none

B9a. Architect: Goodwin B. Steinberg
b. Builder: Northridge Inc.
***B10. Significance: Theme:** N/A
Area: Burlingame
Period of Significance: 1968 **Property Type:** Commercial **Applicable Criteria:** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The subject property and vicinity are within the Shoreline Area of the Burlingame Bayfront Planning Area. The entire Shoreline Area was historically marsh and tidal lands. This stretch of shoreline was filled in over the course of the 1950s and 1960s, and development occurred over the following decades.

The subject property was designed by Goodwin "Goody" B. Steinberg, FAIA (1922-2010). He graduated from the Illinois Institute of Technology in 1947, where he studied architecture under Ludwig Mies van der Rohe. He founded Steinberg Group in 1953 (later known as Steinberg Architects), which is today an international architecture firm; since 1977, the firm has been managed by his son, Robert Steinberg. Some of Goodwin Steinberg's best known projects include the design for the synagogue for Congregation Beth Am in Los Altos Hills (1955, extant) and advising on the design for the Guadalupe River Park in San Jose. Under the leadership of his son, Steinberg Architects rose to prominence for coordinating the design of the Tech Museum of Innovation in San Jose (1998, extant) and restoring the Old Santa Clara County Courthouse in San Jose (1992-1994, extant). According to his obituary, Goodwin Steinberg "designed scores of buildings in the Palo Alto area and at Stanford University," and he was also known as a prolific designer of suburban housing developments in the South Bay Area. (Continued on page 4)

B11. Additional Resource Attributes: none

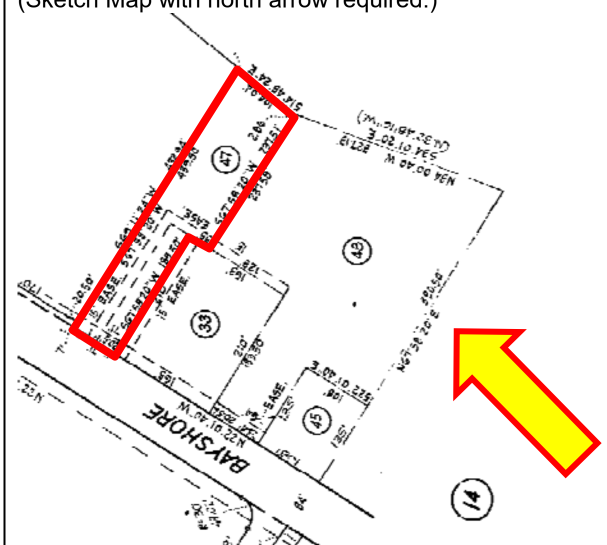
***B12. References:**
See page 5

B13. Remarks: none

***B14. Evaluator:** Johanna Kahn, ESA
550 Kearny Street, Suite 800
San Francisco, CA 94108
Date of Evaluation: May 2017

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



Source: San Mateo County Assessor, edited by author

***Resource Name or #:** 1338-1340 Bayshore Highway

***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

***P3a. Description: (continued from page 1)**

The northeast façade is composed to two parts. The one-story southern part contains the building's primary entrance and is deeply recessed from the northern part. A concrete ramp leads to a recessed entry that features a single glazed door within a wall of glass. The entry terminates in a metal cornice with abstract dentil molding. The two-story northern part of the façade is composed of three bays of fixed, mirrored windows on both the first and second floors. A single glazed door on the first floor is located at the north end of the façade.

The northwest façade has a similar design to the southeast façade. A continuous brick-clad wall without fenestration terminates in an irregular roofline with metal coping.

The building's southwest façade, which faces Bayshore Highway, is obscured by trees.

The building exterior appears to be in good condition.

South end of southeast façade, looking west.

North end of southeast façade, looking west.

Northwest façade, looking east.

***B10. Significance (continued from page 2)**

Steinberg's work includes the following housing developments: Brooktree West in the Santa Clara Valley for Perma-Bilt Homes (1962), Suburban Estates in Sunnyvale (1963) and Saratoga Meadows in Saratoga (1965) for Dura-Style Homes, Westgate Homes (1965) and Parkview Valley (1968) in San Jose for Mardell Development Co., and Ocean Pines condominiums in Pebble Beach (1972). Steinberg's other residential projects include the 1957 Sunset House for the California Spring Home & Garden Show in Oakland (landscape design by prominent Bay Area landscape architect Douglas Baylis) and the residence for Mr. and Mrs. Donald Pritzker, president of the Hyatt Corporation. In 1965, he also designed the national headquarters building for Sequoia Vacuum Systems in Menlo Park. Steinberg's 2002 memoir, *From the Ground Up: Building Silicon Valley*, chronicles his professional and personal achievements.

The subject property was constructed in 1968 as part of the executive offices for the Hyatt Corporation, which was newly formed in 1967 and owned the Hyatt House Hotel directly across Bayshore Highway. The 1970 and 1977 city directories list the sole occupant of 1338-1340 Bayshore Highway as the executive offices of the Hyatt Corporation. The national headquarters of the Hyatt Corporation were located in Burlingame, both at the subject property and nearby at 1353 Bayshore Highway (demolished). The Hyatt Corporation operated all of the Hyatt House Hotels across the country (there were 15 locations in 1968, and five more were either under construction or planned) as well as the California-based Hyatt Coffee Shoppe chain.

The building is currently occupied by Siesta Massage, Red Cube Production Inc. (video/film production), and the Law Offices of Nadeem H. Makada.

Evaluation
At this writing, the subject property is 49 years old and meets the 45-year threshold for consideration of potential historical significance under the California Register of Historical Resources. It does not meet the 50-year threshold under the National Register of Historic Places, and it does not appear to meet the exceptional significance criteria consideration. ESA staff evaluated the subject property for its potential historical significance under California Register of Historical Resources Criteria 1 through 4.

Criteria 1 (Events): The subject property at 1338-1340 Bayshore Highway was constructed in 1968 as part of the Hyatt House Hotel complex that introduced futuristic architecture and a range of new attractions to Burlingame and the Peninsula. The subject property originally functioned as part of the Hyatt Corporation's executive offices, and it later became a multi-tenant office building. The hotel itself, which was the centerpiece of the complex of buildings, was demolished ca. 1987, and it can be argued that the surrounding buildings ceased to be a "complex" at that time. 1338-1340 Bayshore Highway does not appear to have contributed to broad patterns of local or regional history or the cultural heritage of California or the United States, and for this reason is not recommended eligible for listing under Criterion 1.

Criteria 2 (People): Research did not reveal associations of any significant persons with the subject property. No one associated with the subject property was found to have been important to local, California, or national history. It therefore is not recommended eligible for listing under Criterion 2.

Criteria 3 (Design/Construction): 1338-1340 Bayshore Highway is an example of a Midcentury Modern-style office building that was designed by a master architect of local significance. Goodwin Steinberg was known for his civic, institutional, and residential projects throughout the Bay Area, and was especially renowned as a prolific residential architect. Considered as part of Steinberg's body of work, 1338-1340 Bayshore Highway does not express a particular phase in the development of his career and does not possess high artistic value. 1338-1340 Bayshore Highway embodies some characteristics of the Midcentury Modern style of architecture, namely the sawtooth roof, but as a small office building, it does not exemplify late-1960s commercial architecture. For these reasons, the subject property is not recommended eligible for listing under Criterion 3.

Criteria 4 (Information Potential): Research did not reveal that the subject property at 1338-1340 Bayshore Highway would provide important information relevant to history or pre-history that was not already known. For these reasons, the subject property is not recommended eligible for listing under Criterion 4.

(Continued on page 5)

***Resource Name or #:** 1338-1340 Bayshore Highway

***Recorded by** Johanna Kahn ***Date** May 2017 ☒Continuation ☐Update

***B10. Significance (continued from page 2)**

Criteria 4 (Information Potential): Research did not reveal that the subject property at 1338-1340 Bayshore Highway would provide important information relevant to history or pre-history that was not already known. For these reasons, the subject property is not recommended eligible for listing under Criterion 4.

Integrity
1338-1340 Bayshore Highway remains in its original site and therefore retains integrity of location. Changes have occurred in the immediate vicinity and the surrounding commercial neighborhood—notably the demolition of the associated Hyatt House Hotel ca. 1987, the modernization of several nearby buildings, and new construction—and integrity of setting has diminished. Research reveals that the building continues to be used for its original function (i.e. offices space), and it therefore retains some integrity of feeling and association with that use. The building has undergone few exterior alterations over the years, and as a result, it retains integrity of design, materials, and workmanship. The subject property retains a high degree of integrity.

Summary
As the property at 1338-1340 Bayshore Highway does not meet any of the California or National Register criteria while retaining a high degree of integrity, ESA recommends it to be ineligible for listing in the California or National Registers.

***B12. References (continued from page 2)**

"Celebrated Architect Goodwin Steinberg, 89, Dies After Illness." *Palo Alto Online*. 16 December 2010. Accessed 4 April 2017, www.paloaltoonline.com.
City of Burlingame Community Development Depart, Building Division.
City of Burlingame Planning Department. *Burlingame Bayfront Specific Plan*. Amended 18 June 2012, p. VI-1.
"Hyatt House Buys Second E. Coast Hotel." *The Times, San Mateo, California.* 19 July 1968, p. 15.
"New Hyatt Corporation Formed." *The Times, San Mateo, California.* 22 August 1967, p. 19.
Pine, Dan. "Goody Steinberg, Eminent Bay Area Architect, Dies at 88." *The Jewish News of Northern California.* 17 December 2010. Accessed 4 April 2017 at www.jweekly.com.
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Tanner, Steve. "Third-Generation Architect Shapes Lives Through Design." *Sacramento Business Journal.* 25 January 2007. Accessed 3 May 2017 at www.bizjournals.com.

Historic Built Environment Assessment

April 8, 2022

Dr. Dana Douglas DePietro
Director of Cultural Resources
FirstCarbon Solutions
Email: ddepietro@fcs-intl.com

RE: Historic Built Environment Assessment for the 1200-1340 Old Bayshore Highway Project, City of Burlingame, California

Dear Dr. DePietro:

South Environmental was retained by FirstCarbon Solutions (FCS) to prepare an historic built environment assessment report in support of the 1200-1340 Old Bayshore Highway Project (project) located in the City of Burlingame, California. The purpose of this report is to determine if the proposed project will result in impacts/adverse effects to historic built environment resources located within or adjacent to the project site. This report was prepared in conformance with the requirements of Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulation Title 36 CFR Part 800, the California Environmental Quality Act (CEQA) Guidelines § 15064.5 for historical resources, and City of Burlingame Zoning Code 25.35.040(c).

Three buildings within the project site are over 45 years old and have not been previously evaluated for historical significance, including: the building at 1240 Old Bayshore Highway (APN 026-142-160_ and two buildings at 1250 Old Bayshore Highway (APNs 026-142-140 and 026-142-150). All other buildings within the project site over 45 years old were recently evaluated by ESA as part of the 2020 IS/MND for the 1300 Old Bayshore Highway Project and were found not eligible for designation under federal, state, and local designation criteria. Therefore, those properties were not evaluated as part of the current study. In accordance with CEQA Guidelines §15064.5, the three previously unevaluated properties were evaluated for- historical significance and integrity on the appropriate set of State of California Department of Parks and Recreation Series 523 Forms (DPR forms, Attachment A).

This significance evaluations and associated impacts assessment was prepared by Architectural Historian Laura Carias, MA and Principal Architectural Historian Samantha Murray, MA who meet the Secretary of the Interior's Professional Qualification Standards for architectural history and history. Resumes for Ms. Carias and Ms. Murray are provided in Attachment B.

Introduction

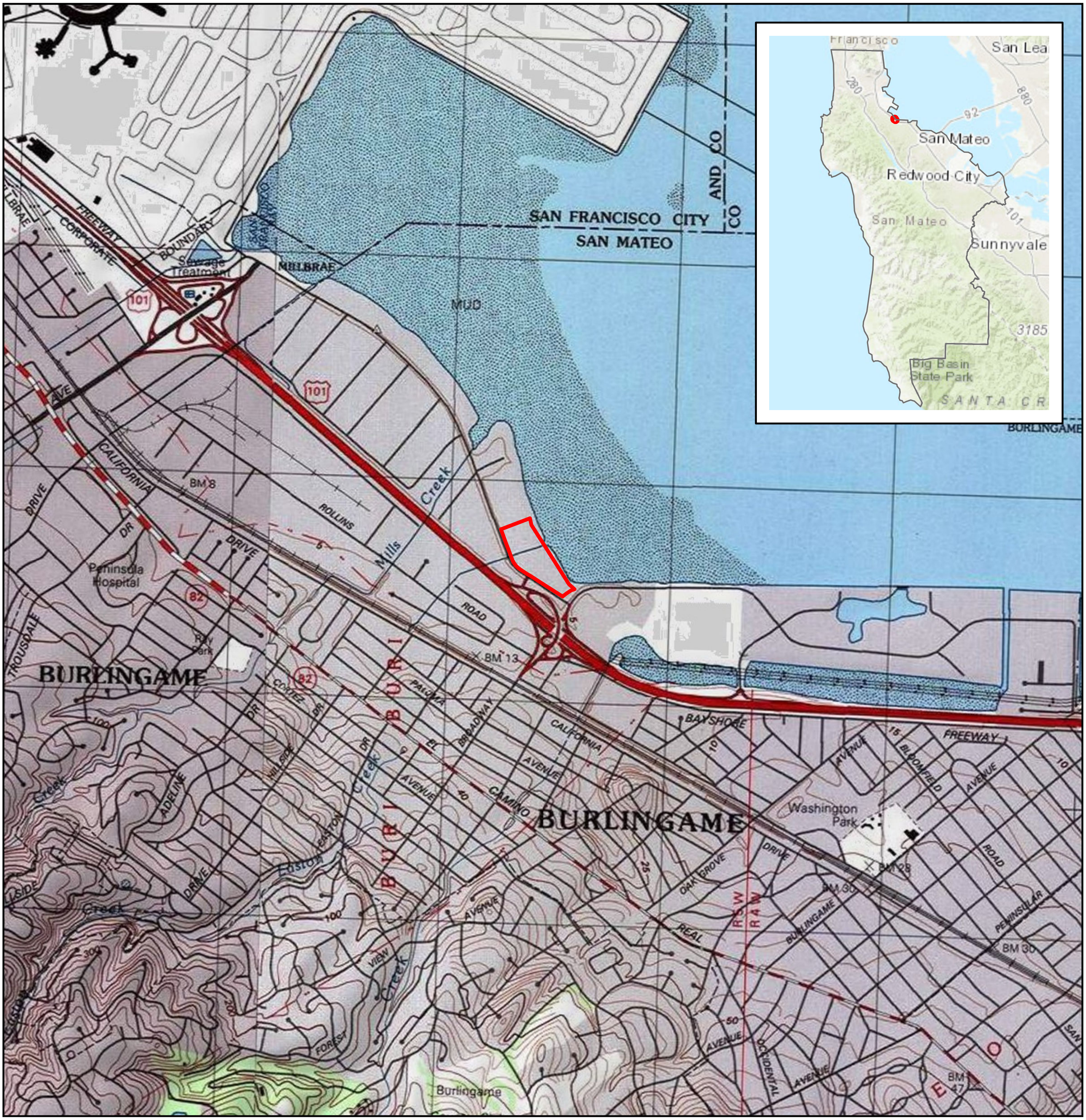
Project Description

The proposed project would construct three separate life science/office buildings (the South Building, North Building, and Center Building) totaling approximately 1.46 million gross square feet. The life science/office buildings would be designed with Core and Shell infrastructure suitable to support life science tenants. The program also includes various amenities and 5,000 square feet of café/restaurant in the southernmost building.

Off-site improvements would include demolition of existing sidewalk, driveways, curb, and gutter. New driveways would be constructed to include either driveway aprons or curb returns and curb ramps. There would be new concrete sidewalk, curb, and gutter constructed along the project frontage and other pavement replacement would occur as needed. Existing mid-block crosswalks across Old Bayshore Highway would be removed and two new crosswalks installed at the entrance to the north parking structure; this intersection would be signalized. The existing bicycle lane along the west side of Old Bayshore Highway would remain as a protected bike lane. There would be lane restriping at the California Department of Transportation intersection of US-101 northbound off-ramp at Old Bayshore Highway, including one dedicated left-turn lane, one combined left-turn and through lane, and one combined right-turn and through lane. The southbound off-ramp of US-101 at Broadway would be restriped to include two dedicated right-turn lanes, one dedicated left-turn lane, and one combined left-turn and through lane. These changes in lane configuration would require signal modifications at these intersections. New intersection medians would be installed on Old Bayshore Highway at the US-101 northbound off-ramp. Frontage improvements on Old Bayshore Highway would include high-low lights and street trees.

Project Location

The project is located in the City of Burlingame, San Mateo County, California, approximately 1.2 miles southeast of San Francisco International Airport (SFO). The project site consists of 13 parcels (APNs 026113470, 026113330, 026113480, 026113450, 026142110, 026142140, 026142070, 026142150, 026142160, 026142170, 026142020, 026142030, and 026142180) located along the San Francisco Bay shoreline in northeastern Burlingame, the site is approximately 12 acres and includes addresses ranging from 1200 to 1340 Old Bayshore Highway (Figure 1). The project site is adjacent to both banks of Easton Creek, an engineered tidal channel, and an unnamed remnant tidal channel in its southern portion.



Source: ESRI USA Topo Maps and World Topo Map 2022

1200-1340 Old Bayshore Highway Project

Figure 1. Project Location Map

Project Site

0 1,000 2,000 Feet

Scale: 1:24,000

N

Project Site is within the City of Burlingame California, in San Mateo County on the USGS San Mateo 7.5-minute quadrangle map in Sections 12 and 13 of Township 04 South and Range 5 West

Center Coordinate (Decimal Degrees):
Latitude: 37.5929245N, Longitude: -122.3622766W

SOUTH ENVIRONMENTAL

Regulatory Setting

The National Historic Preservation Act

The NHPA established the NRHP and the President's Advisory Council on Historic Preservation (ACHP), and provided that states may establish State Historic Preservation Officers (SHPOs) to carry out some of the functions of the NHPA. Most significantly for federal agencies responsible for managing cultural resources, Section 106 of the NHPA directs that

> [t]he head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP.

Section 106 also affords the ACHP a reasonable opportunity to comment on the undertaking (16 U.S.C. 470f). 36 Code of Federal Regulations, Part 800 (36 CFR 800) implements Section 106 of the NHPA. It defines the steps necessary to identify historic properties (those cultural resources listed in or eligible for listing in the NRHP), including consultation with federally recognized Native American tribes to identify resources with important cultural values; to determine whether or not they may be adversely affected by a proposed undertaking; and the process for eliminating, reducing, or mitigating the adverse effects.

The content of 36 CFR 60.4 defines criteria for determining eligibility for listing in the NRHP. The significance of cultural resources identified during an inventory must be formally evaluated for historic significance in consultation with the ACHP and the California SHPO to determine if the resources are eligible for inclusion in the NRHP. Cultural resources may be considered eligible for listing if they possess integrity of location, design, setting, materials, workmanship, feeling, and association.

National Register of Historic Places

The NRHP is the United States' official list of districts, sites, buildings, structures, and objects worthy of preservation. Overseen by the National Park Service, under the U.S. Department of the Interior, the NRHP was authorized under Section 106 of the NHPA, as amended. Its listings encompass all National Historic Landmarks, as well as historic areas administered by the National Park Service.

NRHP guidelines for the evaluation of historic significance were developed to be flexible and to recognize the accomplishments of all who have made significant contributions to the nation's history and heritage. Its criteria are designed to guide state and local governments, federal agencies, and others in evaluating potential entries in the NRHP. For a property to be listed in or determined eligible for listing, it must be demonstrated to possess integrity and to meet at least one of the following criteria:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded, or may be likely to yield, information important in prehistory or history.

Integrity is defined in NRHP guidance, "How to Apply the National Register Criteria," as "the ability of a property to convey its significance. To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity" (NPS 1990). NRHP guidance further asserts that properties be completed at least 50 years ago to be considered for eligibility. Properties completed fewer than 50 years before evaluation must be proven to be "exceptionally important" (criteria consideration to be considered for listing.

California Register of Historical Resources

In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California Public Resources Code Section 5020.1(j)). In 1992, the California legislature established the CRHR "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code Section 5024.1(a)). The criteria for listing resources on the CRHR (enumerated below) were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP. According to California Public Resources Code Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

(2) Is associated with the lives of persons important in our past.

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 CCR 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

CEQA requires a lead agency determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC], Section 21084.1). A historical resource is a resource listed in, or determined to be eligible for listing, in the CRHR, a resource included in a local register of historical resources or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (State CEQA Guidelines, Section 15064.5[a][1-3]).

Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5(b).) If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources or identified as significant in a historical resources survey (meeting the requirements of California Public Resources Code Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1); California Public Resources Code Section

5020.1(q)). In turn, CEQA Guidelines section 15064.5(b)(2) states the significance of an historical resource is materially impaired when a project:

1. Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
2. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
3. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

25.35.040(c) City of Burlingame Historic Architectural Resources Inventory (2021)

The NRHP Guidelines (Guidelines) shall be used for determining historical resources. The criteria in subsection (j) of the Guidelines and at least two of the other criteria shall be utilized to determine the significance of a property when considering its inclusion in the Register.

1. Buildings, structures, or places that are important key focal or pivotal points in the visual quality or character of an area, neighborhood, or survey district.
2. Structures that help retain the characteristics of the town with respect to the immediate surroundings.
3. Structures that contribute to the unique urban quality of a downtown.
4. Structures contributing to the architectural continuity of the street.
5. Structures that are identified with an event or person who significantly contributed to the culture and/or development of the City, State, or nation.
6. Structures that represent an architectural type or period and/or represent the design work of known architects, draftsmen, or builders whose efforts have significantly influenced the heritage of the City, State, or nation.

7. Structures that illustrate the development of California locally and regionally.
8. Buildings retaining the original integrity of and/or illustrating a given period.
9. Structures unique in design or detail, such as, but not limited to, materials, windows, landscaping, plaster finishes, and architectural innovation.
10. Structures that are at least 50 years old or properties that have achieved significance within the past 50 years, at the time the determination is made, if they are of exceptional importance.
11. Places that have been visited by a person or persons important to City, State, national, or international history or prehistory.

Area of Potential Effects

According to Section 106 of the NHPA, the Area of Potential Effects (APE) is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties if any such properties exist. Determination of the APE is influenced by a project's setting, the scale and nature of the undertaking, and the different kinds of effects that may result from the undertaking (36 CFR 800.16(d)).

With respect to built environment resources, the project APE (Figure 2) encompasses the entire proposed project site where development will occur. No potential indirect effects were identified for this project. Three buildings within the APE are over 45 years old and have not been previously evaluated for historical significance, including: the building at 1240 Old Bayshore Highway (APN 026-142-160) and two buildings at 1250 Old Bayshore Highway (APNs 026-142-140 and -150). All other buildings within the APE over 45 years old were recently evaluated by ESA as part of the 2020 IS/MND for the 1300 Old Bayshore Highway Project and were found not eligible for designation under federal, state, and local designation criteria.

Source: ESRI USA Topo Maps and World Topo Map 2022

1200-1340 Old Bayshore Highway Project

Figure 2. Area of Potential Effects Map

Previously Evaluated Properties

Project APE

0 100 200 Feet

Scale: 1:2,066

N

SOUTH ENVIRONMENTAL

Methods

Background Research

Background research was conducted on the project site to establish a thorough and accurate historic context, and to confirm the development history of the three properties evaluated (see DPR form sets in Attachment A). This included a review of all available building permits; historical newspapers covering the Bay Area via newspapers.com; historic aerial photographs of the project site via National Environmental Title Reference (NETR) and the University of Santa Barbara FrameFinder Maps; and applicable primary and secondary sources on file with local libraries.

Survey

FCS Senior Archaeologist, Dr. Dana DePietro completed a pedestrian survey of the project site on March 16, 2022. The built environment survey entailed walking the site and documenting the exterior of all buildings and structures with notes and photographs.

Findings

Three built environment resources over 45 years old that had not been previously evaluated for historical significance were identified within the project APE: 1240 Old Bayshore Highway (APN 026-142-160), 1250 Old Bayshore Highway (APN 026-142-140), and 1250 Old Bayshore Highway (APN 026-142-150) constructed between 1965 and 1966. These buildings were recorded and evaluated for historical significance on the appropriate set of DPR Forms in consideration of NRHP, CRHR, and City designation criteria and integrity requirements (Attachment A). The properties were found not eligible under all designation criteria due to a lack of significant historical associations and architectural merit. All other buildings over 45 years old within the APE were previously evaluated in 2020 and found not eligible for designation.

No historical resources were identified within the project site as a result of this study. Therefore, with respect to built environment resources, the proposed project will have a less than significant impact on historical resources under CEQA and no adverse effect to historic properties under Section 106 of the NHPA.

Should you have any questions regarding this report or its findings, please do not hesitate to contact us at smurray@southenvironmental.com.

Sincerely,

Laura Carias, MA
Architectural Historian

Samantha Murray, MA
Principal Architectural Historian

Attachments

A. DPR Form Sets for 1250 and 1240 Old Bayshore Highway

B. Resumes

ATTACHMENT A.

DPR Form Sets for the 1240 and 1250 Old Bayshore Highway
(APNs 026-142-160, 026-142-150, and 026-142-140)

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code Reviewer Date

 ***Resource Name or #:** (Assigned by recorder) 1240 Old Bayshore Highway

P1. Other Identifier:

***P2. Location:** ☐ **Not for Publication** ■ **Unrestricted** ***a. County** San Mateo **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** San Mateo **Date** 2022 **T** 04 S ; **R** 05 W ; _ ☐ **of** _ ☐ **of Sec** 12 and 13; MD **B.M.**

c. Address 1240 Old Bayshore Highway City Burlingame Zip 94010

d. UTM: (Give more than one for large and/or linear resources) Zone ___, _______ mE/ _________ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)
APN 026-142-160. The subject property is located on the east side of Old Bayshore Highway north of Broadway.

***P3a. Description:**
The subject property is a three-story commercial building with a steel frame structural system and a rectangular plan (Photograph 1). The building was designed in the Corporate International style of architecture and features a flat roof. The building is clad with a mixture of smooth stucco on the primary south elevation and aggregate paneling on the west, east, and north elevations (Photographs 2 and 3). The primary elevation is nearly symmetrical with the main entrance offset to the east (see Continuation Sheet).

***P3b. Resource Attributes:** (List attributes and codes) HP6. 1-3 story commercial building

***P4.Resources Present:** ■ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #) Photograph 1. Main (south) elevation, view to northeast (FCS 2022)

***P6. Date Constructed/Age and Source:** ■ Historic ☐ Prehistoric ☐ Both
1965 (County Assessor)

***P7. Owner and Address:**
DW Burlingame III Owner LLC
301 Howard St. 20th Fl.
San Francisco, CA 94105

***P8. Recorded by:** Laura Carias & Samantha Murray
South Environmental
Pasadena, CA 91104

***P9. Date Recorded:** 3/16/2022

***P10. Survey Type:** Pedestrian

***P11. Report Citation**: (Cite survey report and other sources, or enter "none.")
Historic Built Environment Assessment for the 1200-1340 Old Bayshore Highway Project, Burlingame, California (South Environmental 2022)

***Attachments:** ☐NONE ■Location Map ■Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California Natural Resources Agency DEPARTMENT OF PARKS AND RECREATION	Primary # HRI#
LOCATION MAP	Trinomial

Page 2 **of** 14 ***Resource Name or #** (Assigned by recorder) 1240 Old Bayshore Highway

***Map Name:** San Mateo, California ***Scale:** 1:24,000 ***Date of map:** 2022

State of California The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
Primary #
HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** (Assigned by recorder) 1240 Old Bayshore Highway ***NRHP Status Code** 6Z

B1. Historic Name: California Trucking Association
B2. Common Name: ECC
B3. Original Use: Office building B4. Present Use: Office building
*** B5. Architectural Style:** Corporate International
***B6. Construction History:** (Construction date, alterations, and date of alterations)
The subject property was constructed circa 1965 (San Mateo County Assessor)

***B7. Moved?** ■No ☐Yes ☐Unknown **Date:** **Original Location:**
***B8. Related Features:** n/a
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** n/a **Area** n/a

Period of Significance n/a **Property Type** n/a **Applicable Criteria** n/a

Historic Context

Burlingame Early Development History
Before European discovery of the Bay Area, the area now known as Burlingame was inhabited by the Ohlone. Although the Portola expedition had passed through the area in 1769, it was the Juan de Anza Bautista expedition that came in 1776 that first camped in the Burlingame vicinity. The Spanish missionaries that accompanied Bautista set up a farm in the Burlingame/San Mateo area to support the mission in San Francisco (BHS 2013). When Mexico gained its independence from Spain, the mission properties were secularized and the southern Burlingame area became part of the Rancho San Mateo land grant given to Cayetano Arena, secretary to then Governor, Pio Pico (BHS 2013) (see Continuation Sheet).

B11. Additional Resource Attributes: (List attributes and codes)
***B12. References:** See Continuation Sheet

B13. Remarks:

***B14. Evaluator:** Laura Carias and Samantha Murray, South Environmental
***Date of Evaluation:** 3/16/2022

(This space reserved for official comments.)

(Sketch Map with north arrow required.)

***P3a. Description (Continued):** The main entrance is located beneath a flat roof secondary porch supported by two outward slanting porch supports (Photograph 4) Windows consists of metal sash fixed windows set in bays of three and divided by pilasters. Boxed awnings made of tinted glazing stretch across windows on each floor

Photograph 2. West elevation, facing east.

Photograph 3. North elevation; facing south

Photograph 4. Main entrance, facing northwest.

***B10. Significance (Continued):** The southern portion of Burlingame was part of the Buri Buri Rancho owned by Jose Antonio Sanchez, a solider from Sinaloa, Mexico (Carey & Co 2008: 6). Arena sold his land to a San Francisco based mercantile company, Howard & Mellus, after the Bear Revolt of 1846 (BHS 2013). William D.M. Howard bought out his partner, Henry Mellus, soon after the purchase. When Howard died in 1856, he left two thirds of his land to his wife, Agnus, and their son William H. Howard, and one third to his father-in-law, Joseph Poett. The parcels were divided by El Camino Real which ran north-south, with the Howards parcels to the west of El Camino Real and the Poett parcels to the east.

William C. Ralston, a banker who co-founded the Bank of California and made his wealth in the mining industry, purchased Howard's holdings in 1866 with the intent of establishing a new suburban development (Carey & Co 2008: 7). Ralston developed an estate he named Belmont where he hosted many prestigious individuals. One of his prominent guests was Anson Burlingame, a congressman from Massachusetts and former United States Minister to China. Burlingame visited Ralston in 1866 and purchased 1,000 acres of Ralston's holdings with the intent to set up a subdivision. Ralston, in turn, named the new town site Burlingame and laid out the streets, naming one major boulevard, Burlingame, in Anson's honor (Carey & Co 2008: 7)

The San Francisco and San Jose Railroad came thorough the peninsula in 1863 when it was granted a right-of-way through San Mateo Rancho. The Southern Pacific Railroad later acquired the line and "maintained a shed at the 'Oak Grove Crossing' for passengers boarding at Burlingame." (Carey & Co 2008:8).

Survey work for the new town site had taken place before Ralston died in 1875, but he did not live to see it come to fruition. He did however, partner with George H. Howard to commission John McLaren to "transform several miles of this dusty trail [El Camino Real] through barren and windswept miles of this area into a beautiful tree-lined boulevard leading to their great estates and proposed communities" (Pfaff 2011). The row of eucalyptus and elm trees on El Camino Real are a distinguishing feature of the city and were listed in the National Register of Historic Places in 2012 (Pfaff 2011).

El Camino Real was originally the road set out by Franciscan friars that lead travelers to each California Mission from San Diego to Sonoma. This road eventually encompassed portions of present day U.S. Highway 101 (Bayshore Highway), I-280, and CA-72 and CA-82 (El Camino Real)(Buchanan 2017). The Bayshore Highway was first conceived in 1924 and came to fruition in 1929. The highway stretched from South San Francisco to San Mateo with much of the funding coming from the City of San Francisco. After its completion, the Bayshore Highway "was redesignated as U.S. Route 101, previously the designation of El Camino Real and a decision that businesses along El Camino Real protested." (Woods 2022). The decision was eventually reversed and El Camino Real got its designation back with the Bayshore Highway becoming known as the Highway 101 bypass (Woods 2022).

After Ralston's death, his partner William Sharon took control of Ralston's holdings in Burlingame. Sharon used the land "as a dairy farm to supply the Palace Hotel in San Francisco, which he also acquired at Ralston's death" (BHS 2013). Upon Sharon's death in 1885, his son-in-law, Francis Newlands, took control of the property, and he began construction of the Burlingame Country Club, located in the present-day City of Hillsborough, hoping to entice new residents to move to the area. Newlands also developed five cottages surrounding the Country Club in 1893. A permanent depot was constructed in 1894 with funds from the Southern Pacific Railroad and members of the

County Club (BHS 2013). With the arrival of the streetcar service from San Francisco the town began to spread out from the station (Computer Spectrum 1996). The first two stores in town opened on Burlingame Square, across from the train station in 1901 (BHS 2013).

The town was relatively small until the San Francisco earthquake of 1906 that brought in a flood of new residents seeking to rebuild away from San Francisco. The development on Corbitt’s land became ideal for incoming refugees. The population grew from 200 in 1906 to roughly 1,000 in 1907 (Carey & Co 2008). Following this growth, the town established its first town church in 1906 and volunteer fire department in 1907. The town voted for incorporation in 1908 (BHS 2013).

The central section of Burlingame was also part of Rancho Buri Buri and owned by Sanchez. It passed on to his son, Jose Isidro (Chino) Sanchez, before he lost the property and it was acquired by Ansel Ives and Adeline Mills Easton. Their son, Ansel Mills Easton took over the property and subdivided the estate naming the town Easton. He built a store at the corner of Chula Vista and Broadway, established a school at Cortez Avenue and Easton Drive in 1908, a train stop, and streetcar service that was later discontinued in 1918 (BHS 2013). Easton was annexed to Burlingame in 1910 (Vinther 2017). The northernmost section of Burlingame was deeded to Sanchez’s son, Jose de la Cruz Sanchez. He, like his brother, also lost his holdings to the Mills family in 1860. The Mills family built a large vacation home that was used by three generations before selling the property to Trousdale Development in the 1950s (BHS 2013).

After a long dispute between “the towns of Burlingame and Millbrae over annexation, in 1954 it was decided to divide the property along what is now Murchison Drive, to the southern portion, from Mills Creek to Murchison, going to Burlingame and the northern portion, from Murchison to Millbrae Avenue, going to Millbrae.” (BHS 2013).

Postwar Industrial and Commercial Development

Industrial and commercial growth in the City of Burlingame was spurred by its proximity to the San Francisco International Airport (SFO, City of Burlingame 2018). SFO was first established as Mills Field in the late 1920s when the City of San Francisco purchased the tidelands at the eastern edge of the Darius Ogden Mills Estate that later became the City of Millbrae (Carlsson n.d.). The name was changed to San Francisco Airport in 1931. In the early 1930s, 350 acres of tidelands were reclaimed to accommodate a longer runway (Carlsson n.d.). By the 1950s, air travel became increasing popular, and the San Francisco Airport constructed a larger terminal to serve its growing passenger traffic. In 1954, the airport changed its name to San Francisco International Airport (SFO). That same year, the airport saw 2.5 million visitors. “By the mid-1960s, passenger numbers skyrocketed to than 10 million annually.” (SFO Museum 2020).

Growing parallel to SFO in the 1950s was the proposed mixed-use waterfront area in Burlingame. The first major development came in 1953, when the Burlingame City Council and Planning Commission reviewed the first map of what was to be known as “Millsdale,” a 198-acre portion of the Mills Estate east of the Southern Pacific Railroad between Millbrae Avenue and Broadway (south of the subject property). The original map was created by developer Paul W. Trousdale and showed the property divided into three major sections: commercial near Millbrae Avenue, residential in the center, and industrial at the southern end near Broadway.

With the postwar years continuing to bring more industry to the region, the need for industrial expansion increased throughout the 1950s and the original vision of a mixed-use area was east of the Southern Pacific Railroad was replaced with a focus on industrial development. In 1954, the Planning Commission unanimously approved the final map of what would become the Millsdale Industrial Park, which called for six industrial lots that would be serviced by Southern Pacific spur tracks (The Times 1954a). The 60-foot lots would be sold by the Trousdale Development Company (The Times 1954b). Over the next couple of years, the area along Rollins Road continued to develop into a major industrial corridor, with additional tracts added to the Millsdale Industrial Park.

In 1956, the most dramatic change to the area's industrial and commercial sector was proposed by the Burlingame Planning Commission, which involved eastward expansion into the bay on reclaimed tidelands (The Times 1956). The idea began to get traction in 1957 after General Electric announced it was opening a $1.5 million Milldale Plant at the corner of Burlingame Avenue and California Drive (The Times 1957). In 1958, plans were presented to the Commission to double the city's Millsdale Industrial Park area by developing 300 feet out into the bay by filling-in tidelands east of Bayshore Highway by up to nine feet. Engineers estimated it would take at least 1.5 million cubic yards of soil to fill-in the area (The Times 1958).

Growth in air traffic attracted hotels and amenities for visitors in the area surrounding SFO. The airport vicinity was also a great place to set up businesses that benefited from being near an airport. A 1966 article in *The Times* discusses the industrial park that is "second to none." The article says, "the city has proved its desirability by continuing to attract industries to its shoreline areas for several years… company after company has made its home or headquarters in Burlingame, recognizing the advantages of being near San Francisco International Airport…" (Golding 1966). Some of these businesses included General Motors, Ford, General Tire, Purity Stores, Du-Pont, General Electric, and Facit office machines (Golding 1966). As more businesses gathered in the newly developed commercial area, there was a mounting demand for meeting space and hotels. The Hyatt House opened in 1959 on Old Bayshore Highway advertising itself as a fly-in hotel. It was soon followed by several other hotels surrounding the airport (Golding 1966). There were plans to develop the vicinity near SFO as a hub of business activity. "New modern offices conveniently near air terminal facilities are eliminating the need for time-consuming transportation to crowded mid-city areas." (The Times 1964).

Property History

The subject property was constructed in 1965 for the California Trucking Association (CTA). CTA was established in 1934 and is the "largest trucking trade association in the State of California that dedicates itself to promoting advocacy, safety, compliance and leadership in the trucking industry." (CTA 2022). Research through various newspaper articles indicate that the company used the subject property as their headquarters until at least 1970. Offices were leased to other companies such as the Lumber and Mill Employers Association and the Wood Products Industry Fund in 1970 and the Transportation Research Education, and Development Foundation in 1973 (The Times 1970, 1973).

The subject property is currently leased by ECC International Contractors (ECC). ECC was founded in 1985 "with a mission to support environmental programs for Federal government agencies." (ECC 2022).

Corporate International Style Architecture (1949-1975)
Often referred to as Corporate Modernism, this style was most often applied to large-scale commercial and civic office buildings and was the dominant style of corporate architecture in the U.S. between the 1950s and 1970s. The style frequently incorporated glass curtain walls, with architects like Mies van der Rohe and Philip Johnson at the forefront of new curtain wall innovations. Advances in glass curtain systems included use of a steel structure that could support large expanses of glass while also giving the building a sleek, lightweight appearance and useable, adaptable interior spaces. Sunscreens and *brise soleil* became a more common feature on Corporate International style buildings as the style matured in the 1950s and 1960s. Sunscreens often comprised anodized aluminum or similar materials, frequently tinted and featuring geometric motifs, "giving a subtle hint of visual interest to an otherwise-plain façade" (City of Los Angeles 2021:158). While applied to smaller scale buildings, Corporate International style is most commonly applied to skyscraper buildings.

Distinctive character-defining features of the style include:

- Box-shaped/rectilinear forms
- Constructed of concrete, steel, and glass
- Flat roofs, either with flush eaves or cantilevered slabs
- Horizontal bands of flush, metal-framed windows, or curtain walls
- Lack of applied ornament
- Use of sunscreens and *brise soleil*
- Articulated ground story, often double-height and set back behind columns or pilotis
- Integral parking lot, either subterranean above grade
- Landscaped plaza or integral plantings at ground floor

Significance Evaluation
The following presents an evaluation of the subject property in consideration of CRHR and City of Burlingame designation criteria The following presents an evaluation of the subject property in consideration of National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR) and City of Burlingame designation criteria.

NRHP/CRHR Designation Criteria

NRHP/CRHR Criterion A/1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

The subject property has always functioned as an office building. It is located near SFO alongside other commercial properties that appeared in the 1960s and 1970s when commercial/industrial development flourished in Burlingame. However, it does not have any important associations with the development of SFO or the development of the commercial area along Highway 101. Therefore, the subject property is not eligible under NRHP Criterion A or CRHR Criterion 1.

NRHP/CRHR Criterion B/2. Is associated with the lives of persons important in our past.

Review of local publications and newspaper articles failed to indicate that the subject property has any important associations with significant persons in the history of the City or otherwise. Therefore, the subject property is not eligible under NRHP Criterion B or CRHR Criterion 2.

NRHP/CRHR Criterion C/3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

The subject property has distinctive characteristics of the Corporate International style of architecture such as a rectilinear form, slanting porch supports, sunshades, horizontal bands of flush, metal-framed windows, aggregate siding and boxed awnings over windows on the primary elevation. However, the building itself cannot be identified as a distinctive or important example of the style. The subject property lacks any unique construction techniques, or technology that would distinguish it from others in its property type. Further, it is not known to be the work of an important creative individual. Therefore, the subject property is not eligible under NRHP Criterion C or CRHR Criterion 3.

NRHP/CRHR Criterion D/4. Has yielded, or may be likely to yield, information important in prehistory or history.

The subject property is not significant as a source, or likely source, of important historical information nor does it appear likely to yield important information about historic construction methods, materials, or technologies. Therefore, the property is not eligible under NRHP Criterion D or CRHR Criterion 4.

City of Burlingame Designation Criteria

25.35.040(c) City of Burlingame Historic Architectural Resources Inventory

The NRHP Guidelines (Guidelines) shall be used for determining historical resources. The criteria in subsection (j) of the Guidelines and at least two of the other criteria shall be utilized to determine the significance of a property when considering its inclusion in the Register.

1. Buildings, structures, or places that are important key focal or pivotal points in the visual quality or character of an area, neighborhood, or survey district.

The subject property is in an altered commercial area that is not considered a key focal or pivotal point of the area.

2. Structures that help retain the characteristics of the town with respect to the immediate surroundings.

The subject property is a commercial building that dates to the 1960s. While much of the surrounding businesses date to the 1960s and 1970s, there have been numerous alterations to the historic setting such that the building does not help retain characteristics of the area.

3. Structures that contribute to the unique urban quality of a downtown.

The subject property is not located in a downtown area

4. Structures contributing to the architectural continuity of the street.

The street lacks continuity from the 1960s and 1970s.

5. Structures that are identified with an event or person who significantly contributed to the culture and/or development of the City, State, or nation.

See Criterion B/2 above.

6. Structures that represent an architectural type or period and/or represent the design work of known architects, draftsmen, or builders whose efforts have significantly influenced the heritage of the City, State, or nation.

See Criterion C/3 above

7. Structures that illustrate the development of California locally and regionally.

See Criterion C/3 above

8. Buildings retaining the original integrity of and/or illustrating a given period.

The subject property retains requisite integrity and no major alterations were identified.

9. Structures unique in design or detail, such as, but not limited to, materials, windows, landscaping, plaster finishes, and architectural innovation.

See Criterion C/3 above

10. Structures that are at least 50 years old or properties that have achieved significance within the past 50 years, at the time the determination is made, if they are of exceptional importance.

See Criterion A/1-D/4 above

11. Places that have been visited by a person or persons important to City, State, national, or international history or prehistory.

See Criterion B/2 above.

Integrity

Location: The subject property retains integrity of location. The property is sited in the original location it was constructed in its original orientation.

Design: The subject property retains integrity of design as it appears to retain original design features such as aggregate siding and slanting porch supports.

Setting: The subject property retains integrity of setting. Most of the surrounding properties were constructed in the 1960s and 1970s around the same time as the subject property.

Materials: The subject property retains integrity of materials. The cladding and architectural details of the building have retained.

Workmanship: The subject property retains integrity of workmanship as it appears to have remained largely unaltered since construction.

Feeling: The subject property retains integrity of feeling as it continues to feel like a commercial building from the 1960s.

Association: The subject property lacks integrity of association. The property has no important associations with events, people, or important patterns of development in the City.

For all of the reasons provided above, the property at 1240 Old Bayshore Highway is not eligible for designation in the NRPH, CRHR or local listing.

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State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code   Reviewer   Date

Page 1 **of** 13 ***Resource Name or #:** (Assigned by recorder) 1250 Old Bayshore Highway

P1. Other Identifier: Ramada Inn/Holiday Inn Express

***P2. Location:** ☐ **Not for Publication** ■ **Unrestricted**

***a. County** San Mateo **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** San Mateo **Date** 2022 **T** 04 S ; **R** 05 W ; _ ☐ **of** _ ☐ **of Sec** 12 and 13; MD **B.M.**

c. Address 1250 Old Bayshore Highway City Burlingame Zip 94010

d. UTM: (Give more than one for large and/or linear resources) Zone __, _______ mE/ _________ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)

APN 026-142-140. The subject property is located on the east side of Old Bayshore Highway north of Broadway. The San Francisco Bay is located directly east of the subject property.

***P3a. Description:**

The subject property is three-story hotel with an L-shaped floor plan. It is capped by a flat roof framed by a curved cornice. The building exterior is clad with smooth stucco. The primary entrance is located beneath a porte cochere that extends south from the south elevation and is supported by four squared columns. The main entrance features a contemporary glazed automatic sliding door framed by an aluminum sash window walls. Windows consists of aluminum-framed horizontal sliding windows that are evenly spaced along all elevations and placed between narrow bays. A rounded cornice divides the first and second floors (see Continuation Sheet).

***P3b. Resource Attributes:** (List attributes and codes) HP5. Hotel/motel

***P4. Resources Present:** ■ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #) Photograph 1. Main (south) elevation, view to northwest (FCS 2022)

***P6. Date Constructed/Age and Source:** ■ Historic ☐ Prehistoric ☐ Both
1966 (The Times 1966)

***P7. Owner and Address:**
DW Burlingame III Owner LLC
301 Howard St. 20th Fl.
San Francisco, CA 94105

***P8. Recorded by:** Laura Carias & Samantha Murray
South Environmental
Pasadena, CA 91104

***P9. Date Recorded:** 3/16/2022

***P10. Survey Type:** Pedestrian

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")

Historic Built Environment Assessment for the 1200-1340 Old Bayshore Highway Project, Burlingame, California (South Environmental 2022)

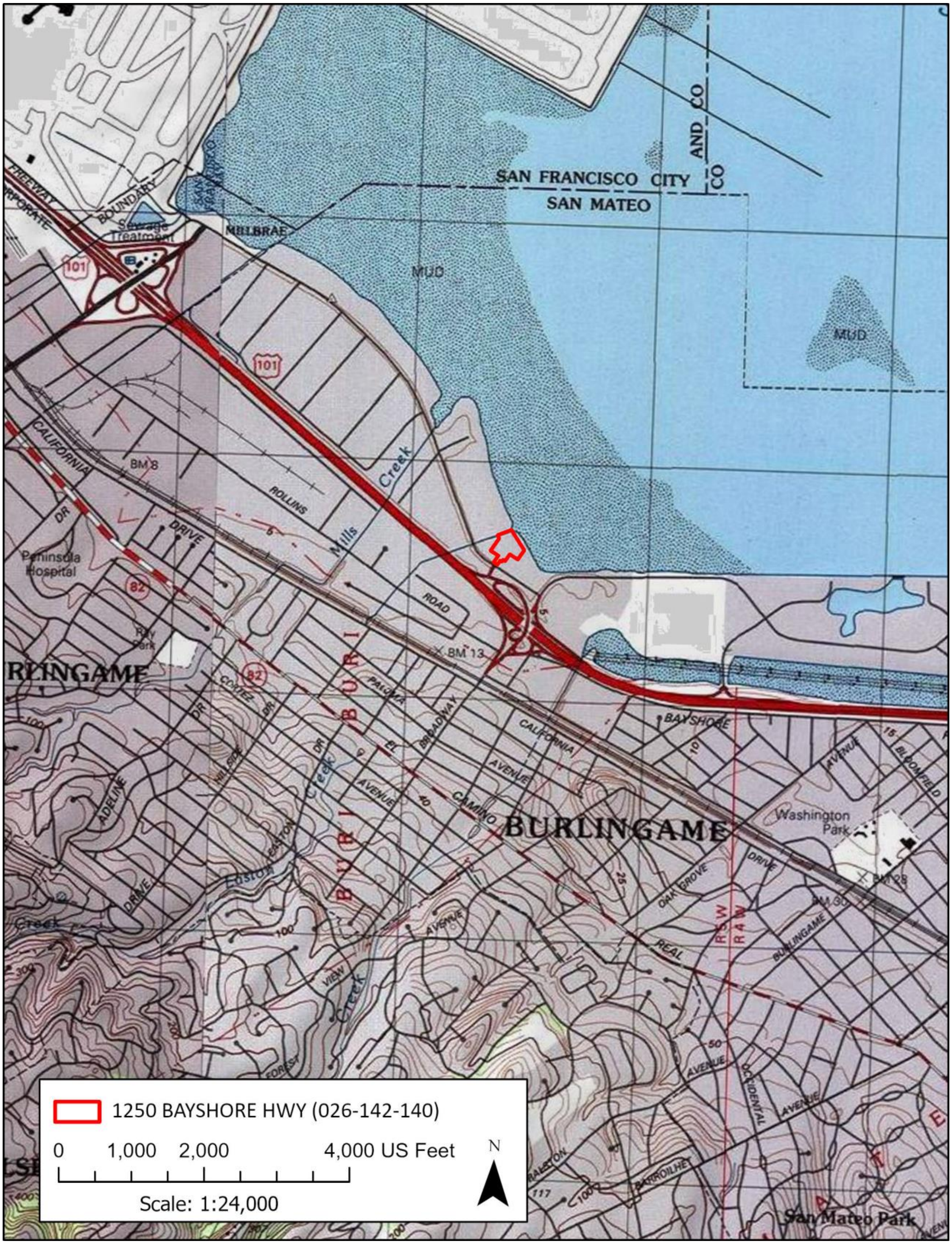
***Attachments:** ☐NONE ■Location Map ■Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

Primary #
HRI#
Trinomial

LOCATION MAP

Page 2 **of** 13 ***Resource Name or #** (Assigned by recorder) 1250 Old Bayshore Highway

***Map Name:** San Mateo, California ***Scale:** 1:24,000 ***Date of map:** 2022



State of California The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** (Assigned by recorder) 1250 Old Bayshore Highway ***NRHP Status Code** 6Z

B1. Historic Name: Ramada Inn
B2. Common Name: Holiday Inn Express San Francisco Airport-South
B3. Original Use: Hotel B4. Present Use: Hotel
*** B5. Architectural Style:** n/a (utilitarian)
***B6. Construction History:** (Construction date, alterations, and date of alterations)
The subject property was constructed in 1966 (The Times 1966). New windows and stucco were installed at an unknown date.

***B7. Moved?** ■No ☐Yes ☐Unknown **Date:** **Original Location:**
***B8. Related Features:** n/a
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** n/a **Area** n/a

Period of Significance n/a **Property Type** n/a **Applicable Criteria** n/a

Historic Context

Burlingame Early Development History
Before European discovery of the Bay Area, the area now known as Burlingame was inhabited by the Ohlone. Although the Portola expedition had passed through the area in 1769, it was the Juan de Anza Bautista expedition that came in 1776 that first camped in the Burlingame vicinity. The Spanish missionaries that accompanied Bautista set up a farm in the Burlingame/San Mateo area to support the mission in San Francisco (BHS 2013). When Mexico gained its independence from Spain, the mission properties were secularized and the southern Burlingame area became part of the Rancho San Mateo land grant given to Cayetano Arena, secretary to then Governor, Pio Pico (BHS 2013) (see Continuation Sheet).

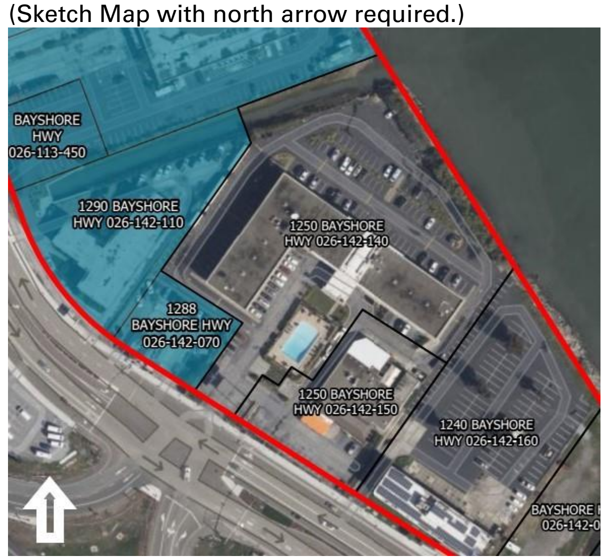
B11. Additional Resource Attributes: (List attributes and codes)
***B12. References:** See Continuation Sheet

B13. Remarks:

***B14. Evaluator:** Laura Carias and Samantha Murray, South Environmental
***Date of Evaluation:** 3/16/2022

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



***P3a. Description (Continued):** A pool is located directly east of the porte cochere and is surrounded by minimal landscaping elements. The site is paved with asphalt.

Photograph 2. Main entrance; facing northwest.

Photograph 3. South elevations; facing north

Photograph 4. North and east elevations, view southwest.

***B10. Significance (Continued):** The southern portion of Burlingame was part of the Buri Buri Rancho owned by Jose Antonio Sanchez, a solider from Sinaloa, Mexico (Carey & Co 2008: 6). Arena sold his land to a San Francisco based mercantile company, Howard & Mellus, after the Bear Revolt of 1846 (BHS 2013). William D.M. Howard bought out his partner, Henry Mellus, soon after the purchase. When Howard died in 1856, he left two thirds of his land to his wife, Agnus, and their son William H. Howard, and one third to his father-in-law, Joseph Poett. The parcels were divided by El Camino Real which ran north-south, with the Howards parcels to the west of El Camino Real and the Poett parcels to the east.

William C. Ralston, a banker who co-founded the Bank of California and made his wealth in the mining industry, purchased Howard's holdings in 1866 with the intent of establishing a new suburban development (Carey & Co 2008: 7). Ralston developed an estate he named Belmont where he hosted many prestigious individuals. One of his prominent guests was Anson Burlingame, a congressman from Massachusetts and former United States Minister to China. Burlingame visited Ralston in 1866 and purchased 1,000 acres of Ralston's holdings with the intent to set up a subdivision. Ralston, in turn, named the new town site Burlingame and laid out the streets, naming one major boulevard, Burlingame, in Anson's honor (Carey & Co 2008: 7)

The San Francisco and San Jose Railroad came thorough the peninsula in 1863 when it was granted a right-of-way through San Mateo Rancho. The Southern Pacific Railroad later acquired the line and "maintained a shed at the 'Oak Grove Crossing' for passengers boarding at Burlingame." (Carey & Co 2008:8).

Survey work for the new town site had taken place before Ralston died in 1875, but he did not live to see it come to fruition. He did however, partner with George H. Howard to commission John McLaren to "transform several miles of this dusty trail [El Camino Real] through barren and windswept miles of this area into a beautiful tree-lined boulevard leading to their great estates and proposed communities" (NPS 2011). The row of eucalyptus and elm trees on El Camino Real are a distinguishing feature of the city and were listed in the National Register of Historic Places in 2012 (Pfaff 2011).

El Camino Real was originally the road set out by Franciscan friars that lead travelers to each California Mission from San Diego to Sonoma. This road eventually encompassed portions of present day U.S. Highway 101 (Bayshore Highway), I-280, and CA-72 and CA-82 (El Camino Real)(Buchanan 2017). The Bayshore Highway was first conceived in 1924 and came to fruition in 1929. The highway stretched from South San Francisco to San Mateo with much of the funding coming from the City of San Francisco. After its completion, the Bayshore Highway "was redesignated as U.S. Route 101, previously the designation of El Camino Real and a decision that businesses along El Camino Real protested." (Woods 2022). The decision was eventually reversed and El Camino Real got its designation back with the Bayshore Highway becoming known as the Highway 101 bypass (Woods 2022).

After Ralston's death, his partner William Sharon took control of Ralston's holdings in Burlingame. Sharon used the land "as a dairy farm to supply the Palace Hotel in San Francisco, which he also acquired at Ralston's death" (BHS 2013). Upon Sharon's death in 1885, his son-in-law, Francis Newlands, took control of the property, and he began construction of the Burlingame Country Club, located in the present-day City of Hillsborough, hoping to entice new residents to move to the area. Newlands also developed five cottages surrounding the Country Club in 1893. A permanent depot was constructed in 1894 with funds from the Southern Pacific Railroad and members of the County Club (BHS 2008). With the arrival of the streetcar service from San Francisco the town began to spread out from the station (Spectrum 1996). The first two stores in town opened on Burlingame Square, across from the train station in 1901 (BHS 2013).

The town was relatively small until the San Francisco earthquake of 1906 that brought in a flood of new residents seeking to rebuild away from San Francisco. The development on Corbitt's land became ideal for incoming refugees. The population grew from 200 in 1906 to roughly 1,000 in 1907 (Carey & Co 2008). Following this growth, the town established its first town church in 1906 and volunteer fire department in 1907. The town voted for incorporation in 1908 (BHS 2013).

The central section of Burlingame was also part of Rancho Buri Buri and owned by Sanchez. It passed on to his son, Jose Isidro (Chino) Sanchez, before he lost the property and it was acquired by Ansel Ives and Adeline Mills Easton. Their son, Ansel Mills Easton took over the property and subdivided the estate naming the town Easton. He built a store at the corner of Chula Vista and Broadway, established a school at Cortez Avenue and Easton Drive in 1908, a train stop, and streetcar service that was later discontinued in 1918 (BHS 2013). Easton was annexed to Burlingame in 1910 (Vinther 2017). The northernmost section of Burlingame was deeded to Sanchez's son, Jose de la Cruz Sanchez. He, like his brother, also lost his holdings to the Mills family in 1860. The Mills family built a large vacation home that was used by three generations before selling the property to Trousdale Development in the 1950s (BHS 2013).

After a long dispute between "the towns of Burlingame and Millbrae over annexation, in 1954 it was decided to divide the property along what is now Murchison Drive, to the southern portion, from Mills Creek to Murchison, going to Burlingame and the northern portion, from Murchison to Millbrae Avenue, going to Millbrae." (BHS 2013).

Postwar Industrial and Commercial Development

Industrial and commercial growth in the City of Burlingame was spurred by its proximity to the San Francisco International Airport (SFO, City of Burlingame 2018). SFO was first established as Mills Field in the late 1920s when the City of San Francisco purchased the tidelands at the eastern edge of the Darius Ogden Mills Estate that later became the City of Millbrae (Carlsson n.d.). The name was changed to San Francisco Airport in 1931. In the early 1930s, 350 acres of tidelands were reclaimed to accommodate a longer runway (Carlsson n.d.). By the 1950s, air travel became increasing popular, and the San Francisco Airport constructed a larger terminal to serve its growing passenger traffic. In 1954, the airport changed its name to San Francisco International Airport (SFO). That same year, the airport saw 2.5 million visitors. "By the mid-1960s, passenger numbers skyrocketed to than 10 million annually." (SFO Museum 2020).

Growing parallel to SFO in the 1950s was the proposed mixed-use waterfront area in Burlingame. The first major development came in 1953, when the Burlingame City Council and Planning Commission reviewed the first map of what was to be known as "Millsdale," a 198-acre portion of the Mills Estate east of the Southern Pacific Railroad between Millbrae Avenue and Broadway (south of the subject property). The original map was created by developer Paul W. Trousdale and showed the property divided into three major sections: commercial near Millbrae Avenue, residential in the center, and industrial at the southern end near Broadway.

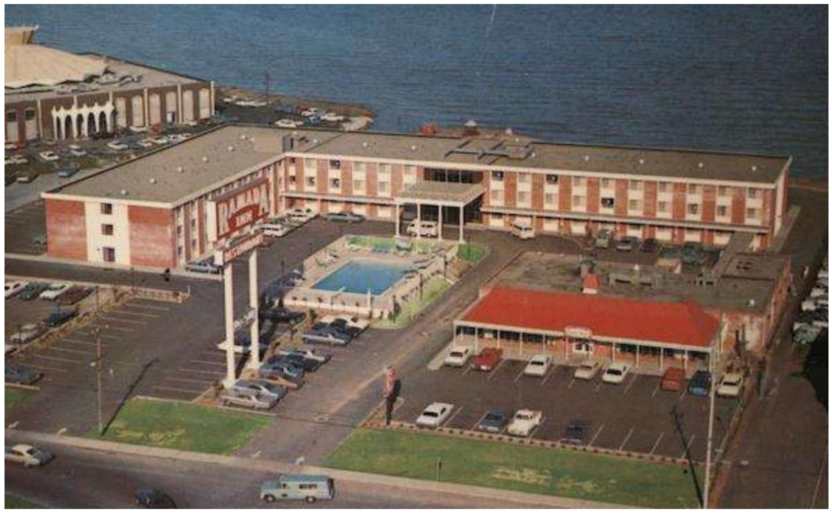
With the postwar years continuing to bring more industry to the region, the need for industrial expansion increased throughout the 1950s and the original vision of a mixed-use area was east of the Southern Pacific Railroad was replaced with a focus on industrial development. In 1954, the Planning Commission unanimously approved the final map of what would become the Millsdale Industrial Park, which called for six industrial lots that would be serviced by Southern Pacific spur tracks (The Times 1954a). The 60-foot lots would be sold by the Trousdale Development Company (The Times 1954b). Over the next couple of years, the area along Rollins Road continued to develop into a major industrial corridor, with additional tracts added to the Millsdale Industrial Park.

In 1956, the most dramatic change to the area's industrial and commercial sector was proposed by the Burlingame Planning Commission, which involved eastward expansion into the bay on reclaimed tidelands (The Times 1956). The idea began to get traction in 1957 after General Electric announced it was opening a $1.5 million Milldale Plant at the corner of Burlingame Avenue and California Drive (The Times 1957). In 1958, plans were presented to the Commission to double the city's Millsdale Industrial Park area by developing 300 feet out into the bay by filling-in tidelands east of Bayshore Highway by up to nine feet. Engineers estimated it would take at least 1.5 million cubic yards of soil to fill-in the area (The Times 1958).

Growth in air traffic attracted hotels and amenities for visitors in the area surrounding SFO. The airport vicinity was also a great place to set up businesses that benefited from being near an airport. A 1966 article in *The Times* discusses the industrial park that is "second to none." The article says, "the city has proved its desirability by continuing to attract industries to its shoreline areas for several years… company after company has made its home or headquarters in Burlingame, recognizing the advantages of being near San Francisco International Airport…" (Golding 1966). Some of these businesses included General Motors, Ford, General Tire, Purity Stores, Du-Pont, General Electric, and Facit office machines (Golding 1966). As more businesses gathered in the newly developed commercial area, there was a mounting demand for meeting space and hotels. The Hyatt House opened in 1959 on Old Bayshore Highway advertising itself as a fly-in hotel. It was soon followed by several other hotels surrounding the airport (Golding 1966). There were plans to develop the vicinity near SFO as a hub of business activity. "New modern offices conveniently near air terminal facilities are eliminating the need for time-consuming transportation to crowded mid-city areas." (The Times 1964).

Property History

The Ramada Inn motel chain began as an idea Marion W. Isabell had as he and his wife were on a cross county road trip in 1929. He "conceived the idea of building comfortable roadside hostelries." (LAT 1988). It was 1954 before he and a group of investors in Phoenix, Arizona began investing in and buying motels before they formally created the Ramada Inn motel chain in 1960 consisting of 63 motels (LAT 1988). The subject property was constructed in 1965 as the Ramada Inn complete with 300-rooms, outdoor pool, and a restaurant called Chez Bon (now Max's Restaurant). An open house party was advertised in *The Times* to celebrate the Ramada Inn's grand opening on November 11, 1966, serving punch and cookies to guests (The Times 1966).



Postcard of Ramada Inn c. 1970s (Cardcow.com 2022)

"During these early years, Ramada lead the way in many innovations that corresponded with the motto "Luxury for Less": free radios and TV sets in the rooms; room service for extended periods of the day; newsstands and shops; coffee shops and lounges; and equipment available for audio-visual presentations in meeting rooms." (McCune 2000).

The subject property was used in the 1970 film "Little Fauss and Big Halsey" featuring Robert Redford (Bladen 1969). Through available newspaper records it is known that the site operated as Ramada Inn until at least 1997. It was altered in the recent past with new siding and windows and no longer resembles its original architectural style. It currently operates as the Holiday Inn Express San Francisco Airport-South.

Significance Evaluation

The following presents an evaluation of the subject property in consideration of National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR) and City of Burlingame designation criteria.

NRHP/CRHR Designation Criteria

NRHP/CRHR Criterion A/1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

The subject property has always functioned as a hotel. It is located near the San Francisco Airport alongside other commercial properties that were developed in the 1960s and 1970s when commercial and industrial development flourished in Burlingame. However, it does not have any important associations with the development of SFO or a direct relationship to the development of the commercial area along Highway 101 in Burlingame. Therefore, the subject property is not eligible under NRHP Criterion A or CRHR Criterion 1.

NRHP/CRHR Criterion B/2. Is associated with the lives of persons important in our past.

Review of local publications and newspaper articles failed to indicate that the subject property has any important associations with significant persons in the history of the City or otherwise. Therefore, the property is not eligible under NRHP Criterion B or CRHR Criterion 2.

NRHP/CRHR Criterion C/3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

The subject property has been highly altered from its original design. The building currently exhibits contemporary design elements such as smooth stucco siding and enhanced pop outs at the main entrance. It is not known to be the work of a notable architect or builder. The altered subject property represents a common design aesthetic used when updating commercial properties throughout the United States that lacks any unique architectural features/details, construction techniques, or technology that would distinguish it from others in its property type. Therefore, the subject property is not eligible under NRHP Criterion C or CRHR Criterion 3.

NRHP/CRHR Criterion D/4. Has yielded, or may be likely to yield, information important in prehistory or history.

The subject property is not significant as a source, or likely source, of important historical information nor does it appear likely to yield important information about historic construction methods, materials or technologies. Therefore, the property is not eligible under NRHP Criterion D or CRHR Criterion 4.

City of Burlingame Designation Criteria

<u>25.35.040(c) City of Burlingame Historic Architectural Resources Inventory</u>

The NRHP Guidelines (Guidelines) shall be used for determining historical resources. The criteria in subsection (j) of the Guidelines and at least two of the other criteria shall be utilized to determine the significance of a property when considering its inclusion in the Register.

1. Buildings, structures, or places that are important key focal or pivotal points in the visual quality or character of an area, neighborhood, or survey district.

The subject property is in a commercial area but is not considered a key focal or pivotal point of the area.

2. Structures that help retain the characteristics of the town with respect to the immediate surroundings.

The subject property was altered in the recent past and can no longer convey its original design. Further, the property lacks continuity with its 1960s and 1970s surroundings.

3. Structures that contribute to the unique urban quality of a downtown.

The subject property is not located in a downtown area.

4. Structures contributing to the architectural continuity of the street.

The subject property was altered in the recent past and can no longer convey its original design. Further, the property lacks continuity with its 1960s and 1970s surroundings.

5. Structures that are identified with an event or person who significantly contributed to the culture and/or development of the City, State, or nation.

See Criterion B/2 above.

6. Structures that represent an architectural type or period and/or represent the design work of known architects, draftsmen, or builders whose efforts have significantly influenced the heritage of the City, State, or nation.

See Criterion 3 above
7. Structures that illustrate the development of California locally and regionally.

See Criterion C/3 above

8. Buildings retaining the original integrity of and/or illustrating a given period.

The subject property has been altered in the recent past and its new design is not yet of age to be considered significant.

9. Structures unique in design or detail, such as, but not limited to, materials, windows, landscaping, plaster finishes, and architectural innovation.

See Criterion C/3 above

10. Structures that are at least 50 years old or properties that have achieved significance within the past 50 years, at the time the determination is made, if they are of exceptional importance.

See Criterion A/1-D/4 above

11. Places that have been visited by a person or persons important to City, State, national, or international history or prehistory.

See Criterion B/2 above.

Integrity

Location: The subject property retains integrity of location. The property is sited in the original location it was constructed in its original orientation.

Design: The subject property does not retain integrity of design. The original siding and windows have been replaced and contemporary design elements have been added such that it is no longer recognizable to its original appearance.

Setting: The subject property retains integrity of setting. Most of the surrounding properties were constructed in the 1960s and 1970s around the same time as the subject property.

Materials: The subject property does not retain integrity of materials. The cladding and architectural details of the building have been altered such that the original design is no longer recognizable.

Workmanship: The subject property lacks integrity of workmanship as it has been altered since construction.

Feeling: The subject property lacks integrity of feeling. Although the property still feels like a hotel, its overall lack of integrity does not connect it to the 1960s.

Association: The subject property lacks integrity of association. The property has no important associations with events, people, or important patterns of development in the City.

For all of the reasons provided above, the property at 1250 Old Bayshore Highway is not eligible for designation in the NRPH, CRHR or local listing.

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State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code Reviewer Date

 ***Resource Name or #:** (Assigned by recorder) 1250 Old Bayshore Highway

P1. Other Identifier: Max's Restaurant

***P2. Location:** ☐ **Not for Publication** ■ **Unrestricted**

***a. County** San Mateo **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** San Mateo **Date** 2022 **T** 04 S ; **R** 05 W ; _ ☐ **of** _ ☐ **of Sec** 12 and 13; MD **B.M.**

c. Address 1250 Old Bayshore Highway City Burlingame Zip 94010

d. UTM: (Give more than one for large and/or linear resources) Zone __, ______ mE/ ______ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)

APN 026-142-150. The subject property is located on the west side of Old Bayshore Highway, north of Broadway in a commercial area. The San Francisco Bay is located directly east of the subject property.

***P3a. Description:**

The subject property is a one-story restaurant with a nearly square floor plan. The primary south-facing elevation is capped by a steeply pitched flared roof with a flat ridge and scalloped shingles; the remainder of the building is capped by a flat roof. The flared roof extends over the south, west and east elevations, creating an arcade supported by fluted columns. The main entrance features an aluminum-framed vestibule with doors on the east and west. Windows on the primary elevation consist of fixed ribbon windows. There are two single, multi-paned metal sash windows on the east elevation (see Continuation Sheet).

***P3b. Resource Attributes:** (List attributes and codes) HP6. 1-3 story commercial building

***P4. Resources Present:** ■ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #) Photograph 1. Main (south) elevation, view to north (FCS 2022)

***P6. Date Constructed/Age and Source:** ■ Historic ☐ Prehistoric ☐ Both
1966 (The Times 1966)

***P7. Owner and Address:**
DW Burlingame III Owner LLC
301 Howard St. 20th Fl.
San Francisco, CA 94105

***P8. Recorded by:** Laura Carias & Samantha Murray
South Environmental
Pasadena, CA 91104

***P9. Date Recorded:** 3/16/2022

***P10. Survey Type:** Pedestrian

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") *Historic Built Environment Assessment for the 1200-1340 Old Bayshore Highway Project, Burlingame, California* (South Environmental 2022)

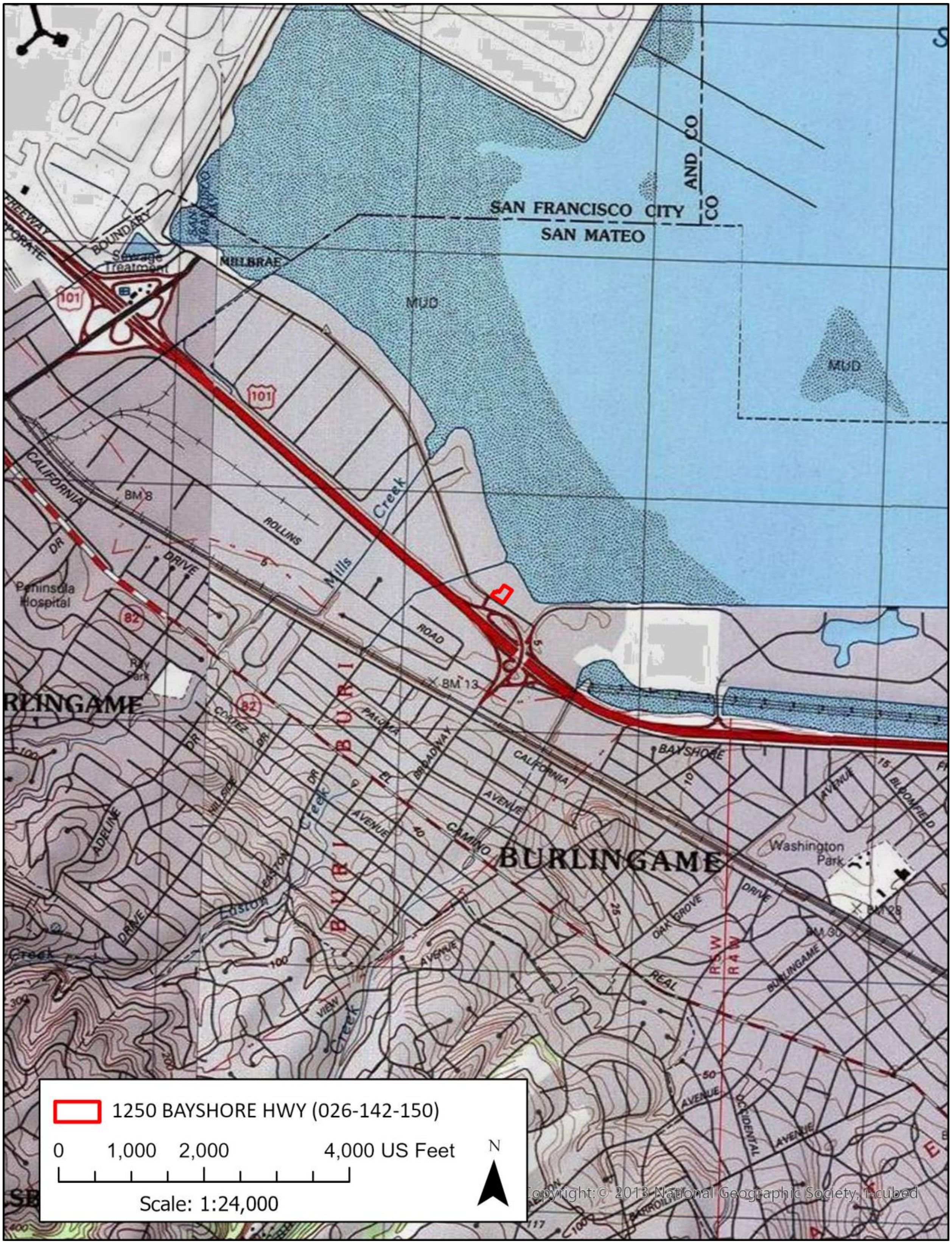
***Attachments:** ☐NONE ■Location Map ■Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

LOCATION MAP

Primary #
HRI#
Trinomial

Page 2 of 13 *Resource Name or # (Assigned by recorder) 1250 Old Bayshore Highway

*Map Name: San Mateo, California *Scale: 1:24,000 *Date of map: 2022



State of California The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** (Assigned by recorder) 1250 Old Bayshore Highway ***NRHP Status Code** 6Z

B1. Historic Name: Chez Bon restaurant
B2. Common Name: Max's
B3. Original Use: Restaurant B4. Present Use: Restaurant
*** B5. Architectural Style:** n/a (utilitarian)
***B6. Construction History:** (Construction date, alterations, and date of alterations)
The subject property was constructed in 1966 (The Times 1966).

***B7. Moved?** ■No ☐Yes ☐Unknown **Date:** ____ **Original Location:** ____
***B8. Related Features:** n/a
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** n/a **Area** n/a

Period of Significance n/a **Property Type** n/a **Applicable Criteria** n/a

Historic Context

Burlingame Early Development History
Before European discovery of the Bay Area, the area now known as Burlingame was inhabited by the Ohlone. Although the Portola expedition had passed through the area in 1769, it was the Juan de Anza Bautista expedition that came in 1776 that first camped in the Burlingame vicinity. The Spanish missionaries that accompanied Bautista set up a farm in the Burlingame/San Mateo area to support the mission in San Francisco (BHS 2013). When Mexico gained its independence from Spain, the mission properties were secularized and the southern Burlingame area became part of the Rancho San Mateo land grant given to Cayetano Arena, secretary to then Governor, Pio Pico (BHS 2013) (see Continuation Sheet).

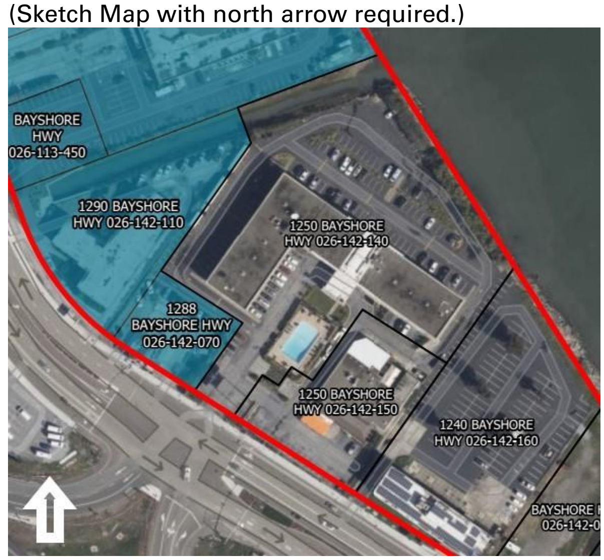
B11. Additional Resource Attributes: (List attributes and codes) ____
***B12. References:** See Continuation Sheet

B13. Remarks:

***B14. Evaluator:** Laura Carias and Samantha Murray, South Environmental
***Date of Evaluation:** 3/16/2022

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



***P3a. Description (Continued):** A shed roof is located on the north elevation. A temporary shed roof is located on the west side of the primary elevation creating an outdoor patio to provide outside dining space.

Photograph 2. East elevation, facing west.

Photograph 3. North (rear) elevation; facing south

Photograph 4. South and west elevations, view northeast.

***B10. Significance (Continued):** The southern portion of Burlingame was part of the Buri Buri Rancho owned by Jose Antonio Sanchez, a solider from Sinaloa, Mexico (Carey & Co 2008: 6). Arena sold his land to a San Francisco based mercantile company, Howard & Mellus, after the Bear Revolt of 1846 (BHS 2013). William D.M. Howard bought out his partner, Henry Mellus, soon after the purchase. When Howard died in 1856, he left two thirds of his land to his wife, Agnus, and their son William H. Howard, and one third to his father-in-law, Joseph Poett. The parcels were divided by El Camino Real which ran north-south, with the Howards parcels to the west of El Camino Real and the Poett parcels to the east.

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The San Francisco and San Jose Railroad came thorough the peninsula in 1863 when it was granted a right-of-way through San Mateo Rancho. The Southern Pacific Railroad later acquired the line and "maintained a shed at the 'Oak Grove Crossing' for passengers boarding at Burlingame." (Carey & Co 2008:8).

Survey work for the new town site had taken place before Ralston died in 1875, but he did not live to see it come to fruition. He did however, partner with George H. Howard to commission John McLaren to "transform several miles of this dusty trail [El Camino Real] through barren and windswept miles of this area into a beautiful tree-lined boulevard leading to their great estates and proposed communities" (NPS 2011). The row of eucalyptus and elm trees on El Camino Real are a distinguishing feature of the city and were listed in the National Register of Historic Places in 2012 (Pfaff 2011).

El Camino Real was originally the road set out by Franciscan friars that lead travelers to each California Mission from San Diego to Sonoma. This road eventually encompassed portions of present day U.S. Highway 101 (Bayshore Highway), I-280, and CA-72 and CA-82 (El Camino Real)(Buchanan 2017). The Bayshore Highway was first conceived in 1924 and came to fruition in 1929. The highway stretched from South San Francisco to San Mateo with much of the funding coming from the City of San Francisco. After its completion, the Bayshore Highway "was redesignated as U.S. Route 101, previously the designation of El Camino Real and a decision that businesses along El Camino Real protested." (Woods 2022). The decision was eventually reversed and El Camino Real got its designation back with the Bayshore Highway becoming known as the Highway 101 bypass (Woods 2022).

After Ralston's death, his partner William Sharon took control of Ralston's holdings in Burlingame. Sharon used the land "as a dairy farm to supply the Palace Hotel in San Francisco, which he also acquired at Ralston's death" (BHS 2013). Upon Sharon's death in 1885, his son-in-law, Francis Newlands, took control of the property, and he began construction of the Burlingame Country Club, located in the present-day City of Hillsborough, hoping to entice new residents to move to the area. Newlands also developed five cottages surrounding the Country Club in 1893. A permanent depot was constructed in 1894 with funds from the Southern Pacific Railroad and members of the

County Club (BHS 2008). With the arrival of the streetcar service from San Francisco the town began to spread out from the station (Spectrum 1996). The first two stores in town opened on Burlingame Square, across from the train station in 1901 (BHS 2013).

The town was relatively small until the San Francisco earthquake of 1906 that brought in a flood of new residents seeking to rebuild away from San Francisco. The development on Corbitt’s land became ideal for incoming refugees. The population grew from 200 in 1906 to roughly 1,000 in 1907 (Carey & Co 2008). Following this growth, the town established its first town church in 1906 and volunteer fire department in 1907. The town voted for incorporation in 1908 (BHS 2013).

The central section of Burlingame was also part of Rancho Buri Buri and owned by Sanchez. It passed on to his son, Jose Isidro (Chino) Sanchez, before he lost the property and it was acquired by Ansel Ives and Adeline Mills Easton. Their son, Ansel Mills Easton took over the property and subdivided the estate naming the town Easton. He built a store at the corner of Chula Vista and Broadway, established a school at Cortez Avenue and Easton Drive in 1908, a train stop, and streetcar service that was later discontinued in 1918 (BHS 2013). Easton was annexed to Burlingame in 1910 (Vinther 2017). The northernmost section of Burlingame was deeded to Sanchez’s son, Jose de la Cruz Sanchez. He, like his brother, also lost his holdings to the Mills family in 1860. The Mills family built a large vacation home that was used by three generations before selling the property to Trousdale Development in the 1950s (BHS 2013).

After a long dispute between “the towns of Burlingame and Millbrae over annexation, in 1954 it was decided to divide the property along what is now Murchison Drive, to the southern portion, from Mills Creek to Murchison, going to Burlingame and the northern portion, from Murchison to Millbrae Avenue, going to Millbrae.” (BHS 2013).

Postwar Industrial and Commercial Development
Industrial and commercial growth in the City of Burlingame was spurred by its proximity to the San Francisco International Airport (SFO, City of Burlingame 2018). SFO was first established as Mills Field in the late 1920s when the City of San Francisco purchased the tidelands at the eastern edge of the Darius Ogden Mills Estate that later became the City of Millbrae (Carlsson n.d.). The name was changed to San Francisco Airport in 1931. In the early 1930s, 350 acres of tidelands were reclaimed to accommodate a longer runway (Carlsson n.d.). By the 1950s, air travel became increasing popular, and the San Francisco Airport constructed a larger terminal to serve its growing passenger traffic. In 1954, the airport changed its name to San Francisco International Airport (SFO). That same year, the airport saw 2.5 million visitors. “By the mid-1960s, passenger numbers skyrocketed to than 10 million annually.” (SFO Museum 2020).

Growing parallel to SFO in the 1950s was the proposed mixed-use waterfront area in Burlingame. The first major development came in 1953, when the Burlingame City Council and Planning Commission reviewed the first map of what was to be known as “Millsdale,” a 198-acre portion of the Mills Estate east of the Southern Pacific Railroad between Millbrae Avenue and Broadway (south of the subject property). The original map was created by developer Paul W. Trousdale and showed the property divided into three major sections: commercial near Millbrae Avenue, residential in the center, and industrial at the southern end near Broadway.

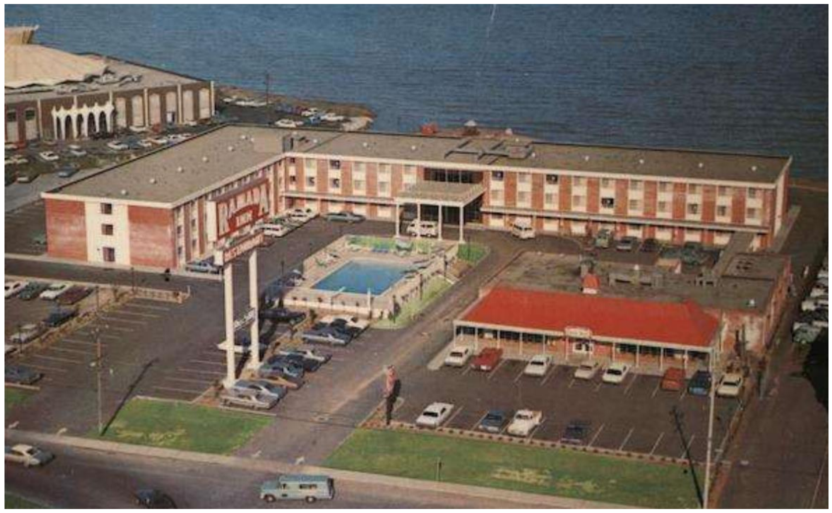
With the postwar years continuing to bring more industry to the region, the need for industrial expansion increased throughout the 1950s and the original vision of a mixed-use area was east of the Southern Pacific Railroad was replaced with a focus on industrial development. In 1954, the Planning Commission unanimously approved the final map of what would become the Millsdale Industrial Park, which called for six industrial lots that would be serviced by Southern Pacific spur tracks (The Times 1954a). The 60-foot lots would be sold by the Trousdale Development Company (The Times 1954b). Over the next couple of years, the area along Rollins Road continued to develop into a major industrial corridor, with additional tracts added to the Millsdale Industrial Park.

In 1956, the most dramatic change to the area's industrial and commercial sector was proposed by the Burlingame Planning Commission, which involved eastward expansion into the bay on reclaimed tidelands (The Times 1956). The idea began to get traction in 1957 after General Electric announced it was opening a $1.5 million Milldale Plant at the corner of Burlingame Avenue and California Drive (The Times 1957). In 1958, plans were presented to the Commission to double the city's Millsdale Industrial Park area by developing 300 feet out into the bay by filling-in tidelands east of Bayshore Highway by up to nine feet. Engineers estimated it would take at least 1.5 million cubic yards of soil to fill-in the area (The Times 1958).

Growth in air traffic attracted hotels and amenities for visitors in the area surrounding SFO. The airport vicinity was also a great place to set up businesses that benefited from being near an airport. A 1966 article in *The Times* discusses the industrial park that is "second to none." The article says, "the city has proved its desirability by continuing to attract industries to its shoreline areas for several years… company after company has made its home or headquarters in Burlingame, recognizing the advantages of being near San Francisco International Airport…" (Golding 1966). Some of these businesses included General Motors, Ford, General Tire, Purity Stores, Du-Pont, General Electric, and Facit office machines (Golding 1966). As more businesses gathered in the newly developed commercial area, there was a mounting demand for meeting space and hotels. The Hyatt House opened in 1959 on Old Bayshore Highway advertising itself as a fly-in hotel. It was soon followed by several other hotels surrounding the airport (Golding 1966). There were plans to develop the vicinity near SFO as a hub of business activity. "New modern offices conveniently near air terminal facilities are eliminating the need for time-consuming transportation to crowded mid-city areas." (The Times 1964).

Property History

The Ramada Inn motel chain began as an idea Marion W. Isabell had as he and his wife were on a cross county road trip in 1929. He "conceived the idea of building comfortable roadside hostelries." (LAT 1988). It was 1954 before he and a group of investors in Phoenix, Arizona began investing in and buying motels before they formally created the Ramada Inn motel chain in 1960 consisting of 63 motels (LAT 1988). The Ramada Inn complete with 300-rooms, outdoor pool, and a free-standing restaurant called Chez Bon (the subject property), currently known as Max's Restaurant (The Times 1966). An open house party was advertised in *The Times* to celebrate the Ramada Inn's grand opening on November 11, 1966, serving punch and cookies to guests (The Times 1966).



Postcard of Ramada Inn and Chez Bon c. 1970s (Cardcow.com 2022)

Chez Bon restaurants were part of a new business plan created by Ramada Inn in 1965 where the free-standing restaurants "could be included as part of the hotel grounds for guests to dine, or developed entirely separate from any lodging facility." (McCune 2000).

Through available newspaper records it is known that the site operated as Chez Bon until at least 1974. The restaurant is currently called "The Original Max's" which established in 1978. It was altered with the addition of cladding over the brick façade at the primary elevation, a vestibule was added at the main entrance, and brick on the secondary elevations were painted over. A covered patio was added to the western end of the primary elevation likely during the pandemic to allow for outdoor dining.

Significance Evaluation
The following presents an evaluation of the subject property in consideration of National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR) and City of Burlingame designation criteria.

NRHP/CRHR Designation Criteria

NRHP/CRHR Criterion A/1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

The subject property has always functioned as a restaurant. It is located near the San Francisco Airport alongside other commercial properties that developed in the 1960s and 1970s when commercial and industrial development flourished in Burlingame. However, it does not have any important associations with the development of SFO or a direct relationship to the development of the commercial area along Highway 101 in Burlingame. Therefore, the subject property is not eligible under NRHP Criterion A and CRHR Criterion 1.

NRHP/CRHR Criterion B/2. Is associated with the lives of persons important in our past.

Review of local publications and newspaper articles failed to indicate that the subject property has any important associations with significant persons in the history of the City or otherwise. Therefore, the property is not eligible under NRHP Criterion B or CRHR Criterion 2.

NRHP/CRHR Criterion C/3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

The subject property has been significantly altered from its original design. The original brick cladding has been covered with contemporary ceramic tiles, a vestibule has been added to the man entrance, and an outdoor patio has been added to the primary elevation. As it stands, the subject property no longer reflects its original design intent. It is not known to be the work of a notable architect or builder. The altered subject property represents a common design aesthetic in United States that lacks any unique architectural features/details, construction techniques, or technology that would distinguish it from others in its property type. Therefore, the subject property is not eligible under NRHP Criterion C or CRHR Criterion 3.

NRHP/CRHR Criterion D/4. Has yielded, or may be likely to yield, information important in prehistory or history.

The subject property is not significant as a source, or likely source, of important historical information nor does it appear likely to yield important information about historic construction methods, materials or technologies. Therefore, the property is not eligible under NRHP Criterion D or CRHR Criterion 4.

City of Burlingame Designation Criteria

25.35.040(c) City of Burlingame Historic Architectural Resources Inventory

The NRHP Guidelines (Guidelines) shall be used for determining historical resources. The criteria in subsection (j) of the Guidelines and at least two of the other criteria shall be utilized to determine the significance of a property when considering its inclusion in the Register.

1. Buildings, structures, or places that are important key focal or pivotal points in the visual quality or character of an area, neighborhood, or survey district.

The subject property is in a commercial area but is not considered a key focal or pivotal point of the area.

2. Structures that help retain the characteristics of the town with respect to the immediate surroundings.

The subject property is a commercial building that dates to the 1960s. While much of the surrounding businesses date to the 1960s and 1970s, there have been numerous alterations to the historic setting such that the building does not help retain characteristics of the area.

3. Structures that contribute to the unique urban quality of a downtown.

The subject property is not located in a downtown area.

4. Structures contributing to the architectural continuity of the street.

The street lacks continuity from the 1960s and 1970s.

5. Structures that are identified with an event or person who significantly contributed to the culture and/or development of the City, State, or nation.

See Criterion B/2 above.

6. Structures that represent an architectural type or period and/or represent the design work of known architects, draftsmen, or builders whose efforts have significantly influenced the heritage of the City, State, or nation.

See Criterion C/3 above

7. Structures that illustrate the development of California locally and regionally.

See Criterion C/3 above

8. Buildings retaining the original integrity of and/or illustrating a given period.

The subject property has been altered in the recent past and does not retain integrity to its date of construction.

9. Structures unique in design or detail, such as, but not limited to, materials, windows, landscaping, plaster finishes, and architectural innovation.

See Criterion C/3 above

10. Structures that are at least 50 years old or properties that have achieved significance within the past 50 years, at the time the determination is made, if they are of exceptional importance.

See Criterion A1-D4 above

11. Places that have been visited by a person or persons important to City, State, national, or international history or prehistory.

See Criterion B/2 above.

Integrity

Location: The subject property retains integrity of location. The property is sited on the original location it was constructed in its original orientation.

Design: The subject property does not retain integrity of design. The building no longer features the original siding and an outdoor patio at the primary elevation has altered the building’s original symmetry.

Setting: The subject property retains integrity of setting. Most of the surrounding properties were constructed in the 1960s and 1970s around the same time as the subject property.

Materials: The subject property does not retain integrity of materials. Original materials have either been replaced or covered over with contemporary design elements.

Workmanship: The subject property lacks integrity of workmanship as it has been altered since construction.

Feeling: The subject property lacks integrity of feeling. Although the property still feels like a restaurant, its overall lack of integrity does not connect it to the 1960s.

Association: The subject property lacks integrity of association. The property has no important associations with events, people, or important patterns of development in the City.

For all of the reasons provided above, the property at 1250 Old Bayshore Highway is not eligible for designation in the NRPH, CRHR or local listing.

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ATTACHMENT B.

Resumes

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Mobile: 310-809-4696

EDUCATION

M.A., Public History, California State University, Sacramento, 2006

B.A., History and Chicano Studies, California State University, Dominguez Hills, 2003

PROFESSIONAL AFFILIATIONS

California Preservation Foundation

Society of Architectural Historians

National Trust for Historic Preservation

Laura G. Carias, MA

ARCHITECTURAL HISTORIAN

Laura Carias has over 15 years of experience in the field of historic and cultural resources evaluation, identification, documentation, and preservation Ms. Carias specialized in historic resources assessments including historic significance evaluation in consideration of the California Register of Historical Resources (CRHR), and the National Register of Historic Places (NRHP), and local-level evaluation criteria. She also has experience in intensive-level field surveys, historic structure reports, design consultation, conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties, Historic American Buildings Survey and Historic American Engineering Record documentation, local Mills Act contracts, and local, state, and nation landmark designations.

Ms. Carias meets the Secretary of the Interior's Professional Qualification Standards for both Architectural History and History. She has experience preparing environmental compliance documentation in support of projects that fall under the California Environmental Quality Act (CEQA/National Environmental Quality Act (NEPA), and Section 106 of the National Historic Preservation Act (NHPA).

EXPERTISE

- CEQA, NEPA, and Section 106 of the NHPA compliance documentation in consideration of impacts to historical resources, and historic properties
- Historic resource significance evaluations in consideration of NRHP, CRHR, and local designation criteria.
- Project design review for conformance with the Secretary of the
- Interior's Standards.
- Preparation of archival documentation for HABS/HAER/HALS.
- Historic Structure Reports
- Historic Preservation Certification Part 1 and 2 Tax Credit Applications

RECENT PROJECT EXPERIENCE

G-P Site Restoration Project, Long Beach, California. November 2021 – ongoing. While working for her previous firm, Ms. Carias served as architectural historian and principal author of the Historic Resources Cultural Report (report). The Port of Long Beach retained LSA Associates to prepare a cultural resources study in support of the Georgia-Pacific Gypsum Board Plant located at the port in Long Beach, California. The study included a pedestrian survey of the subject property for building and structures over 45 years of age; building development and archival research for the identified buildings located within the project site; recordation and evaluation of cultural resources identified within the study area for the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), and local eligibility criteria and integrity requirements; and an assessment of potential impacts to historical resources in conformance with CEQA and all applicable local municipal code and planning documents. Responsibilities included site specific background research, authoring the cultural technical report. Prior to South Environmental, LSA Associates.

Historic Built Environment Evaluation Report for the Sycuan Fee to Trust Project, Sycuan Band of the Kumeyaay Nation Reservation, San Diego County, California (2020). While working for her previous firm, Ms. Carias co-authored a Historic Properties Inventory and Evaluation Report for the Sycuan Band of the Kumeyaay Nation Reservation (Sycuan) for the proposed Sycuan Fee to Trust Project (Project), located on the within the vicinity of El Cajon, California in unincorporated San Diego County. The Project proposes a fee-to-trust transfer of five (5) parcels that cumulatively total approximately 40 acres. The transfer of land from Sycuan to the Bureau of Indian Affairs (BIA), the federal lead agency. Responsibilities for the project included: background research and authoring the cultural resources report. Prior to South Environmental, DUDEK

Department of Veterans Affairs, Sepulveda Ambulatory Care Center, Van Nuys, California. Authored Finding of Effects report to satisfy Section 106. Project includes the demolition of 12 buildings located on a campus that has been determined ineligible as a historic district by the California Office of Historic Preservation. Prior to South Environmental, Chattel, Inc.

Second Church of Christ, Scientist, Historic Structure Report, Long Beach, California. Complied a Historic Structure Report to assist current owner in obtaining much needed funds for rehabilitation of 1914 church with extensive water damage. Prior to South Environmental, Chattel, Inc.

Sears Boyle Heights, Los Angeles, Federal Investment Tax Credit, Los Angeles, California. Submitted and received conditional approvals on Part II Federal Investment Tax Credit application for former Sears, Roebuck and Company retail store and warehouse in Boyle Heights. Participated in design collaboration on rehabilitation of subject property as a mixed-use property with retail, creative office, and residential space. Prior to South Environmental, Chattel, Inc.

San Juan Capistrano Substation, Historic American Engineering Record (HAER), San Juan Capistrano, California. Prepared and submitted HAER documentation to the Library of Congress for the Southern California Edison Company Capistrano Substation as mitigation compliance as part of system upgrades. Providing construction monitoring of the rehabilitation of former utility structure located on San Diego Gas & Electric Company substation as part of a mitigation measure. Conducts bi-monthly site visits, provides design consultation, and monthly observation reports. Prior to South Environmental, Chattel, Inc.

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Samantha Murray, MA

PRINCIPAL ARCHITECTURAL HISTORIAN

EDUCATION

M.A., Anthropology, California State University, Los Angeles, 2013

B.A., Anthropology, California State University, Northridge, 2003

PROFESSIONAL AFFILIATIONS

California Preservation Foundation

Society of Architectural Historians

National Trust for Historic Preservation

Samantha Murray is the cultural resources director and principal architectural historian at South Environmental with over 16 years' experience in all elements of cultural resources management, including project management, architectural history studies, and historical significance evaluations in consideration of the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), and local-level designation criteria. Ms. Murray has conducted thousands of historical resource evaluations and developed detailed historic context statements for a multitude of property types and architectural styles. She has also provided expertise on numerous projects requiring conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Ms. Murray meets the Secretary of the Interior's Professional Qualification Standards for both Architectural History and Archaeology. She is experienced managing multidisciplinary projects in the lines of private development, transportation, transmission and generation, federal land management, land development, and state and local government. She is an expert in preparation of cultural resources compliance documentation for projects that fall under the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and Sections 106 and 110 of the National Historic Preservation Act (NHPA). Ms. Murray has also served as an expert witness in legal proceedings concerning historical resources under CEQA and local ordinance protection.

EXPERTISE

- CEQA, NEPA, and Section 106 of the NHPA compliance documentation in consideration of impacts to historical, archaeological, and tribal cultural resources, and historic properties.
- Resource significance evaluations in consideration of NRHP, CRHR, and local designation criteria.
- Project design review for conformance with the Secretary of the Interior's Standards.
- Assistance with complex mitigation including HABS/HAER/HALS, salvage, and interpretive displays.
- Peer review.

SE

Recent Project Experience

Historic Built Environment Assessment for the CA3-2590 Walsh Avenue Project, City of Santa Clara, California (2021). South Environmental was retained by FirstCarbon Solutions to prepare a historic built environment assessment report for the City of Santa Clara in support of the CA3-2590 Walsh Avenue Project. Two built environment resources over 45 years old were identified within the project study area: the Uranium Substation and an unrecorded segment of the larger Southern Pacific Commute Service Line (P-43-000928). These resources were recorded and evaluated for historical significance in consideration of CRHR and City designation criteria and integrity requirements. Both resources were found not eligible under all designation criteria. The proposed project was found to have a less than significant impact on historical resources under CEQA.

Historic Built Environment Assessment for the Solid Waste and Recycling Transfer Station Replacement Project, City of Berkeley, California (2021). South Environmental was retained by FirstCarbon Solutions to prepare a historic built environment assessment report for the City of Berkeley in support of the Solid Waste and Recycling Transfer Station Replacement Project. One built environment resource over 40 years old was identified within the project study site: City of Berkeley Solid Waste Transfer Station and Recycling Center. The entire property was recorded and evaluated for historical significance in consideration of CRHR and City Landmark and Structure of Merit designation criteria and integrity requirements. The property was found not eligible under all designation criteria due to a lack of significant historical associations and integrity. The proposed project was found to have a less than significant impact on historical resources under CEQA.

Historic Built Environment Assessment for 100 38th Street Project, City of Richmond, California (2021). South Environmental was retained by FirstCarbon Solutions to prepare a historic built environment assessment report for the City of Richmond in support of the 100 38th Street Project. One built environment resource over 45 years old was identified within the project study site: the Richmond Health Center building, constructed c. 1968. The property was recorded and evaluated for historical significance in consideration of CRHR and City designation criteria and integrity requirements. The property was found not eligible under all designation criteria due to a lack of significant historical associations and architectural merit. The proposed project was found to have a less than significant impact on historical resources under CEQA.

Historic Built Environment Assessment for the 731 West Cutting Boulevard Project, City of Richmond, California (2021). South Environmental was retained by FirstCarbon Solutions to prepare a historic built environment assessment report for the City of Richmond in support of the 731 West Cutting Boulevard Project. One built environment resource over 45 years old was identified within the project study site: a vacant industrial plant constructed c. 1960. The entire property was recorded and evaluated for historical significance in consideration of CRHR and City designation criteria and integrity requirements. The property was found not eligible under all designation criteria due to a lack of significant historical associations and architectural merit. The proposed project was found to have a less than significant impact on historical resources under CEQA.

Historic Built Environment Assessment for the Walnut Creek Mixed-Use Special District Project, City of Walnut Creek, California (2021). South Environmental was retained by FirstCarbon Solutions to prepare a historic built environment assessment report for the Walnut Creek Mixed-Use Special District Project. Seven commercial properties over 45 years old were identified within the project study site. All properties were recorded and evaluated for historical significance in consideration of CRHR designation criteria and integrity requirements, and all were found not eligible due to a lack of significant historical associations and integrity. The proposed project was found to have a less than significant impact on historical resources under CEQA.

Specialized Training

- CEQA and Historic Preservation: A 360 Degree View, CPF, 2015
- Historic Designation and Documentation Workshop, CPF, 2012
- Historic Context Writing Workshop, CPF, 2011
- Section 106 Compliance Training, SWCA, 2010
- CEQA Basics Workshop, SWCA, 2009
- NEPA Basics Workshop, SWCA, 2008
- CEQA, NEPA, and Other Legislative Mandates Workshop, UCLA, 2008

Publications

Gross, C., Melmed, A., Murray, S., Dietler, S., and Gibson, H. 2012. Osteological Analysis In Not Dead but Gone Before: The Archaeology of Los Angeles City Cemetery, edited by H. Gibson and S. Dietler, AECOM Cultural Heritage Publication Number 4, San Diego.

Murray, S. 2013. The People of Plaza Church Cemetery (1822-1844): An Osteological Analysis of Los Angeles' First Cemetery. UMI Dissertation Publishing, ProQuest LLC., Michigan.

Presentations

Historical Resources and CEQA: An Overview of Identification, Evaluation, Impacts Assessment, and Mitigation. Prepared for the Gilroy Historic Heritage Committee. Presented by Samantha Murray, Dudek. May 15, 2019. Delivered a 1.5-hour PowerPoint presentation to the City of Gilroy's Historic Heritage Committee during one of their monthly public hearings. The presentation provided an overview of the CEQA process, how historical resources are treated under CEQA, as well as the process for identification, evaluation, impacts assessment, and options to consider for mitigation. The presentation also included examples from CEQA Case Law and included an extensive question and answer session with the audience.

Historical Resources under CEQA. Prepared for the Orange County Historic Preservation Planner Working Group. Presented by Samantha Murray, Dudek. December 1, 2016. Delivered a 1-hour PowerPoint presentation to the Orange County Historic Preservation Planner Working Group, which included planners from different municipalities in Orange County, regarding the treatment of historical resources under CEQA. Topics of discussion included identification of historical resources, assessing impacts, avoiding or mitigating impacts, overcoming the challenges associated with impacts to historical resources, and developing effective preservation alternatives.

Knowing What You're Asking For: Evaluation of Historic Resources. Prepared for Lorman Education Services. Presented by Samantha Murray and Stephanie Standerfer, Dudek. September 19, 2014. With Ms. Standerfer, delivered a one-hour PowerPoint presentation to paying workshop attendees from various cities and counties in Southern California. The workshop focused on outlining the basics of historical resources under CEQA, and delved into issues/challenges frequently encountered on preservation projects.

SE

Appendix NOI

Noise Supporting Information

NOI.1 Noise Modeling Outputs

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/22/2022
Case Description: Phase 1 - Landscaping

**** Receptor #1 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Northpark Apartment	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	1150.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	50.4	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	50.4	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night

California Drive Residences	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	1650.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	47.3	43.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	47.3	43.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/23/2023
Case Description: Phase 1 - Building Construction

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Northpark Apartment	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		1150.0	0.0
Vibratory Pile Driver	No	20		100.8	1810.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor	56.8	52.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vibratory Pile Driver	69.6	62.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	69.6	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
California Drive Residences	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		1650.0	0.0
Vibratory Pile Driver	No	20		100.8	1820.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor	53.6	49.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vibratory Pile Driver	69.6	62.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	69.6	62.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/22/2022
Case Description: Phase 1 - Demolition

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Northpark Apartment	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	1150.0	0.0
Dozer	No	40		81.7	1150.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Concrete Saw	62.3	55.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	54.4	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	62.3	56.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
California Drive Residences	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	1650.0	0.0
Dozer	No	40		81.7	1650.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	59.2	52.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	51.3	47.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	70.9	64.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/22/2022
Case Description: Phase 1 - Grading

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Northpark Apartment	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		1150.0	0.0
Grader	No	40	85.0		1150.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor	56.8	52.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	57.8	53.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	57.8	56.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
California Drive Residences	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		1650.0	0.0
Grader	No	40	85.0		1650.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor	53.6	49.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	54.6	50.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	54.6	53.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/22/2022
Case Description: Phase 1 - Landscaping

**** Receptor #1 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Northpark Apartment	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
All Other Equipment > 5 HP	No	50	85.0		1150.0	0.0
All Other Equipment > 5 HP	No	50	85.0		1150.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
All Other Equipment > 5 HP	57.8	54.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	57.8	54.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	57.8	57.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
California Drive Residences	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
All Other Equipment > 5 HP	No	50	85.0		1650.0	0.0
All Other Equipment > 5 HP	No	50	85.0		1650.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
All Other Equipment > 5 HP	54.6	51.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	54.6	51.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	54.6	54.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/22/2022
Case Description: Phase 1 - Paving

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Northpark Apartment	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	1150.0	0.0
Roller	No	20		80.0	1150.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Paver	50.0	47.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	52.8	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	52.8	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
California Drive Residences	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	1650.0	0.0
Roller	No	20		80.0	1650.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	46.8	43.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	49.6	42.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	49.6	46.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/22/2022
Case Description: Phase 1 - Site Preparation

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Northpark Apartment	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	1150.0	0.0
Tractor	No	40	84.0		1150.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Dozer	54.4	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	56.8	52.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	56.8	54.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
California Drive Residences	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	1650.0	0.0
Tractor	No	40	84.0		1650.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	51.3	47.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	53.6	49.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	53.6	51.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NOI.2 Traffic Noise Calculations

Old Bayshore Highway Roadway Noise Analysis

Existing

ROAD SEGMENT	from:	to:	TOTAL # VEHICLES	VEHICLE TYPE % Auto %	Auto	MT %	MT	HT %	HT	VEHICLE SPEED Auto	k/h	MT	k/h	HT	k/h	NOISE LEVEL (dBA) Auto	MT	HT	CALCULATED NOISE LEVEL (15 meters from roadway center)
Old Bayshore Hwy	North Driveway	US 101 NB On/Off Ramp	1359	95	1291.1	3	40.77	2	27.18	35	56	35	56	35	56	65.4	60.1	65.1	68.9
Old Bayshore Hwy	US 101 NB Off-Ramp	Broadway	1968	95	1869.6	3	59.04	2	39.36	35	56	35	56	35	56	67.0	61.7	66.7	70.5
Broadway	Old Bayshore Hwy	US 101 SB On/OffRamp	2073	95	1969.4	3	62.19	2	41.46	35	56	35	56	35	56	67.3	62.0	66.9	70.7
Broadway	US 101 SB On/Off Ram	Rollins Road	2997	95	2847.2	3	89.91	2	59.94	35	56	35	56	35	56	68.9	63.6	68.5	72.3
Rollins Rd	Cadillac Way	Broadway	936	95	889.2	3	28.08	2	18.72	35	56	35	56	35	56	63.8	58.5	63.5	67.3
Aiport Blvd	Anza Blvd	Old Bayshore Hwy	701	95	665.95	3	21.03	2	14.02	35	56	35	56	35	56	62.5	57.3	62.2	66.0

Assumptions: AM peak hour traffic data from Fehr & Peers

Existing + Project

ROAD SEGMENT	from:	to:	TOTAL # VEHICLES	VEHICLE TYPE % Auto %	Auto	MT %	MT	HT %	HT	VEHICLE SPEED Auto	k/h	MT	k/h	HT	k/h	NOISE LEVEL (dBA) Auto	MT	HT	CALCULATED NOISE LEVEL (15 meters from roadway center)
Old Bayshore Hwy	North Driveway	US 101 NB Off-Ramp	1907	95	1811.7	3	57.21	2	38.14	35	56	35	56	35	56	66.9	61.6	66.6	70.4
Old Bayshore Hwy	US 101 NB Off-Ramp	Broadway	2563	95	2434.9	3	76.89	2	51.26	35	56	35	56	35	56	68.2	62.9	67.8	71.6
Broadway	Old Bayshore Hwy	US 101 SB Off-On Ramp	2689	95	2554.6	3	80.67	2	53.78	35	56	35	56	35	56	68.4	63.1	68.1	71.9
Broadway	US 101 SB Off-On Ram	Rollins Road	3155	95	2997.3	3	94.65	2	63.1	35	56	35	56	35	56	69.1	63.8	68.7	72.5
Rollins Rd	Cadillac Way	Broadway	937	95	890.15	3	28.11	2	18.74	35	56	35	56	35	56	63.8	58.5	63.5	67.3
Aiport Blvd	Anza Blvd	Old Bayshore Hwy	703	95	667.85	3	21.09	2	14.06	35	56	35	56	35	56	62.6	57.3	62.2	66.0

Old Bayshore Highway Roadway Noise Analysis

Cumulative

ROAD SEGMENT from:		to:	TOTAL # VEHICLES	VEHICLE TYPE % Auto %	Auto	MT %	MT	HT %	HT	VEHICLE SPEED Autc	k/h	MT	k/h	HT	k/h	NOISE LEVEL (dBA) Auto	MT	HT	CALCULATED NOISE LEVEL (15 meters from roadway center)
Old Bayshore Hwy	North Driveway	US 101 NB On/Off Ramp	2020	95	1919	3	60.6	2	40.4	35	56	35	56	35	56	67.1	61.9	66.8	70.6
Old Bayshore Hwy	US 101 NB Off-Ramp	Broadway	2810	95	2669.5	3	84.3	2	56.2	35	56	35	56	35	56	68.6	63.3	68.2	72.0
Broadway	Old Bayshore Hwy	US 101 SB On/OffRamp	3140	95	2983	3	94.2	2	62.8	35	56	35	56	35	56	69.1	63.8	68.7	72.5
Broadway	US 101 SB On/Off Ram	Rollins Road	3330	95	3163.5	3	99.9	2	66.6	35	56	35	56	35	56	69.3	64.0	69.0	72.8
Rollins Rd	Cadillac Way	Broadway	1050	95	997.5	3	31.5	2	21	35	56	35	56	35	56	64.3	59.0	64.0	67.8
Aiport Blvd	Anza Blvd	Old Bayshore Hwy	1600	95	1520	3	48	2	32	35	56	35	56	35	56	66.1	60.8	65.8	69.6

Assumptions: AM peak hour traffic data from Fehr & Peers

Cumulative + Project

ROAD SEGMENT from:		to:	TOTAL # VEHICLES	VEHICLE TYPE % Auto %	Auto	MT %	MT	HT %	HT	VEHICLE SPEED Autc	k/h	MT	k/h	HT	k/h	NOISE LEVEL (dBA) Auto	MT	HT	CALCULATED NOISE LEVEL (15 meters from roadway center)
Old Bayshore Hwy	North Driveway	US 101 NB Off-Ramp	1980	95	1881	3	59.4	2	39.6	35	56	35	56	35	56	67.1	61.8	66.7	70.5
Old Bayshore Hwy	US 101 NB Off-Ramp	Broadway	2630	95	2498.5	3	78.9	2	52.6	35	56	35	56	35	56	68.3	63.0	68.0	71.8
Broadway	Old Bayshore Hwy	US 101 SB Off-On Ramp	3650	95	3467.5	3	109.5	2	73	35	56	35	56	35	56	69.7	64.4	69.4	73.2
Broadway	US 101 SB Off-On Ram	Rollins Road	3500	95	3325	3	105	2	70	35	56	35	56	35	56	69.5	64.2	69.2	73.0
Rollins Rd	Cadillac Way	Broadway	1050	95	997.5	3	31.5	2	21	35	56	35	56	35	56	64.3	59.0	64.0	67.8
Aiport Blvd	Anza Blvd	Old Bayshore Hwy	1350	95	1282.5	3	40.5	2	27	35	56	35	56	35	56	65.4	60.1	65.1	68.9

NOI.3 Noise Modeling Monitoring

Calculated Ldn from Long-Term Noise Monitoring Data

Meter - Proposed Old Bayshore Hwy
11/7/2022
Wednesday

		TIME	dBA	Numbers...	10 dBA More Numbers...	5 dBA
Midnight		0 / 24	61.0	1256976	12569760	3974907
am	1:00	100	56.8	482356	4823563	1525345
	2:00	200	55.9	385939	3859393	1220447
	3:00	300	55.9	393432	3934323	1244142
	4:00	400	63.1	2063792	20637924	6526284
	5:00	500	62.3	1715157	17151575	5423804
	6:00	600	64.9	3079775	30797751	9739104
	7:00	700	66.6	4569440	45694402	14449839
	8:00	800	66.3	4240011	42400112	13408093
	9:00	900	67.6	5697758	56977580	18017893
	10:00:AM	1000	83.3	213692362	2136923623	675754583
	11:00: AM	1100	66.4	4328655	43286553	13688410
	12:00:PM	1200	72.2	16689949	166899486	52778252
pm	1:00	1300	65.9	3894135	38941350	12314336
	2:00	1400	66.3	4223680	42236799	13356449
	3:00	1500	66.7	4678956	46789564	14796159
	4:00	1600	66.2	4190791	41907910	13252445
	5:00	1700	66.4	4379888	43798879	13850422
	6:00	1800	65.4	3431990	34319899	10852905
	7:00	1900	64.5	2834099	28340989	8962208
	8:00	2000	64.1	2566587	25665871	8116261
	9:00	2100	64.2	2624714	26247141	8300075
	10:00: AM	2200	62.3	1701896	17018959	5381867
pm	11:00: AM	2300	61.5	1400039	14000386	4427311

Leq Nighttime 8:00 p.m.-8:00 p.m. (not penalized)
64 dBA

Leq Daytime 8:00 am-8:00 p.m.
74 dBA

Leq 24-Hour
71 dBA

Ldn: 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m.
72 dBA

CNEL: 5 dBA penalty for noise between 7:00p.m. and 10:00 p.m., and 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m.
72 dBA

CNEL - Ldn 0.181401

Summary

File Name on Meter	LxT_Data.108.s
File Name on PC	LxT_0004337-20221206 110000-LxT_Data.108.ldbin
Serial Number	0004337
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2022-12-06 11:00:00
Stop	2022-12-08 11:00:00
Duration	48:00:00.0
Run Time	48:00:00.0
Pause	00:00:00.0
Pre-Calibration	2022-12-06 07:34:15
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting			
Peak Weight	Z Weighting			
Detector	Slow			
Preamplifier	PRMLxT2B			
Microphone Correction	Off			
Integration Method	Linear			
Overload	143.2 dB			
	A	**C**	**Z**	
Under Range Peak	99.5	96.5	**101.5**	dB
Under Range Limit	**37.9**	37.4	44.2	dB
Noise Floor	28.7	28.3	35.1	dB
	First	**Second**	**Third**	
Instrument Identification				

Results

LAeq	68.8	
LAE	121.1	
EA	144.145 mPa²h	
EA8	24.024 mPa²h	
EA40	120.121 mPa²h	
LZpeak (max)	2022-12-07 10:56:27	116.2 dB
LASmax	2022-12-07 10:56:28	102.4 dB
LASmin	2022-12-07 02:52:05	46.1 dB
SEA	-99.9 dB	

	Exceedance Counts	**Duration**
LAS > 85.0 dB	9	384.9 s
LAS > 115.0 dB	0	0.0 s
LZpeak > 135.0 dB	0	0.0 s
LZpeak > 137.0 dB	0	0.0 s
LZpeak > 140.0 dB	0	0.0 s

LCeq	74.5 dB
LAeq	68.8 dB
LCeq - LAeq	5.7 dB
LAIeq	69.6 dB
LAeq	68.8 dB
LAIeq - LAeq	0.8 dB

Record #	Record Type	Date	Time	LAeq	LZpeak	LASmax	LASmin	OVLD	Marker	Comments
1	Calibration Change	2022-12-06	7:34:15							
2	Run	2022-12-06	11:00:00							
3		2022-12-06	11:00:00	65.6	100.3	76.9	53.2	No		
4		2022-12-06	12:00:00	65.4	98.2	74.8	52.3	No		
5		2022-12-06	13:00:00	66.1	103.4	78.4	53.2	No		
6		2022-12-06	14:00:00	66.2	101.7	74.8	51.6	No		
7		2022-12-06	15:00:00	66.7	100.6	79.4	56.1	No		
8		2022-12-06	16:00:00	66.1	96.4	75.8	53.1	No		
9		2022-12-06	17:00:00	66.2	105.0	76.5	54.8	No		
10		2022-12-06	18:00:00	65.4	100.1	87.6	53.6	No		
11		2022-12-06	19:00:00	64.6	102.1	81.7	53.5	No		
12		2022-12-06	20:00:00	64.3	101.3	77.7	53.4	No		
13		2022-12-06	21:00:00	63.7	101.3	74.5	51.4	No		
14		2022-12-06	22:00:00	63.0	104.2	75.8	52.0	No		
15		2022-12-06	23:00:00	61.7	103.6	76.4	49.8	No		
16		2022-12-07	0:00:00	61.0	105.6	78.2	49.1	No		
17		2022-12-07	1:00:00	56.8	99.0	71.4	46.2	No		
18		2022-12-07	2:00:00	55.9	90.9	71.0	46.1	No		
19		2022-12-07	3:00:00	55.9	96.8	69.3	47.3	No		
20		2022-12-07	4:00:00	63.1	99.6	81.0	49.3	No		
21		2022-12-07	5:00:00	62.3	105.4	75.6	53.2	No		
22		2022-12-07	6:00:00	64.9	99.1	79.0	54.0	No		
23		2022-12-07	7:00:00	66.6	115.3	85.6	55.3	No		
24		2022-12-07	8:00:00	66.3	97.4	77.9	54.8	No		
25		2022-12-07	9:00:00	67.6	103.7	92.7	52.8	No		
26		2022-12-07	10:00:00	83.3	116.2	102.4	52.6	No		
27		2022-12-07	11:00:00	66.4	102.6	77.0	51.6	No		
28		2022-12-07	12:00:00	72.2	102.7	85.8	52.9	No		
29		2022-12-07	13:00:00	65.9	100.1	79.1	52.5	No		
30		2022-12-07	14:00:00	66.3	100.8	80.2	53.1	No		
31		2022-12-07	15:00:00	66.7	109.9	82.4	53.6	No		
32		2022-12-07	16:00:00	66.2	98.8	76.8	54.5	No		
33		2022-12-07	17:00:00	66.4	98.2	75.6	52.8	No		
34		2022-12-07	18:00:00	65.4	96.2	76.9	52.5	No		
35		2022-12-07	19:00:00	64.5	99.3	73.6	53.1	No		
36		2022-12-07	20:00:00	64.1	100.1	73.4	53.1	No		
37		2022-12-07	21:00:00	64.2	100.8	76.9	54.5	No		
38		2022-12-07	22:00:00	62.3	100.0	76.6	52.4	No		
39		2022-12-07	23:00:00	61.5	100.5	73.0	50.2	No		
40		2022-12-08	0:00:00	60.1	98.4	74.3	50.4	No		
41		2022-12-08	1:00:00	56.7	94.1	70.6	47.5	No		
42		2022-12-08	2:00:00	55.3	94.9	68.5	47.1	No		
43		2022-12-08	3:00:00	57.3	101.1	72.2	47.9	No		
44		2022-12-08	4:00:00	60.5	99.9	79.5	50.8	No		
45		2022-12-08	5:00:00	62.6	98.7	74.6	54.9	No		
46		2022-12-08	6:00:00	64.4	97.8	75.9	55.7	No		
47		2022-12-08	7:00:00	65.8	102.2	76.7	56.6	No		
48		2022-12-08	8:00:00	66.1	102.2	74.9	54.7	No		
49		2022-12-08	9:00:00	66.1	106.2	80.2	54.7	No		
50		2022-12-08	10:00:00	65.1	101.2	75.5	53.1	No		
51	Stop	2022-12-08	11:00:00							

NOI.4 Stationary Source Noise Calculations

Determination of noise at nearest receptor for distances beyond 200 feet

HVAC Equipment

Ni = No - 20(log Di/Do) (up to 200 feet -Caltrans, 2009)

where:

Ni=	attenuated noise level of interest
No=	reference noise level
Di=	distance to receptor
Do=	reference distance

No=	78	dBA
Di=	1590	ft
Do=	30	ft
Ni=	43.51	dBA

Table 4.11 10

Reference Noise Levels for Stationary Noise Sources Associated with the Proposed Project

Stationary Noise Source	Documented Sound Levels (dBA)	Source
HVAC Equipment	72–78 dBA at 30 feet without acoustical treatments	Trane, Sound Data and Application Guide, 2002
Standby Diesel Generator	75-90 dBA at 23 feet (size dependent) without acoustical enclosure	Cummins Power Generation, Sound Attenuated and Weather Protective Enclosures, 2008
Parking Lot	53–58 dBA at 75 feet	Illingworth and Rodkin, Santana Row Parking Structure Project Noise Assessment, San José, California, 2014
Loading Dock	77 dBA at 20 feet	Urban Crossroads, Moreno Valley Walmart Noise Impact Analysis, 2015

NOTES:

dBA = A-weighted decibels; ESA = Environmental Science Associates; HVAC = heating, ventilation and air conditioning.

SOURCE: Data compiled by Environmental Science Associates in 2020. (Additional sources noted above.)

Determination of noise at nearest receptor for distances beyond 200 feet

Chiller Room

Ni = No - 25(log Di/Do) (beyond 200 feet -Caltrans, 2009)

where:

Ni=	attenuated noise level of interest
No=	reference noise level
Di=	distance to receptor
Do=	reference distance

Receiver #1 Neponset Road

No=	78.00	dBA
Di=	1680	ft
Do=	30	ft
Ni=	34.30	dBA

Table 4.11 10

Reference Noise Levels for Stationary Noise Sources Associated with the Proposed Project

Stationary Noise Source	Documented Sound Levels (dBA)	Source
HVAC Equipment	72–78 dBA at 30 feet without acoustical treatments	Trane, Sound Data and Application Guide, 2002
Standby Diesel Generator	75-90 dBA at 23 feet (size dependent) without acoustical enclosure	Cummins Power Generation, Sound Attenuated and Weather Protective Enclosures, 2008
Parking Lot	53–58 dBA at 75 feet	Illingworth and Rodkin, Santana Row Parking Structure Project Noise Assessment, San José, California, 2014
Loading Dock	77 dBA at 20 feet	Urban Crossroads, Moreno Valley Walmart Noise Impact Analysis, 2015

NOTES:

dBA = A-weighted decibels; ESA = Environmental Science Associates; HVAC = heating, ventilation and air conditioning.

SOURCE: Data compiled by Environmental Science Associates in 2020. (Additional sources noted above.)

Generator Noise Calculations

Ni = No - 20(log Di/Do) (Caltrans, 2009)

where:

Ni=	attenuated noise level of interest
No=	reference noise level
Di=	distance to receptor
Do=	reference distance

No=	82	dBA
Di=	1280	ft
Do=	21	ft
Ni=	46.30	dBA

Table 4.11 10

Reference Noise Levels for Stationary Noise Sources Associated with the Proposed Project

Stationary Noise Source	Documented Sound Levels (dBA)	Source
HVAC Equipment	72–78 dBA at 30 feet without acoustical treatments	Trane, Sound Data and Application Guide, 2002
Standby Diesel Generator	75-90 dBA at 23 feet (size dependent) without acoustical enclosure	Cummins Power Generation, Sound Attenuated and Weather Protective Enclosures, 2008
Parking Lot	53–58 dBA at 75 feet	Illingworth and Rodkin, Santana Row Parking Structure Project Noise Assessment, San José, California, 2014
Loading Dock	77 dBA at 20 feet	Urban Crossroads, Moreno Valley Walmart Noise Impact Analysis, 2015

NOTES:

dBA = A-weighted decibels; ESA = Environmental Science Associates; HVAC = heating, ventilation and air conditioning.

SOURCE: Data compiled by Environmental Science Associates in 2020. (Additional sources noted above.)

Appendix SHDW
Shadow Study

PREVISION DESIGN

FROM: Adam Phillips
Prevision Design
1806 Belles Street, Suite 6B
San Francisco, CA 94129

TO: Paul Mitchell
ESA | Environmental Science Associates
575 Market Street, Suite 3700
San Francisco, CA 94105

DATE: January 6, 2023

RE: 1200-1340 Bayshore Shadow Study

---

1. Introduction and Scope of Study

Prevision Design has completed a shadow analysis of the shading effects that would be caused by the proposed five-building complex project located at 1200-1340 Old Bayshore Highway in Burlingame, CA. The City of Burlingame has no established technical standards for the evaluation of shadow impacts, nor specific criteria for significance, however other projects in Burlingame have prepared studies assessing whether such projects would create new shadows or shade on public and/or quasi-public open spaces and major pedestrian routes. These studies have included shadow diagrams differentiating existing and net new project-generated shadow at 9am, 12pm, and 3pm on June 21st (summer solstice), March 21st/September 21st (spring and fall equinoxes, identical with respect to shadow), and December 21st (winter solstice) to identify the extents of shadow at key points during the day and at the times of year depicting morning, midday, and afternoon shadow reach.

2. Report Methodology

Prevision Design gathered existing building and topographical data from aerial photography and imagery and used Google™ Earth Pro, to generate and validate the 3D forms (including basic massing and articulation) and location of all existing buildings within the area surrounding proposed project. This data was compiled to generate a virtual 3D area model which, with the addition of a model of the project (provided by the project sponsor) was used to simulate and render both the current shadow conditions as well as the net change in conditions that would be generated by the construction of the proposed project between the hours of 9 a.m. and 3 p.m.

3. Analysis Findings

Throughout the year the proposed project would generate net new shadow that would affect different areas at different times of day at different times of year, as summarized below:

Figures A1-A3 depict shadow conditions on the summer solstice (6/21), where at 9 a.m. project shadow would extend across old Bayshore Highway to the south and west, affecting exterior areas on the project site as well as adjacent properties including parking areas of 1299 Bayshore and 1333 Bayshore (Hyatt Regency). The shaded area would recede eastward from these areas throughout the morning and by 12 noon would principally affect only portions of the project site. Shadows would continue to move slowly eastward across the project site through the afternoon and by 3 p.m. a small portion of shadow from the southernmost of the five project buildings would reach the bay.

Figures B1-B3 depict shadow conditions on the spring (3/21) and fall (9/21) equinoxes, where at 9 a.m. project shadow would extend across old Bayshore Highway to the north and west, affecting exterior areas on the project site

PREVISION DESIGN

and adjacent properties including 1333 Bayshore (Hyatt Regency) and parking areas of One Bay Plaza. The shaded area would recede from these areas throughout the morning and by 12 noon would principally affect only portions of the one Bay Plaza parking area and project site. Shadows would move slowly eastward and northward through the across the project site through afternoon and by 3 p.m. all five project buildings would cast some shadow on the bay.

Figures C1-C3 depict shadow conditions on the winter solstice (12/21), where at 9 a.m. project shadow would extend across old Bayshore Highway to the north and west, affecting exterior areas of the project site as well as adjacent properties including 1333 Bayshore (Hyatt Regency) and parking areas of One Bay Plaza and 851 Burlway. The shaded area would recede to the south and east from these areas throughout the morning and by 12 noon would affect portions of the one Bay Plaza parking area, the project site, and small portions of the bay. Shadows would grow eastward and northward further into the parking area of One Bay Plaza and out further into the bay through afternoon until 3 p.m.

4. Effects on Open Spaces and Major Pedestrian Routes and other potentially sensitive sites

Bayside Park is the nearest public park, but due to its location southeast of the project site would not receive any project shadow between 9am-3pm year-round. The San Francisco Bay Trail is also considered a public amenity, and its planned route runs through the project site. Currently, the pathway is discontinuous and there is no developed portion between Airport Boulevard and the One Bay Plaza site. The portions of the existing Bay Trail on the One Bay Plaza site would receive afternoon shadow throughout the year, however the limited area affected and relatively short duration of shadow effects on the trail would not be considered an impact.

The project proposes new outdoor public amenity spaces between the buildings as well as along the Bay frontage, and the completion of the project would also provide a bridge over Easton Creek and new paved walkways, connecting the currently discontinuous portions of the Bay Trail. While these spaces would be most affected by shadow cast by the project, as they are part of the project itself any such "self-shadowing" would not be considered an impact.

Public sidewalks along Old Bayshore Highway would likely be characterized as a secondary rather than primary pedestrian route, and as such, the proposed project would not be considered to have significant shadow impacts on Public Sidewalks.

While not always reviewed, net new shadow cast on existing solar panel installations can be considered an adverse impact. The analysis model identified (and included as part of the figures) 851 Burlway as having both rooftop as well parking-level solar panel installations, however no net new shadow would reach these features, so there would be no impacts.

5. Cumulative Conditions Analysis

There is currently one planned project in the near vicinity of the proposed project, 1499 Old Bayshore Highway. This project was added to the analysis model and diagrams for reference to show the extent of shadow relative to the proposed project. It has been verified that shadow from the 1499 Old Bayshore project would not affect any of the areas affected by the proposed project, therefore would not result in cumulative condition shadow impacts on any of the project-affected features.

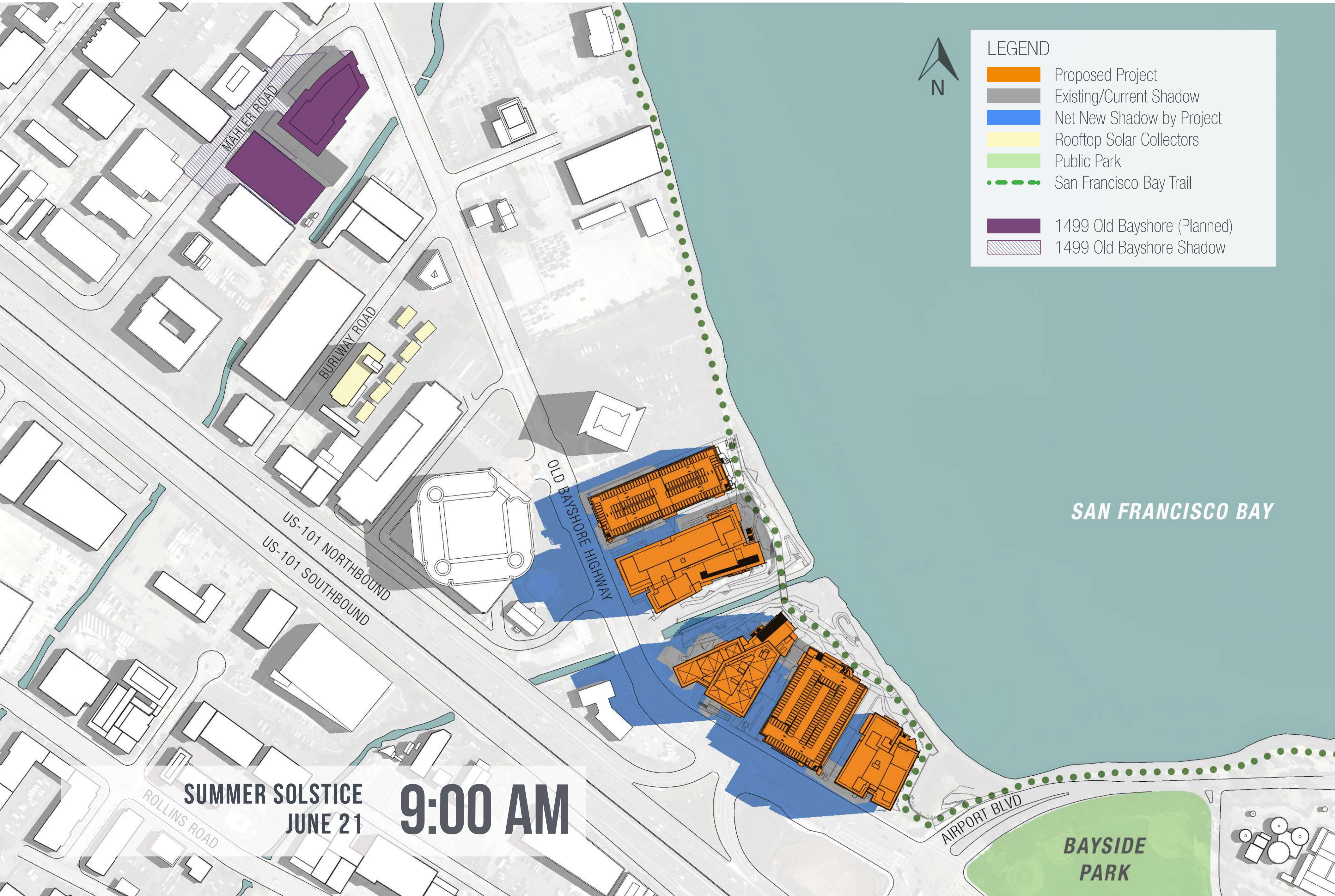
Please do not hesitate to reach out to me with any further questions, comments, or requests for additional data or clarification.

Adam Phillips
Principal
Prevision Design

1200-1340 OLD BAYSHORE HIGHWAY

Shading diagrams on the Summer Solstice

A1

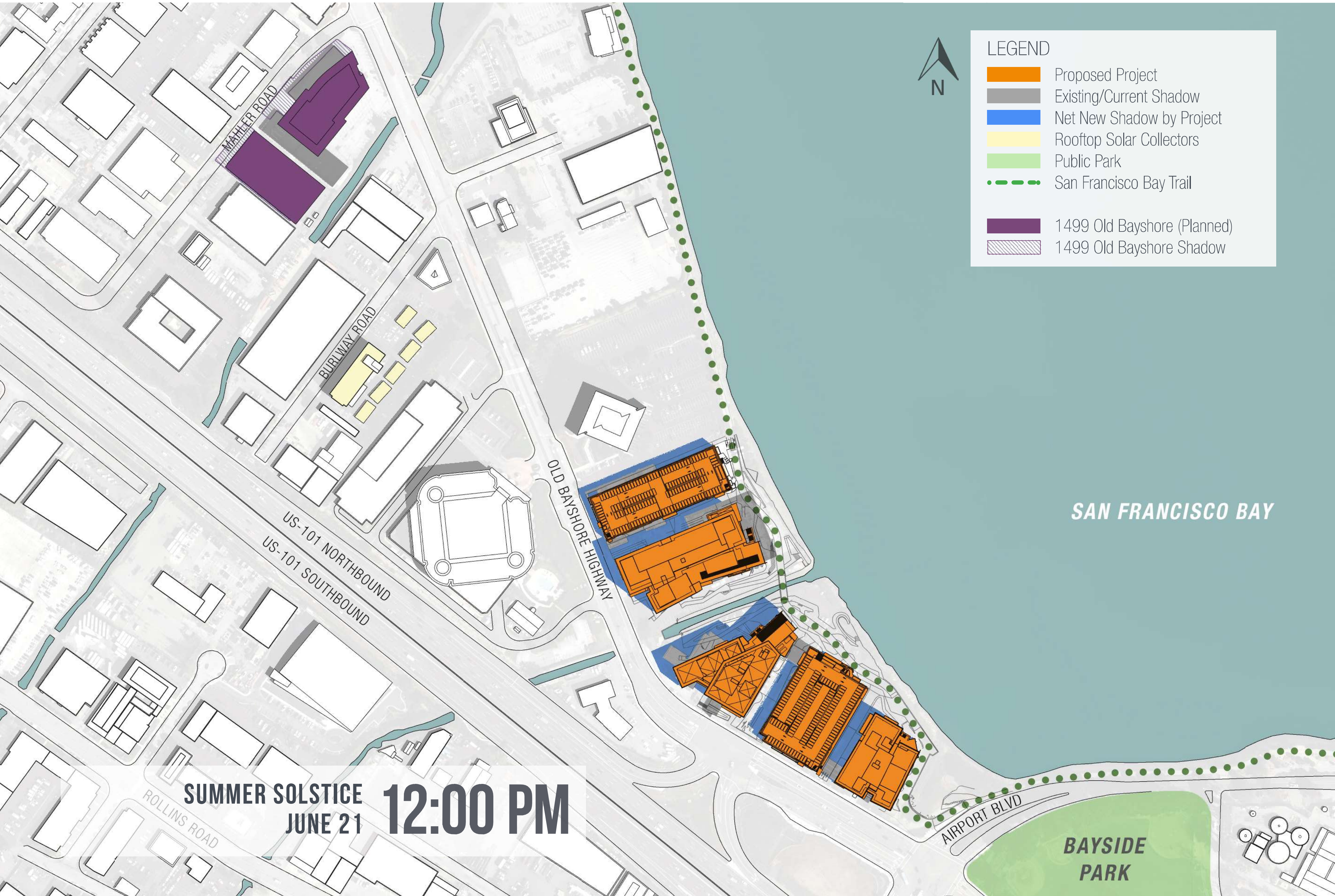


PREVISION DESIGN

1200-1340 OLD BAYSHORE HIGHWAY

Shading diagrams on the Summer Solstice

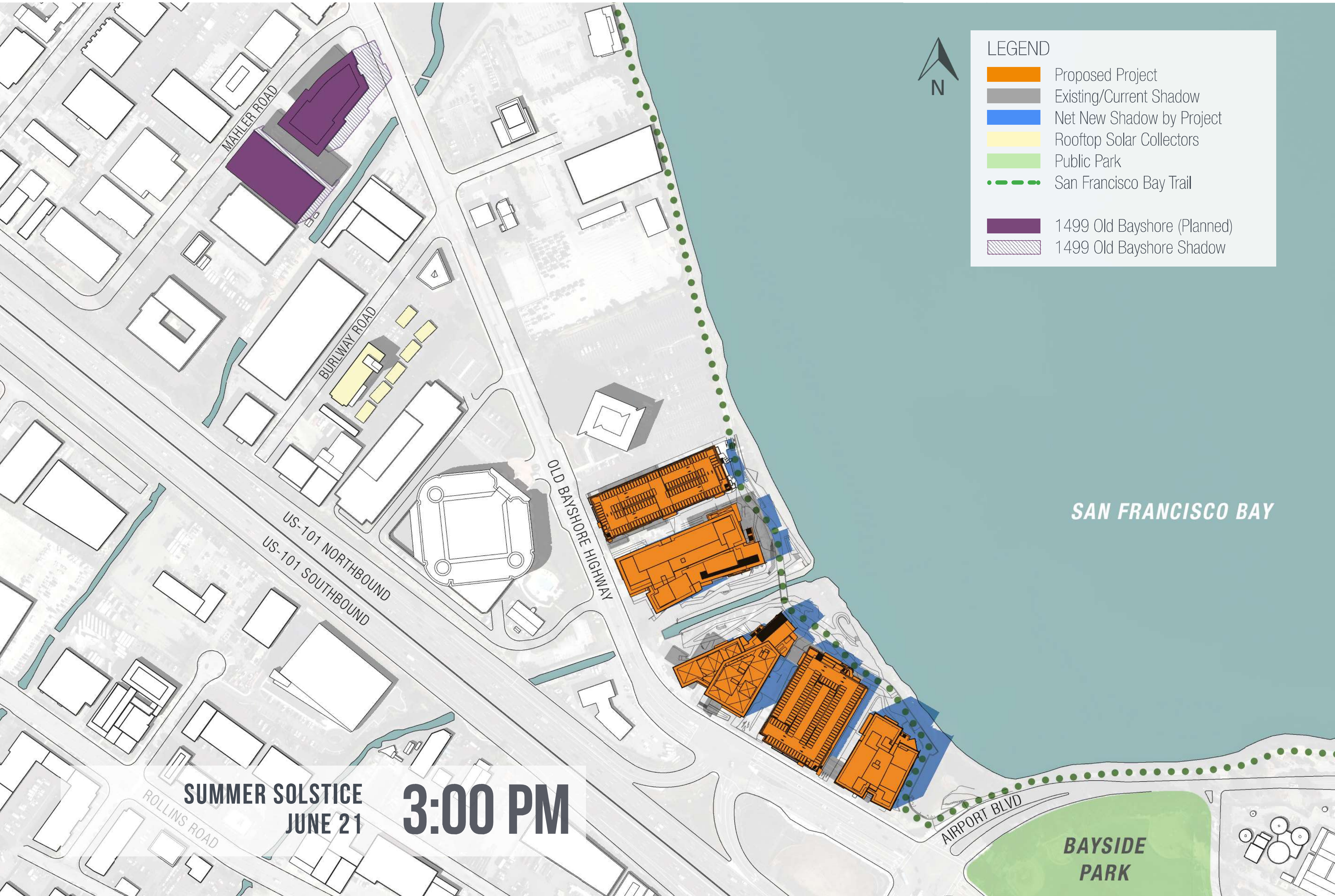
A2



1200-1340 OLD BAYSHORE HIGHWAY

Shading diagrams on the Summer Solstice

A3



SUMMER SOLSTICE
JUNE 21

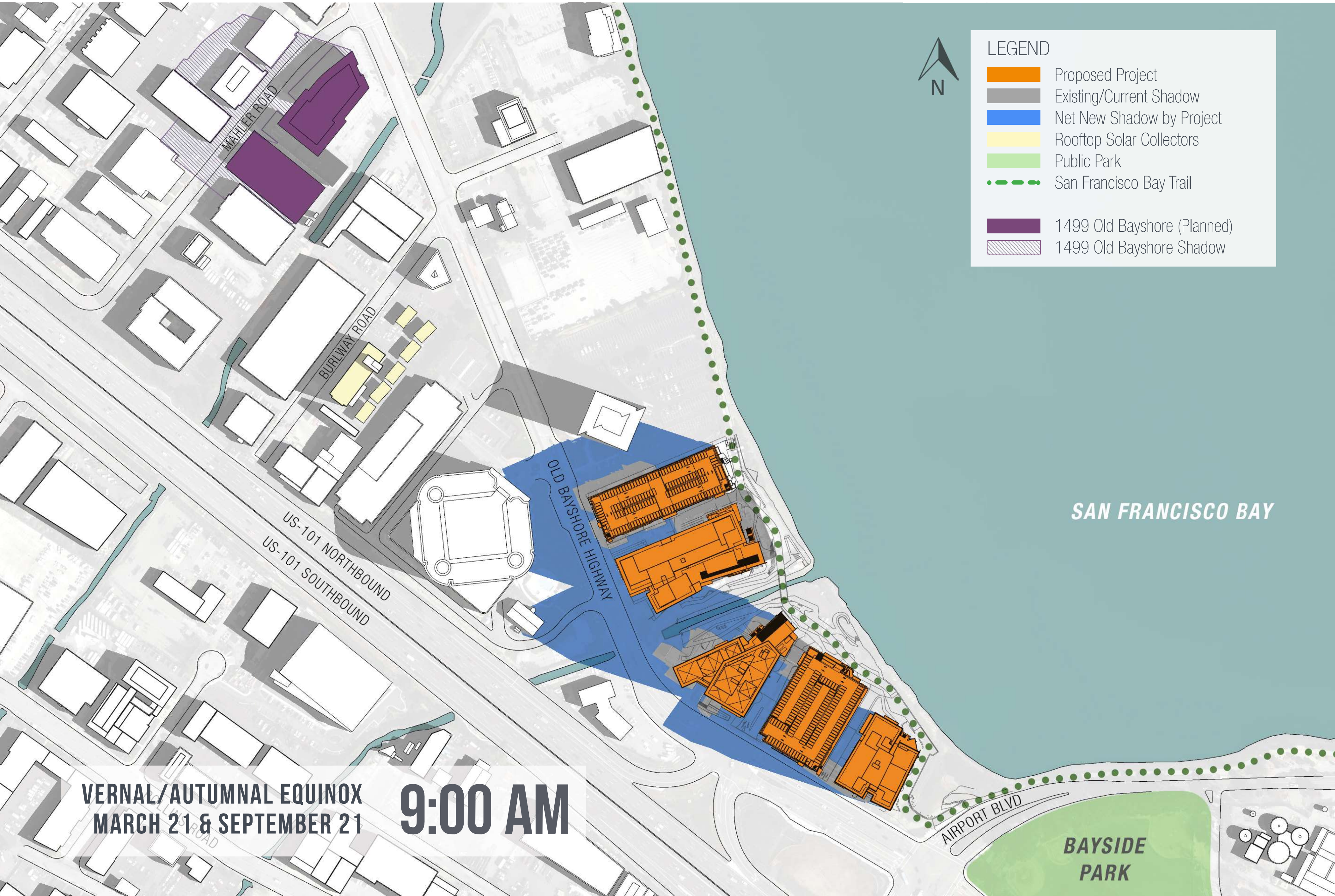
3:00 PM

PREVISION DESIGN

1200-1340 OLD BAYSHORE HIGHWAY

Shading diagrams on the Vernal/Autumnal Equinoxes

B1



PREVISION DESIGN

1200-1340 OLD BAYSHORE HIGHWAY

Shading diagrams on the Vernal/Autumnal Equinoxes

B2

VERNAL/AUTUMNAL EQUINOX
MARCH 21 & SEPTEMBER 21

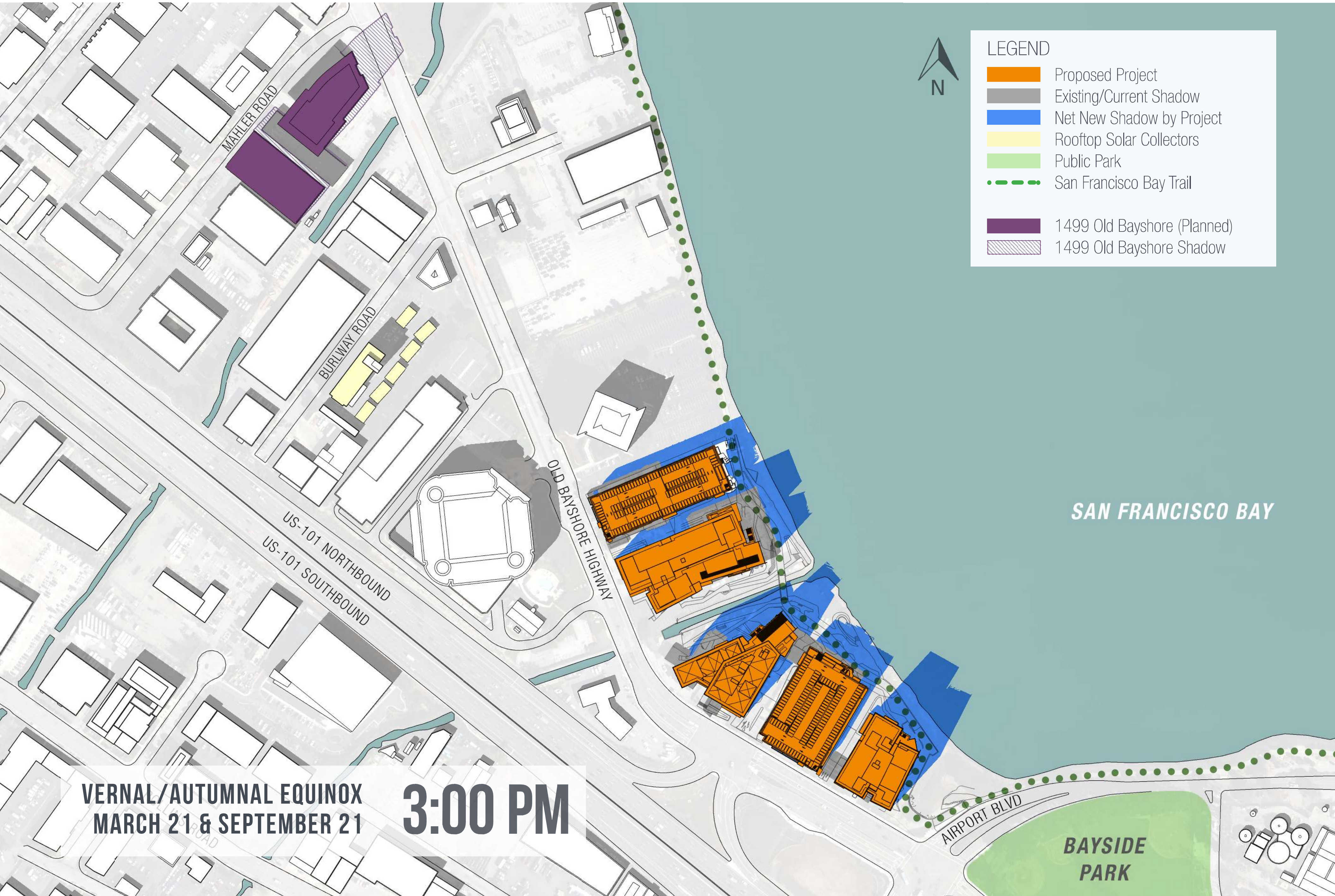
12:00 PM

PREVISION DESIGN

1200-1340 OLD BAYSHORE HIGHWAY

Shading diagrams on the Vernal/Autumnal Equinoxes

B3

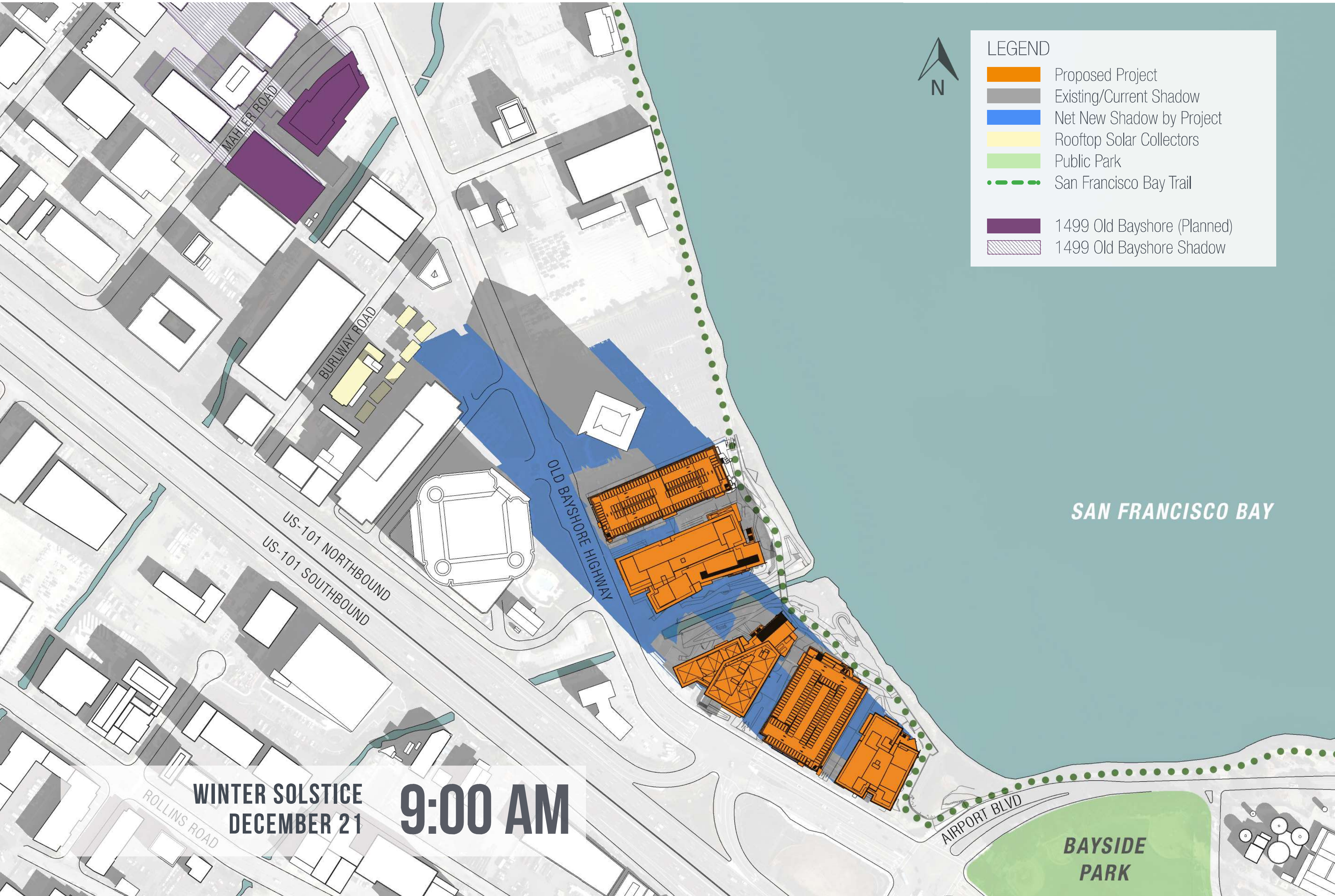


PREVISION DESIGN

1200-1340 OLD BAYSHORE HIGHWAY

Shading diagrams on the Winter Solstice

C1



WINTER SOLSTICE
DECEMBER 21

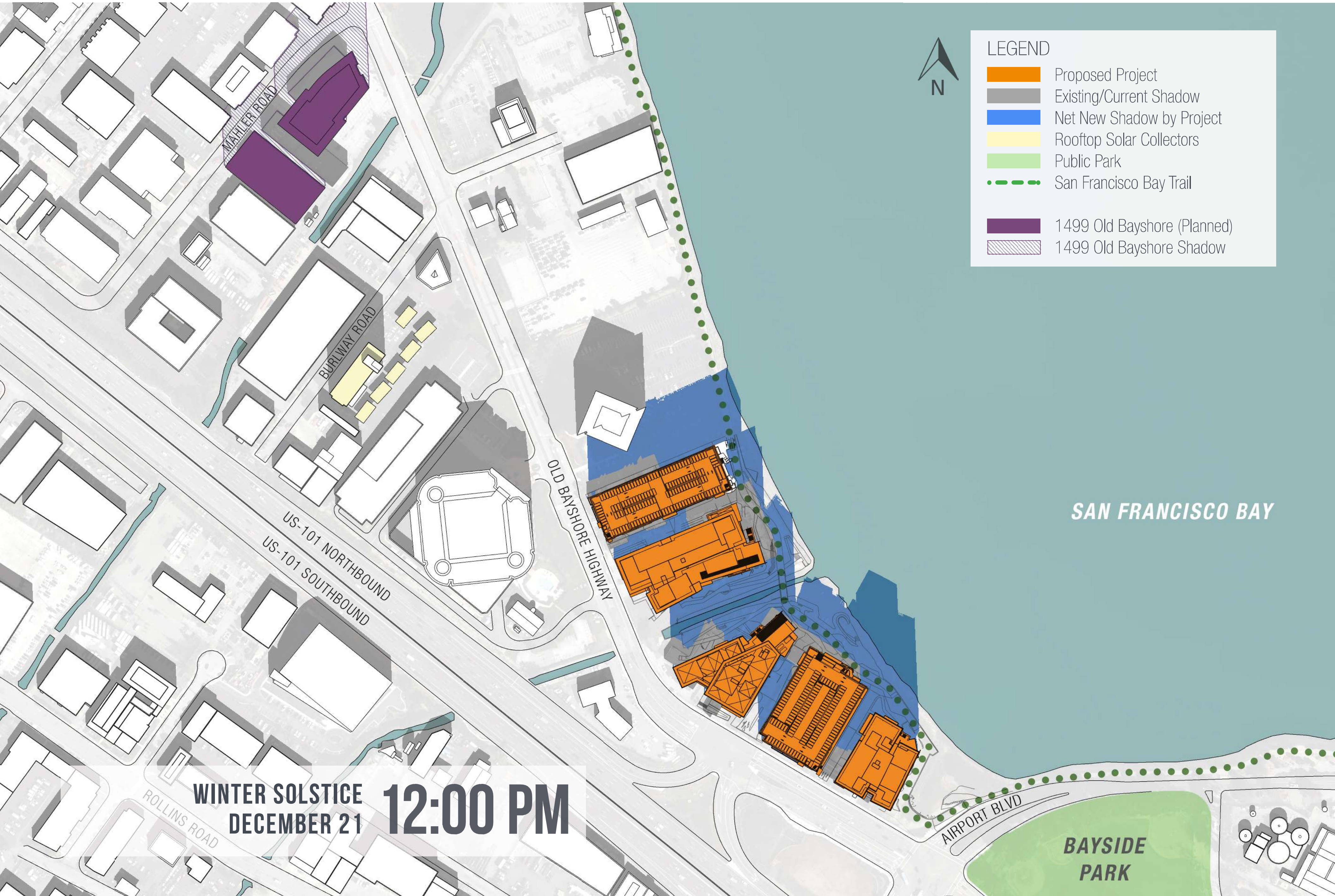
9:00 AM

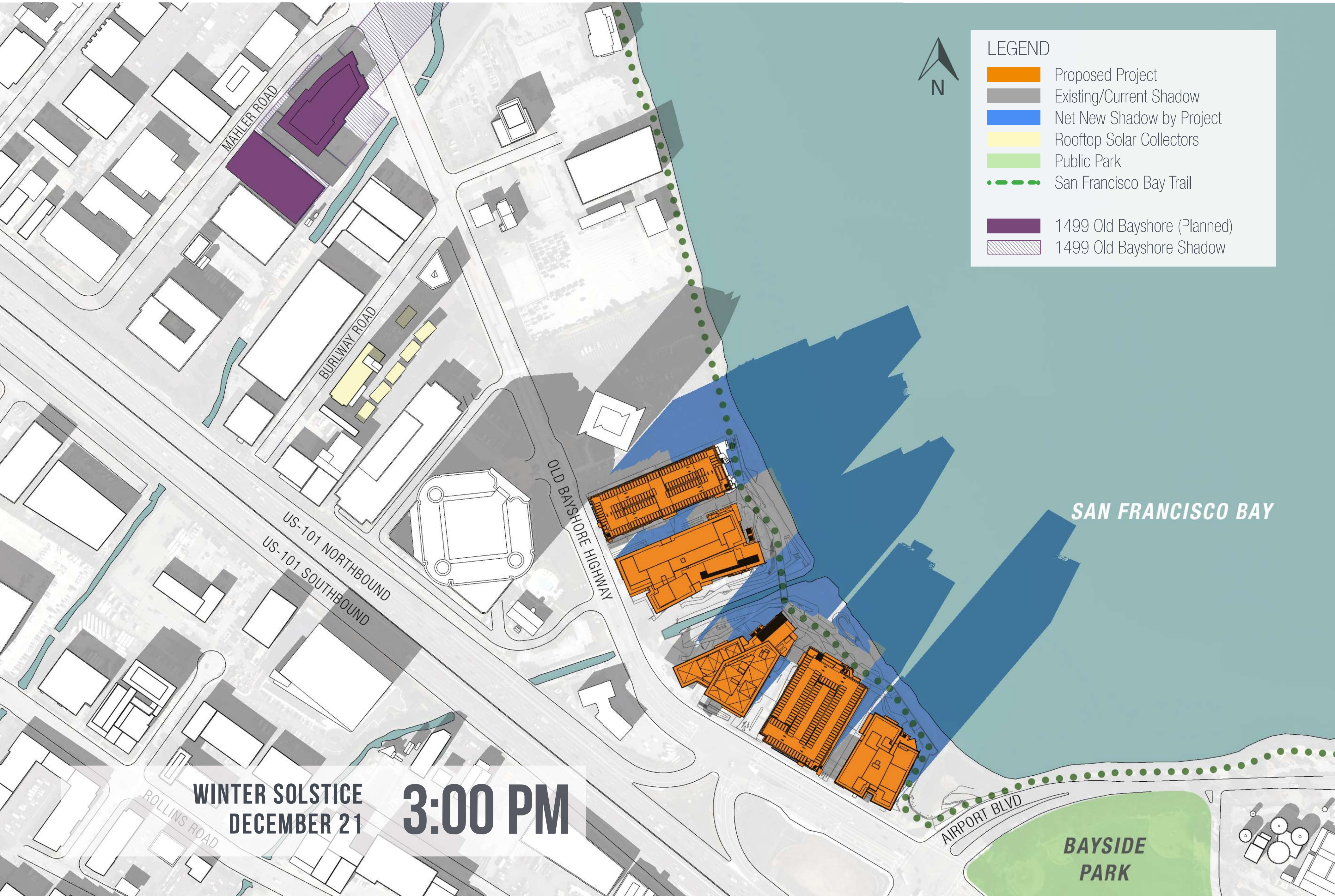
PREVISION DESIGN

1200-1340 OLD BAYSHORE HIGHWAY

Shading diagrams on the Winter Solstice

C2




LEGEND
Proposed Project
Existing/Current Shadow
Net New Shadow by Project
Rooftop Solar Collectors
Public Park
San Francisco Bay Trail
1499 Old Bayshore (Planned)
1499 Old Bayshore Shadow
N
MAHLER ROAD
BURLWAY ROAD
OLD BAYSHORE HIGHWAY
US-101 NORTHBOUND
US-101 SOUTHBOUND
SAN FRANCISCO BAY
AIRPORT BLVD
ROLLINS ROAD
BAYSIDE PARK
WINTER SOLSTICE
DECEMBER 21
3:00 PM

Appendix TRANS

Transportation Impact Analysis

1200-1340 Bayshore Highway

Transportation Impact Analysis

Prepared for:
Divco West

May 2023

SF21-1190

FEHR PEERS

Table of Contents

Appendices

Appendix A: Preliminary Transporation Demand Management Plan

Appendix B: Relevant Plans & Policies

Appendix C: C/CAG VMT Estimation Tool Output

List of Figures

List of Tables

1. Project Description

This transportation impact analysis (TIA) evaluates potential transportation impacts associated with the Peninsula Crossing development located at 1200 – 1340 Bayshore Highway in Burlingame, California, herein referred to as the "Project". The Project would redevelop a 12-acre site that consists of 127,200 square feet of commercial space spread across eight 1- to 3-story buildings. The Project includes 1.42 million square-feet of space for office/research & development. The proposed site plan includes 259,930 square feet building area coverage (FAR 2.79) for three (3) eleven-story buildings, plus two (2) ten-story parking structures each with two levels of below grade parking. The proposed uses include office and/or life sciences.

The Project site is located north of Anza Lagoon along Old Bayshore Highway in the City of Burlingame's Bayfront employment district. The site is bound by Airport Boulevard to the south, the San Francisco Bay to the west, Old Bayshore Highway to the east, and existing commercial buildings to the north. Primary vehicle access is provided by three driveways off Old Bayshore Highway. The South and Main driveways provide access to the South Parking Structure while the North Driveway provides access the North Parking Structure. Each driveway can serve an emergency vehicle access function.

Primary bicycle and pedestrian access would be provided via the Bay Trail, Old Bayshore Highway, and Broadway. This portion of the Bay Trail is within the project boundary. Existing sidewalks along Old Bayshore Highway connect to an existing Commute.org shuttle stop located approximately 0.2 miles north from the Project site along Old Bayshore Highway. The stop is served by Commute.org's Burlingame Bayside Shuttle which provides weekday peak commute period service to the Millbrae BART/Caltrain intermodal station.

The Project is subject to the City of Burlingame's Transportation Demand Management (TDM) ordinance, which applies to, among other project types, new non-residential projects larger than 10,000 square feet and requires that project sponsors incorporate measures and strategies to reduce vehicle trip generation rates 20% lower than the most recent edition of the Institute of Transportation Engineers (ITE) *Trip Generation Manual*. The ordinance requires that annual monitoring reports be submitted to the City of Burlingame that evaluates the TDM plan's effectiveness in meeting the trip reduction target.

The Project's TDM plan includes site enhancement strategies, on-site amenities, and programmatic and service strategies that encourage the use of alternative modes of travel. The measures will be monitored to ensure that they result in compliance with the 20% trip reduction target required by the ordinance; failure to reach this goal would result in the implementation of additional measures.

Figure 1 shows the Project location, nearby intersections, surrounding roadway system. and the projected distribution of project-generated vehicle traffic. **Figure 2** presents the Project site plan prepared by WRNS Studio. Vehicle turning movements into and out of the three driveways are also shown. All figures in the report can be found at the end of their respective sections.

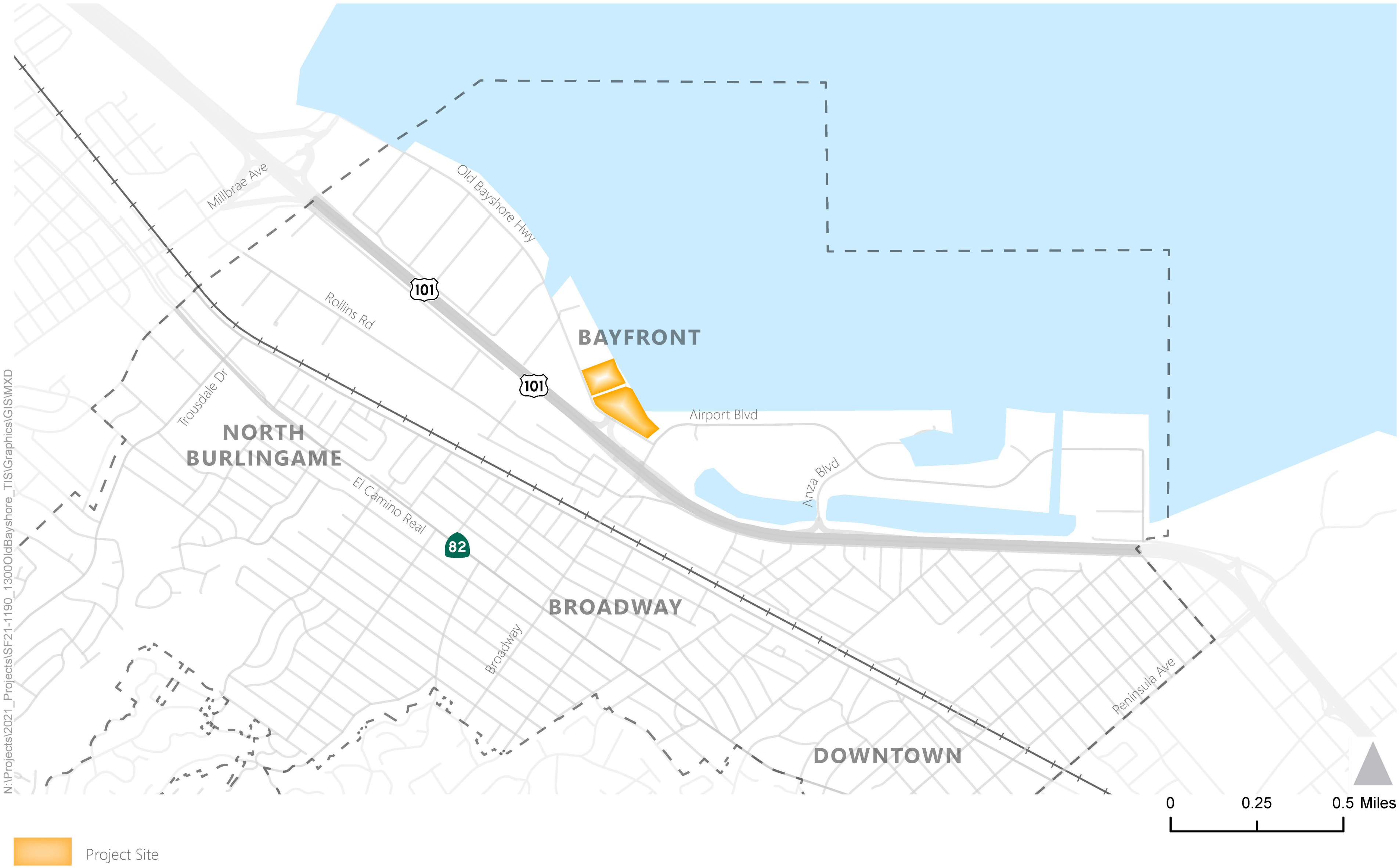


Figure 1

Project Location

1200-1340 Old Bayshore Highway

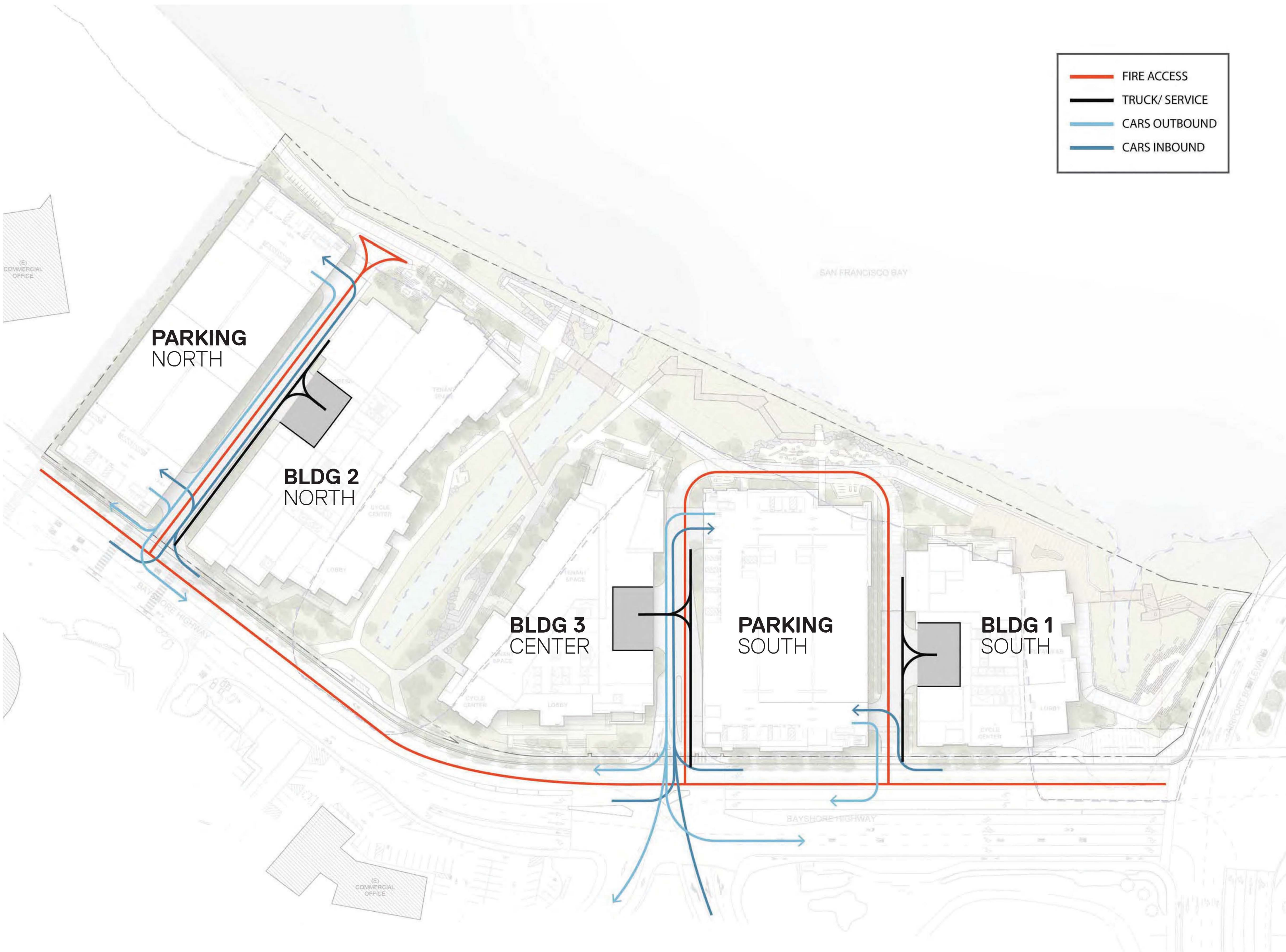


Figure 2

Project Site Plan

1200 - 1340 Old Bayshore Highway

2. Environmental Setting

This section describes the existing transportation and circulation setting in the vicinity of the Project site: the existing roadway network, transit network and service, pedestrian conditions, bicycle conditions, and emergency vehicle access. A description of agencies with jurisdiction over transportation in the City of Burlingame and a summary of relevant plans and policies are provided in **Appendix B**.

2.1 Roadway Facilities

The Project site is located north of Anza Lagoon along Old Bayshore Highway at 1200 – 1340 Old Bayshore Highway in the City of Burlingame's Bayfront employment area which is situated between US-101 and the San Francisco Bay. Spanning the length of the City of Burlingame from the City of Millbrae in the North to the City of San Mateo in the south, the Bayfront area is long and narrow, characterized by exclusively commercial land uses, and is served by one arterial roadway that parallels and connects US-101 to the area at four freeway access points. North of the Broadway/US-101 interchange, this primary arterial is Old Bayshore Highway while to the south it is Airport Boulevard.

Regional vehicle access to the Project site is provided via U.S. Highway 101 (US-101), Broadway, and Old Bayshore Highway. Old Bayshore Highway provides direct access to northbound US-101. Old Bayshore Highway also provides access to southbound US-101 via the US-101/Broadway interchange. Project site vehicular access is provided via three driveways all on the Old Bayshore Highway frontage (as shown on **Figure 2**). Relevant roadway plans and policies (e.g., Burlingame General Plan, Burlingame Bicycle and Pedestrian Master Plan) are discussed in **Appendix B**.

Key local roadways in the vicinity of the Project site are described below. Street classifications are from the Burlingame General Plan mobility chapter.

- *US-101* is an eight-lane freeway and principal north-south roadway connection between San Francisco, San José, and intermediate San Francisco Peninsula cities. In the City of Burlingame, US-101 is located approximately 600 feet south of the Project site and serves the City's Bayfront employment area with four primary access points: Peninsula Avenue (northbound access via Airport Boulevard and southbound access via Poplar Avenue), Anza Boulevard, Broadway, and Millbrae Avenue. Near the Project, US-101 defines the Bayfront area's south and western edge and is a barrier to east-west bicycle and pedestrian connectivity.
- *Old Bayshore Highway* is a north-south Mixed-Use arterial that connects Millbrae Avenue to the north with the US-101/Broadway interchange to the south. The street is two lanes in each direction with a center two-way left turn lane. Old Bayshore Highway is the primary arterial roadway that serves the northern half of the Bayfront Area.
- *Airport Boulevard* is an east-west Mixed-Use Arterial that connects US-101 at Broadway to the west and Peninsula Avenue and the northbound US-101 ramps to the east. Between Anza Boulevard and Broadway, Airport Boulevard is one lane in each direction and east of Anza

Boulevard widens to two lanes in each direction with a two-way left turn lane before narrowing to one lane in each direction at the boundary with the City of San Mateo. Airport Boulevard is the primary arterial that serves the southern half of the Bayfront area.

- *Anza Boulevard* is a north-south Mixed-Use Collector that connects Airport Boulevard to the north and US-101 to the south, where the roadway begins and ends as on- and off-ramps to northbound US-101. North of Airport Boulevard, the roadway continues to the north approximately 200-feet before becoming a private street that serves several properties before terminating at the Anza Lagoon. The street is one lane in each direction except for the approaches to the Airport Boulevard intersection.
- *Broadway* is a north-south corridor with three street classifications. Between Vancouver Avenue and El Camino Real, the street is a neighborhood collector; between El Camino Real and California Drive, a Commercial Arterial, and between California Drive and Old Bayshore Highway, a Mixed-Use arterial. The third segment between California Drive and Old Bayshore Highway is the nearest and most relevant segment to the Project as it functions as the interchange with north and southbound US-101 and provides primary southbound US-101 access to the Project site. This segment is two to three lanes in each direction with multiple left and right turn lanes approaching intersections. The US-101/Broadway interchange was rebuilt and reconfigured between 2014 and 2017.
- *Peninsula Avenue* is an east west corridor that connects El Camino Real to the west with Airport Boulevard to the East and crosses US-101 but lacks direct on- and off-ramps. Northbound and southbound freeway access is provided via Airport Boulevard and Poplar Avenue, respectively. The roadway traverses the City of Burlingame as a Neighborhood Arterial and the City of San Mateo an Arterial.

2.2 Transit Facilities and Service

The Project site is not directly served by regional bus, rail, or ferry service but instead relies on supplementary first- and last-mile public shuttle services to connect employees with the regional transit network. The Peninsula Traffic Congestion Relief Alliance (Commute.org) Burlingame Point shuttle provides weekday commute-period shuttle service along the Old Bayshore Highway corridor to and from the Millbrae Caltrain/BART intermodal station and serves an existing stop approximately 200-feet east from the Project site along Airport Boulevard.

Existing transit service is shown in **Figure 3**. Relevant transit plans and policies are discussed **in Appendix B**.

2.2.1 Regional Transit Service

The following transit services operate within the City of Burlingame and are accessible from the Project site by walking, bicycling, or the first- and last-mile shuttle connection provided by Commute.org:

Both *Caltrain* and *Bay Area Rapid Transit (BART)* provide regional rail service on the Peninsula and in the vicinity of the Project site at three stations. A summary of Caltrain and BART service and the relevant stations is identified below.

- *Caltrain* provides service between San Francisco and San José and limited-weekday peak commute period trains to Morgan Hill and Gilroy. During weekdays, Caltrain operates three train service tiers that feature different stopping patterns: Local, Limited, and Baby Bullet express. Local trains make all stops between San Francisco and San Jose while Limited and Baby Bullet express trains make fewer stops to provide faster travel times between key stations during peak commute periods. Caltrain has increased service relative to pre-pandemic levels.
- *BART* provides service between the East Bay, San Francisco, and San Mateo County, connecting between San Francisco International Airport (SFO) and Millbrae Intermodal Station to the south, San Francisco to the north, and Oakland, Richmond, Pittsburg/Bay Point, Dublin/Pleasanton, and Fremont in the East Bay. During peak commute periods, BART service has returned to near pre-pandemic levels by providing trains on all lines every 15 minutes. Off-peak service remains reduced at approximately 30-minute headways on all lines.

Two Caltrain stations and one BART/Caltrain intermodal station are located near the Project site and are described below.

- *Burlingame – Caltrain* – Located at 290 California Drive in Downtown Burlingame, the Burlingame station is approximately 1.7 miles from the Project site. During weekday commute periods, Burlingame is served by limited and local service.
- *Broadway – Caltrain* – Located at 1190 California Drive in Burlingame's Broadway district, the Broadway station is approximately 0.5 miles from the Project site. The Broadway station is currently not served by weekday trains. Weekday service is anticipated to resume in 2026 upon completion of the *Peninsula Corridor Electrification Project*.
- *Millbrae Intermodal – Caltrain / BART* – Located at 100 California Drive in Downtown Millbrae, the Millbrae intermodal station is approximately 2.2 miles from the Project site. While this station is the furthest from the Project site, it would likely serve much of the Project's travel demand until the resumption of weekday service at the Broadway Caltrain station for two reasons. First, of the three stations in the vicinity of the Project site, it receives the most weekday rail service both because Caltrain and BART serve the station and because Caltrain Local, Limited, and Baby Bullet express trains stop at the station. Second, the Commute.org Burlingame Point shuttle begins and ends at the Millbrae station and is the sole transit route that directly serves the Project site

San Mateo County Transit District (SamTrans) provides bus service in San Mateo County and the Project site is directly served by Line 292. The closest SamTrans stop to the Project site is approximately 0.1 miles from the Project site at 1350 Old Bayshore Highway. This stop is served by route 292 which operates between the Hillsdale Mall in San Mateo and the Salesforce Transit Center in San Francisco via local streets that roughly parallel the US-101 corridor. In the City of Burlingame, route 292 operates along

California Drive, Broadway, and Old Bayshore Highway and provides service on approximately 30-minute headways during weekday peak commute hours.

As part of the multi-year comprehensive network analysis *Reimagine SamTrans*[1], SamTrans evaluated existing transit service routes and developed additional routes to improve the experience for existing riders, grow new and more frequent ridership, and improve the efficiency and effectiveness of SamTrans as a mobility provider. However, no major service changes in the vicinity of the Project site when the final plan was adopted by the SamTrans board in April 2022.

2.2.2 Bayfront Commuter Shuttle Service

Peninsula Traffic Congestion Relief Alliance (Commute.org) provides weekday commute period first- and last- mile shuttles connecting employers with BART and Caltrain. The shuttles are equipped with bicycle racks. Service is roughly distributed between the Bayfront area and the Burlingame mainland along Rollins Road, California Drive, and Bayshore Highway. At present, Project shuttle access is provided by an existing stop at 1333 Bayshore Highway, about 2 miles southeast from the El Camino Real / Millbrae Avenue intersection, which is served by the Caltrain and BART routes. Each shuttle operates at approximately 20-minute headways during commuting a.m. and p.m. peak periods.

2.3 Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, off-street trails, and pedestrian traffic control devices such as signals. Pedestrian facilities near the Project site tend to serve walking trips connecting to shuttle stops, multi-use trails, and nearby offices and businesses. In the Project vicinity, sidewalk widths on public streets range from five to nine feet.

The following pedestrian facilities exist near the Project site:

- *Old Bayshore Highway* has sidewalks on the east and west side of the roadway and serves as a connection from the Project site to the existing Commute.org shuttle stop at 1333 Old Bayshore Highway. Old Bayshore Highway provides a pedestrian connection to the Bay Trail to the south via Airport Boulevard.
- *The Bayside Crossing* is an overpass that provides separated bicycle and pedestrian access across US-101. The overcrossing connects to Bay Trail at the Broadway/Old Bayshore highway intersection and touches down at the intersection of Rollins Road and Cadillac Way, 0.25 miles from the Broadway Caltrain Station.
- *Broadway* has sidewalks on the north side of the roadway and serves as a connection from the Project site to the Broadway Caltrain Station and commercial areas west of US-101. The intersection of Old Bayshore Highway and Broadway has pedestrian signals and crosswalks at the north, east, and west legs of the intersections.

[1] Reimagine SamTrans. 2021. Available: https://www.reimaginesamtrans.com/. Accessed: October 19, 2021.

2.4 Bicycle Facilities

Bicycle facilities consist of separated bikeways, bicycle lanes, routes, trails, and paths, as well as bicycle parking, bicycle lockers, and showers for cyclists. The California Department of Transportation (Caltrans) recognizes four classifications of bicycle facilities as described below.

- Class I – Shared-Use Pathway: Provides a completely separated off-street right-of-way for the exclusive use of cyclists and pedestrians.
- Class II – Bicycle Lanes: Provides a striped lane for one-way travel on a street or highway. May include a "buffer" zone consisting of a striped portion of roadway between the bicycle lane and the nearest vehicle travel lane.
- Class III – Bicycle Route: Provides for shared use with motor vehicle traffic; however, are often signed or include a striped bicycle lane.
- Class IV – Separated Bikeway: Provides a right-of-way designated exclusively for bicycle travel adjacent to a roadway and which are protected from vehicular traffic. Types of separation include, but are not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

Existing and planned bicycle facilities in the Project vicinity, as designated by the City of Burlingame's Bicycle and Pedestrian Master Plan (BPMP), are shown in **Figure 4** and discussed below.

- *Old Bayshore Highway* is a Class III bicycle route that provides connectivity along the Bayfront from the Project Site to Burlingame's northern municipal boundary. The corridor is a planned Class IIB buffered bicycle lane in the BPMP.
- *Broadway* has Class II bicycle lanes that provide connectivity across US-101 to and from the project site. The Broadway crossing of US-101 is one of only two US-101 bike crossing locations in Burlingame and is located 0.3 miles from the Project Site.
- *The San Francisco Bay Trail (Bay Trail)* is a Class I path that runs along the Bayfront shoreline and is part of a planned 400-mile regional trail system encircling the San Francisco Bay. The San Francisco Bay Trail can be accessed directly from the Project site, however a 1,475-foot gap in the trail currently exists along the Project parcels. From the Project site, the Bay Trail provides access along the Bayfront to Bayfront Park to the north and Anza lagoon to the south.

2.5 Emergency Vehicle Access

Emergency vehicles typically use major streets through the study area when heading to and from an emergency and/or emergency facility. Arterial roadways allow emergency vehicles to travel at higher speeds and provide enough clearance space to permit other traffic to maneuver out of the path of the emergency vehicle and yield the right-of-way. The nearest existing fire station to the Project is Fire Station 36 at 1399 Rollins Road and is operated by the Central County Fire Department. The fire station is approximately 0.7 miles west of the Project site, via Old Bayshore Highway, Broadway and Rollins Road with access to the Project via the Project's primary vehicle access driveways on Bayshore Highway. Travel time is approximately four minutes from the Fire Station 36 to the Project site. The Project site allows for larger vehicle turning movements into and out of the site.

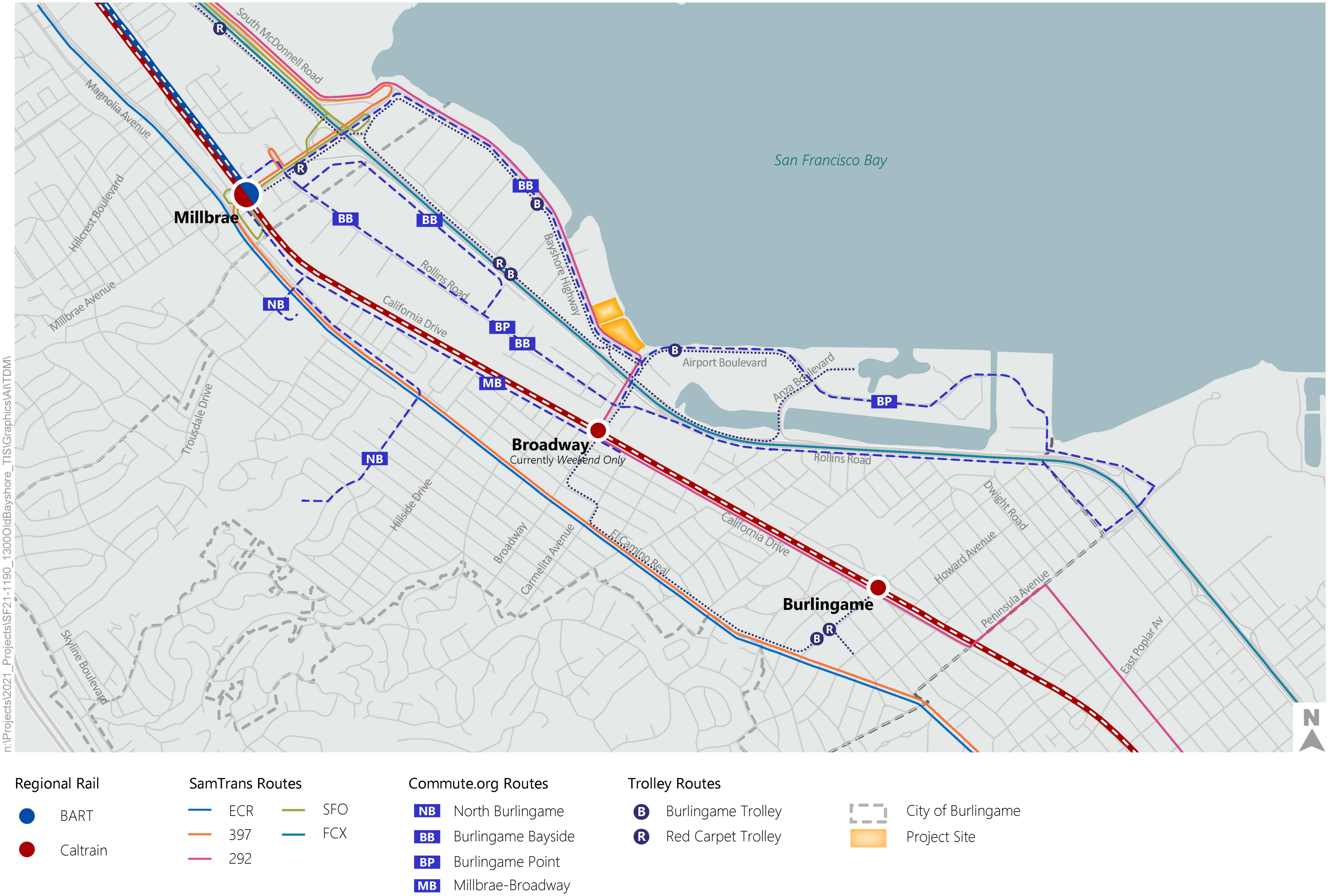


Figure 3

Existing Transit Service

Regional Rail
- BART
- Caltrain

Existing Bikeways
- Class I Shared Path
- Class II Bicycle Lane
- Class III Bicycle Route

Planned Bikeways
- Class I Shared Path
- Class II Bicycle Lane
- Class III Bicycle Route
- Class IIIb Neighborhood Bikeway
- Class IV Separated Bikeway

- City of Burlingame
- Project Site

Figure 4

Existing and Planned Bicycle Facilities

3. Transportation Analysis

This section includes analysis and findings of Project effects on transportation services and facilities, including vehicle miles traveled (VMT), motor vehicle travel and operations, transit service, pedestrian facilities, and bicycle facilities. Bicycle, pedestrian, and transit impacts were qualitatively assessed.

In accordance with California Senate Bill 743[2], vehicle delay metrics such as intersection level of service (LOS) cannot be used to assess project impacts under CEQA.

3.1 Significance Criteria

The impacts of the Project related to transportation would be considered significant if any of the following Standards of Significance are exceeded, in accordance with Appendix G of the California Environmental Quality Act (CEQA) Guidelines:

- Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
- Generate per-employee VMT greater than the City's adopted threshold of 15 percent below the regional average, pursuant to CEQA Guidelines Section 15064.3, subdivision (b);
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- Result in inadequate emergency access

Thresholds of significance used in this document are based on the *CEQA Guidelines* Appendix G criteria. The criteria of significance apply to all Project scenarios as measured against the corresponding No Project scenarios.

3.1.1 Vehicle Miles Traveled (VMT)

- A significant impact would occur if development of the Project would generate per-employee vehicle miles traveled (VMT) greater than 15 percent below the Countywide average.

3.1.2 Design Hazards

- A significant impact would occur if the Project substantially increases hazards to street users due to a design feature or land uses incompatible with the surrounding street network.

[2] Senate Bill 743 (SB 743) is intended to better align CEQA transportation impact analysis practices and mitigation outcomes with the State's goals to reduce greenhouse gas (GHG) emissions, encourage infill development, and improve public health through more active transportation. More information can be found in the accompanying Appendix B.

3.1.3 Bicycle, Pedestrian, and Transit

- A significant impact would occur if Project traffic would produce a detrimental impact to the performance or safety of existing bicycle or pedestrian facilities, or conflict with adopted plans and programs.
- A significant impact would occur if Project traffic would produce a detrimental impact to the performance or safety of local transit or shuttle service or conflict with adopted plans and programs.

3.1.4 Emergency Access

- A significant impact would occur if the Project would result in inadequate emergency access.

3.2 Analysis Scenarios

The impacts of the Project to the surrounding transportation system were evaluated for the two scenarios listed below:

- Scenario 1: Existing Conditions
- Scenario 2: Existing Plus Project Conditions
- Scenario 3: Cumulative Conditions
- Scenario 4: Cumulative Plus Project Conditions

A description of the methods used to estimate the amount of traffic and VMT generated by the Project is provided below. Project-specific impacts are described under Section 4.

3.2.1 Existing Conditions

Existing conditions represent the baseline condition upon which Project impacts are measured. The baseline condition represents conditions prior to the COVID-19 pandemic. Due to the atypical travel patterns and transit service levels during the COVID-19 pandemic, new data was not collected for this analysis.

3.2.2 Existing Plus Project Conditions

Existing Plus Project conditions represent the baseline condition with the addition of the Project. Traffic volumes for Existing Plus Project conditions include existing traffic volumes plus traffic generated by the Project. Existing Plus Project conditions were compared to Existing conditions to determine potential immediate project impacts.

3.2.3 Cumulative Conditions

Cumulative Conditions include transportation demand resulting from reasonably foreseeable land use changes and conditions associated with funded transportation projects at year 2040 as included in the Burlingame General Plan ("Envision Burlingame"). The Plan envisions the Bayfront area as a regional recreation and business destination with enhanced parks, natural open spaces, and recreational amenities that provide access for pedestrian, cyclists, and watercraft, including commercial ferry service. Industrial and office uses within the Inner Bayshore district (where the proposed Project is located) will continue as preferred land uses, and compatible creative industries will be accommodated.

Approximately 2/3rds of job growth in Burlingame between now and 2040[3] is expected to occur in the Bayfront area, as dictated by the Plan.

3.2.4 Cumulative Plus Project Conditions

Cumulative Plus Project conditions represent the cumulative condition with the addition of the Project to determine the extent to which the Project would contribute to long-term cumulative transportation impacts and considers the location, type, and physical design of the Project.

3.3 Vehicle Miles Traveled

Guidance from the Governor's Office of Planning and Research states that office projects that would generate vehicle travel exceeding 15 percent below existing VMT per employee for the region may indicate a significant transportation impact, and that in cases where the region is substantially larger than the geography over which most workers would be expected to live, it might be appropriate to refer to a smaller geography such as the county, that includes the area over which nearly all workers would be expected to live.[4]

Since the City of Burlingame is currently updating its citywide CEQA transportation thresholds for consistency with SB743, a Project-specific approach, informed by City of Burlingame staff, has been developed for the 1200 – 1340 Old Bayshore Highway Project based on the 2018 OPR Technical Advisory. As directed by City of Burlingame staff, the VMT significance threshold for the Project is 15 percent below existing VMT per employee for San Mateo County.

The Project was analyzed based on home-based work (HBW) VMT per employee. Home-based work VMT per employee was derived from the C/CAG Travel Demand Model. This metric follows the City and the California Governor's Office of Planning and Research guidance for measuring office project VMT and helps compare the Project's relative transportation efficiency to the San Mateo County average baseline.

A significant impact would occur if existing home-based work VMT per employee in the transportation analysis zone (TAZ) in which the Project is located is higher than 15 percent below the County average. Per the C/CAG VMT Estimation tool,[5] this threshold is set at 14.3 home-based work VMT per employee, which is 15 percent below the existing County average of 16.8 home-based work VMT per employee. Home-based VMT per employee for the Project and San Mateo County are shown in Table 1. The output

[3] 2/3rds figure developed from City of Burlingame Travel Model files: From Baseline to Cumulative, there would be an approximately 7,200 increase in jobs located in the Bayfront and an approximately 10,800 increase in jobs in all of Burlingame.

[4] Technical Advisory on Evaluating Transportation Impacts in CEQA, December 2018. https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

[5] C/CAG VMT Estimation Tool, https://gis.smcgov.org/apps/CCAG_VMT_EstimationTool/

from the C/CAG VMT Estimation tool is shown in **Appendix C**. This threshold of 14.3 home-based work VMT per employee also applies to cumulative conditions.

Table 1 Home-Based Work Vehicle Miles Traveled per Employee Thresholds

Location	Estimated HBW VMT per Employee
San Mateo County (Baseline)	16.8
Required Reduction from Baseline	15%
HBW VMT per Employee Threshold	14.3
Project	17.2
Project with a 20% Reduction in Trip Generation Rates to comply with City TDM ordinance requirements	13.8
Project with a 25% Reduction in VMT due to TDM measures	12.9

Source: Fehr & Peers, 2023; C/CAG VMT Estimation Tool

As noted previously, per Burlingame's TDM ordinance, the Project is required to implement a TDM Program to reduce Project vehicle trips by 20 percent. By complying with the City's TDM ordinance, the Project would be expected to achieve a home-based work VMT of 13.8, which is below the threshold of significance for a VMT impact of 14.3 home-based work VMT per employee.

The proposed Project's TDM Plan is shown in Appendix A and is expected to result in a 25 percent reduction in VMT, further reducing VMT beyond the City's compliance threshold. Based on the 25 percent reduction in home-based work VMT due to the TDM plan, the Project would both comply with the City's TDM ordinance and be expected to achieve a home-based work VMT of 12.9. This is below the threshold of significance for a VMT impact of 14.3 home-based work VMT per employee.

3.3.1 Project Trip Generation

Weekday Daily, AM and PM peak hour Project vehicle trips were estimated using trip data from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Ed. Since the Project may be occupied as either a professional office or life sciences use, ITE Land Use code 710: General Office Building is used to estimate Project travel demand. This approach accounts for the most intense land use (i.e. office use) and consequently the greatest potential travel demand associated with the Project. Since the existing land uses appear to be partially occupied, Fehr & Peers applied an existing use trip credit based on 2019 volumes collected at two key driveways.

Three trip generation calculation adjustments were applied. First, net, rather than gross square feet was used as the independent variable for the ITE trip generation calculation to account for the Project's ground floor amenity and lobby spaces which are internally serving and are not anticipated to generate external travel demand. Second, the baseline trip estimate was reduced by 20% for consistency with the City of Burlingame's transportation demand management (TDM) policy which is described previously in the City's General Plan and Climate Action Plan policy sections. Third, Project trips are not proportionally assigned to the North, Central, and South Building's corresponding building floor area since the parking supply is not evenly distributed. Approximately 15% of the Central Building's parking supply is located in the North Parking Structure which would result in a corresponding amount of vehicle trips accessing the North Parking Structure that would otherwise access the South Parking Structure.

The Project's trip generation estimate is shown in **Table 1**.

Table 1: Trip Generation Estimate

	Daily	AM Peak Hour			PM Peak Hour		
	Trips	In	Out	Total	In	Out	Trips
North Parking Structure (a)							
Project Trips	5,139	641	87	729	117	570	687
TDM Reduction	*-1,028*	*-128*	*-17*	*-146*	*-23*	*-114*	*-137*
Redistribution from South Parking Structure	780	97	13	110	18	86	103
Existing Uses		*-16*	*-8*	*-24*	*-22*	*-48*	*-70*
Net Trip Subtotal	**4,892**	**594**	**75**	**669**	**89**	**494**	**583**
South Parking Structure (b)							
Project Trips	6,501	809	110	920	146	713	859
TDM Reduction	*-1,300*	*-162*	*-22*	*-184*	*-29*	*-143*	*-172*
Redistribution to North Parking Structure	*-780*	*-97*	*-13*	*-110*	*-18*	*-86*	*-103*
Existing Uses		*-22*	*-27*	*-49*	*-34*	*-33*	*-67*
Net Trip Subtotal	**4,421**	**528**	**48**	**576**	**65**	**452**	**517**
Total Net Trips (a + b)							
Total Net Trips	**9,312**	**1,122**	**123**	**1,246**	**154**	**946**	**1,100**

Note: Some figures do not add perfectly due to rounding errors.
Source: Institute of Transportation Engineers, *Trip Generation* 11th Edition. General Office Building (710)

3.4 Parking Assessment

The preliminary parking assessment presented in this section is included for informational purposes only and does not affect the CEQA evaluation. **Table 2** presents parking demand estimated using two different parking generation methodologies contained within ITE Parking Generation, 5th Edition – based on total square footage and based on number of employees. Additionally, the table provides the percentage of employees that would have a parking spot (drive share) using an employee density of 1 employee per 275 square feet. Parking demand prior to including the effect of TDM measures would be expected to be somewhere between 3,394 and 4,337 stalls.

Table 2: Parking Supply Assessment

Parking Generation Method	Parking Generation Rate [A]	Quantity [B]	Parking Demand [A*B=C]	Drive Share [C/5164 employees=D]
Per Thousand Square Feet	2.39[1]	1,420 KSF	3,394	66%
Per Employee	0.84[1]	5,164 employees[2]	4,337	84%

Notes:
1. Based on *ITE Parking Generation 5th Edition* (Land Use #710)
2. Employee density assumed to be 1 employee per 275 sf (office) per direction of city staff.

Source: Fehr & Peers, 2022

The Project proposes to provide 3,525 parking stalls. 1,787 stalls will be located in the South Parking Structure and 1,738 stalls will be located in the North Parking structure. The proposed Project parking supply is greater than the expected parking demand estimated using ITE rates per ksf and is below expected parking demand using ITE rates per employee. It is anticipated that the Project will have a lower parking demand than the ITE per ksf-projected demand due to the City-required TDM plan, which seeks to encourage non-auto trips and further reduce non-drive alone vehicle trips. The Project has prepared a preliminary TDM Plan (included as **Appendix A**) and will develop a final plan in compliance with the City ordinance.

As noted in Section 3.3. Vehicle Miles Traveled, for an office employment use classification in the Bayfront Commercial Area (BFC), the City of Burlingame has a minimum required parking rate of 1 stall per 400 square feet with an additional permitted 20% reduction based on the City's TDM ordinance. Based on this requirement the Project proposes to provide 3,525 total parking spaces, which is within Code-dictated range for parking supply.[6]

The number of vehicle parking spaces provided is therefore compliant with the Burlingame Municipal Code and through the TDM Plan is in line with the existing City of Burlingame General Plan policies and goals to promote alternate modes of transportation.

3.5 Bicycle, Pedestrian, and Transit

3.5.1 Bicycle and Pedestrian Analysis

The Project would generate new pedestrian and bicycle trips, particularly employees traveling to and from shuttle stops and bicyclists traveling to Burlingame and destinations west of the US 101 freeway, including the Burlingame Caltrain Stations.

Most new pedestrian trips are expected to be shuttle riders accessing the Project site from a new Commute.org shuttle stop location along the Project frontage. The shuttle stop will be connected to the Project site via the sidewalk along Old Bayshore Highway.

[6] See section 3.3 Vehicle Miles Traveled

Along the Project's frontage, there are proposed modifications to the existing Pedestrian facilities, shown in **Figure 5**. New sidewalks ranging in size from 6 feet to 11 feet would be developed on the Project site frontage on Old Bayshore Highway and on Airport Boulevard and two new signalized crosswalks are proposed across the Project's northern most driveway and main driveway. The northern crosswalk would be signalized and connect to a new public trail that would be built along both sides of Easton Creek which would provide a key pedestrian connection to Old Bayshore Highway from the Bay Trail. The Bay Trail would be extended across the Project site, closing the existing gap in the Bay Trail between SFO to Redwood Shores. The proposed extension of the Bay Trail would include transitions to existing segments of the Bay Trail at the north and south end of the Project site, as well as a pedestrian/bicycle bridge over Easton Creek, between the North and Center buildings.

Most new bicycle trips are expected to occur either along Old Bayshore Highway and the Bay Trail. Both serve as the linkages between the Project, Burlingame, and the closest Caltrain stations. The segment of the Bay Trail is a Class I off-street, paved path with minimal vehicle conflicts. The segment of Old Bayshore Highway has Class III bicycle facilities including 200 feet of a striped bike lane extending north from the Old Bayshore Highway/Airport Boulevard Intersection. The Project would extend the striped lane across the full length of the Project site along Old Bayshore Highway. The Project would provide a 7-foot Class II buffered bike lane consisting of a 2-foot buffer and 5-feet of travel space. This is consistent with the Old Bayshore Highway Feasibility Study and the Burlingame Bike and Pedestrian Master Plan, which propose converting the current Class III bicycle lanes along Old Bayshore Highway into Class II buffered bicycle lanes. There are also bicycle-specific intersection treatments at the Broadway / Old Bayshore Highway Boulevard intersection, which connects to the Bayside Crossing bicycle/pedestrian bridge that connects across the US 101 freeway.

The Project proposes 527 Class I bike parking spaces – 135 in the South Building, 228 in the North Building, and 164 in the Central Building, which will be located in "cycle centers" adjacent to the lobbies at the plaza level of each building. Per the project description and site plans, cycle centers will also include showers, personal lockers, and changing areas. These facilities are also referenced in the Project's TDM Plan which includes the 'End-of-Trip Bicycle Facilities' measure.

120 Class II bicycle parking spaces are also proposed. Access to Class II spaces will be provided by a path that will connect to the Bay Trail. Class II bicycle racks are proposed to be located in highly visible areas just outside the rear and front entrances to each building. Class II bike racks will also be installed outside the rear of the building, adjacent to the Bay Trail.

Per the City's Municipal Code (Section 25.40.060), bicycle parking shall be located on a paved surface, in proximity to a building entrance, in a visibly secure and well-lit location, and adjacent to the building served. The City's Code does not specify an amount of short-term bicycle parking (Class II bicycle parking spaces), which tends to be located outside of buildings and long-term parking (Class I bicycle parking spaces), which tends to be located inside buildings.

The Project will have dedicated passenger and commercial loading zones. Commercial loading zones will be located on site with one commercial loading zone located in each of the three buildings. Commercial loading zones will be accessed from internal service roads and are located at the sides of each building away from the main entrance. Passenger loading zones will be located along the Project frontage on Old Bayshore Highway. One 100-foot loading zone will be located outside the entrance to the South Building and one 100-foot loading zone will be located between the North Building and the Central Building. Each 100-foot zone will be able to accommodate approximately three - four vehicles simultaneously. Based on an expected passenger loading demand of 20 vehicles per hour during peak hours, the proposed passenger loading zones are expected to be adequate to meet demand, meaning that with proper driver compliance, loading would likely not occur and/or queues would likely not extend into the travel and bike lanes.

Based on data collected from a similar life sciences project in South San Francisco, the Project is expected to generate less than one new walking/biking trip (excluding transit trips, which begin/end as pedestrian trips) per minute during peak hours. Given the relatively low volume of new walking and biking trips, the path, roadway, loading, and intersection bicycle facilities that are present and will be constructed, new walking and biking trips are not expected to exacerbate vehicle conflicts. Additionally, the Project would not create inconsistencies with adopted bicycle or pedestrian system plans, guidelines, or policies as described in **Appendix B**.

3.5.2 Transit Analysis

The Project will generate new transit and vehicle trips which could both affect transit operations.

Since much of Burlingame's Bayfront employment area is outside the typical 0.5-mile walking distance from regional rail stations, the area relies on Commute.org's Burlingame Bayside first-last-mile shuttles. The Burlingame Point shuttle serves the Project Site and the Airport Boulevard corridor with on-street shuttle stops which, in contrast to off-street shuttle stops, are generally the most efficient configuration to provide multi-stop shuttle service.

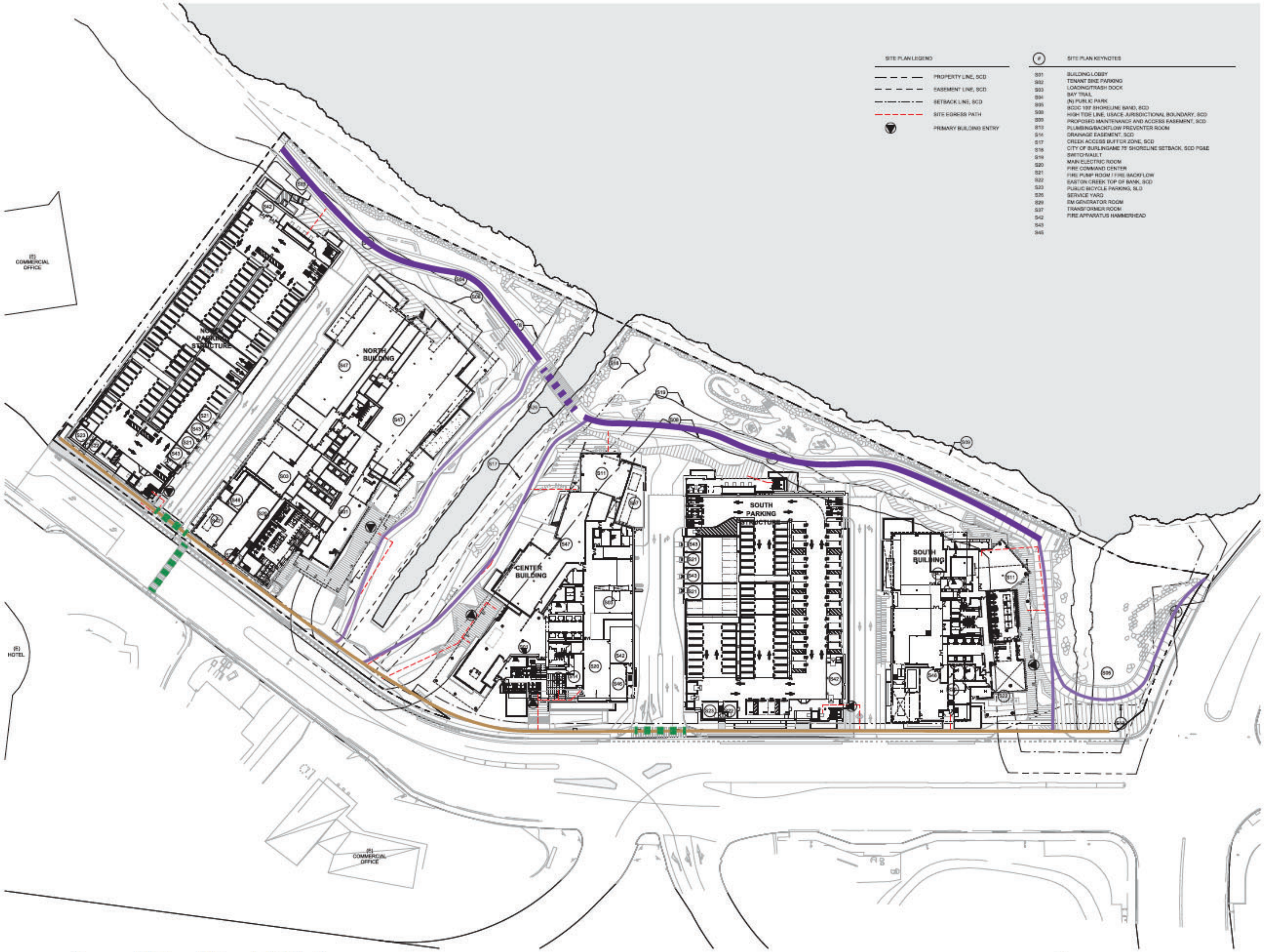
As noted in Section 3.5.1 Bicycle and Pedestrian Analysis, shuttle riders accessing the Project site would likely use Commute.org's Burlingame Bayside shuttle and shuttle access would be provided by a new shuttle stop along the Project frontage. Based on the capacity of the Commute.org shuttle,[7] it is expected that the Project could generate a maximum of 24 pedestrian trips every 15 minutes between the shuttle stop and the Project site. Pedestrian traffic generated by the shuttle will be accommodated by new sidewalks ranging in size from 6 to 11 feet along the Project frontage on Old Bayshore Highway.

The Project would generate approximately 1,245 and 1,100 net new vehicle trips during the a.m. and p.m. peak hour, or approximately 18-21 new vehicles per minute. Project traffic volumes could add up to 1

[7] Assumes that people would access the Project using the Commute.org Burlingame Bayside Shuttle (expected to operate 4 runs/hour at peak periods) and that the capacity of the shuttle is 24 passengers.

second of delay to shuttle travel times during AM peak hours and up to 84 seconds of delay to shuttle travel times during PM peak hours. Although Project traffic volumes would add delay to shuttle travel times, it is not anticipated that the disruption to the Commute.org shuttle service surrounding the Project site would be significant[8]. As planned, the Project would not include features that would disrupt existing or planned transit routes or facilities. The Project's driveways would not cause disruptions to existing or planned transit service or transit stops. The Project would not conflict with any adopted transit system plans, guidelines, policies, or standards, as described in **Appendix B**.

[8] The City of Burlingame and/or Commute.org does not have a standard of significance for what would constitute a significant delay to transit/shuttle vehicles. The nearest example is that of the City of San Francisco, which specifies that a significant impact is triggered by the addition of half of the headway of the transit line in question or four minutes for those with headways less than eight minutes. See Appendix I, Public Transit from San Francisco's Transportation Impact Analysis Guidelines (October 2019). https://sfplanning.org/project/transportation-impact-analysis-guidelines-environmental-review-update#impact-analysis-guidelines



Proposed Widened Sidewalk (6-11 feet)
Proposed Signalized Crosswalk
Easton Creek Pedestrian and Bicycle Bridge
Proposed Bay Trail Extension
Proposed Bay Trail Connection

Figure 5
Proposed Pedestrian Facilities
1200-1340 Old Bayshore Highway

4. Impacts and Mitigations

This section includes the evaluation of the Project's potential impacts under Existing Plus Project and Cumulative Plus Project conditions. This section also describes any required associated mitigation measures that would reduce impacts of the Project.

4.1 Vehicle Miles Traveled

Impact TRANS-1: **Home-based work VMT per employee does not exceed the threshold of 15 percent below the countywide average under Existing Plus Project and Cumulative Plus Project conditions. (*Less-than-significant)***

As shown in Table 1, including the 20 percent reduction the Project would achieve by complying with the City's TDM ordinance, the Project would be expected to generate 13.8 home-based work VMT per employee under existing conditions. This is below the per-employee significance threshold of 14.3 home-based work VMT, based on a VMT of 15 percent below the countywide average.

The Project includes a TDM plan that would be expected to exceed City requirements and reduce VMT by 25%. With the TDM Plan, the project would be expected to generate 12.9 home-based work VMT per employee, which is below the per-employee threshold of significance of 14.3 home-based work VMT, based on a VMT of 15 percent below the countywide average.

The Project is subject to annual monitoring and reporting which will ensure that the TDM plan is effective, and results in a substantial decrease in Project-generated VMT. Therefore, the Project would have a less-than-significant impact on VMT under Existing Plus Project and Cumulative Plus Project conditions, provided it is consistent with the requirements of the City's TDM Ordinance, and no mitigation is required.

Mitigation Measures: None required.

4.2 Bicycle, Pedestrian, and Transit

Impact TRANS-2: **Development of the Project would not conflict with adopted plans and programs under Existing Plus Project and Cumulative Plus Project conditions. (*Less than Significant*)**

Construction

Construction activities could potentially interfere with programs, plans, ordinances, or policies if temporary closures impede roadways, shuttle stops, bikeways, or pedestrian paths in a way that prohibits the achievement of identified goals. Similarly, construction activities could have a detrimental impact on existing bicycle, pedestrian, or transit facilities if temporary closures impede the use of these facilities.

However, while temporary sidewalk and bike lane rerouting on Old Bayshore Highway is expected and roadway traffic control would be used as needed during construction, detours would be temporary in nature and would not fully impede movement or have a sustained detrimental impact on existing bicycle and pedestrian facilities. In the event of a temporary construction closure, the Project would be required to prepare a traffic control plan that would document how temporary facilities, detour routes, and/or signage would be provided consistent with guidance provided by the California Manual on Uniform Traffic Control Devices (CA-MUTCD). Therefore, the Project would not produce a detrimental impact on existing bicycle and pedestrian facilities during construction and construction-related conflicts with programs, plans, ordinances, or policies addressing the circulation system would be less than significant. No mitigation is required.

Operations

As described in Section 3.5, The Project would not produce a detrimental impact to existing bicycle or pedestrian facilities, nor does it conflict with adopted policies in adopted City plans summarized in **Appendix B**. The Project would generate additional vehicle trips along existing sidewalks, bikeways, and shuttle routes along Old Bayshore Highway. It would also generate some new walking and biking trips. However, the Project would develop new facilities such as signalized pedestrian crossings and pedestrian and bike connections to the Bay Trail, and the Project would not adversely affect existing or planned bicycle or pedestrian facilities. Additionally, the Project's projected passenger and commercial loading operations will occur in planned and adequate areas that would not adversely affect existing or planned bicycle or pedestrian facilities. Therefore the Project's impact to walking and bicycling would be less than significant under Existing Plus Project conditions and less than cumulatively considerable under Cumulative Plus Project conditions.

Mitigation Measures: None required

Impact TRANS-3: **Project development or Project traffic would not produce a detrimental impact to local transit or shuttle service under Existing Plus Project and Cumulative Plus Project conditions. (*Less than Significant*)**

As described in Section 3.5, the Project does not produce a detrimental impact to existing transit facilities or conflict with adopted policies in adopted City plans summarized in **Appendix B**. The Project's proposed shuttle stop along the Project frontage is consistent with Commute.org policies to prioritize on-street shuttle stops. The Project also would not substantially lengthen travel times for existing shuttle services, on which the Project will be dependent. Therefore, the Project's impacts to transit would be less than significant under Existing Plus Project conditions and less than cumulatively considerable under Cumulative Plus Project conditions.

Mitigation Measures: None required

4.3 Hazards

Impact TRANS-4: **Development of the Project would not substantially increase hazards due to a geometric design feature under Existing Plus Project and Cumulative Plus Project conditions. (*Less than Significant*)**

The proposed Project would not worsen any existing geometric design features or cause new design hazards. The Project would remove the existing driveways along the Project frontage and rely on three proposed driveways located on Old Bayshore Highway for vehicle access. Two driveways would provide access to the South parking structure and one driveway would provide access to the North parking structure. Each driveway provides for fire access and have been sized and tested with turning analysis software consistent with this function. Proposed driveways are expected to be appropriate to handle expected vehicle traffic in and out of the Project, which will reduce the potential for vehicle queues that would disrupt other travel modes to form.

The Project is proposing a new intersection of Old Bayshore Highway and the Project's northern driveway. At this intersection, existing mid-block crosswalks would be removed, and one new crosswalk installed at a new signalized intersection located at the entrance to the north parking structure. Changes would also be made to the signalized intersection of the South Project Driveways/Old Bayshore Highway/US-101 North Bound Ramps. The US-101 Ramps at Old Bayshore Highway and Broadway would be restriped, two new medians would be installed on Old Bayshore Highway, a new pedestrian crosswalk would be installed, and the existing traffic signals would be modified consistent with the roadway geometry changes. These intersection geometry changes are being pursued in coordination with Caltrans. None of the proposed roadway geometry changes will affect the number of travel lanes or reduce the vehicle capacity of Old Bayshore Highway.

Sight distance at the proposed Project driveways is expected to provide sufficient site distance for the posted speed limit of 35 mph. As the Project is expected to increase pedestrian and bicycle trips at the driveways along Old Bayshore Highway, it may increase exposure to pedestrians and bicyclists. Any future vegetation located within the sight triangles at the driveways should be maintained so as not to restrict drivers' sight distance when exiting the driveways. Sight distance at the proposed driveway locations is expected to be adequate for drivers exiting the Project site and for pedestrians crossing the driveways.

The Project would not include any uses that are incompatible with the surrounding land use or the existing roadway system. Therefore, the Project is not expected to result in a substantial increase to hazards, and the Project's impacts to hazards would be less than significant under Existing Plus Project conditions and less than cumulatively considerable under Cumulative Plus Project conditions.

Mitigation Measures: None required

4.4 Emergency Access

Impact TRANS-5: **Development of the Project would not result in inadequate emergency access under Existing Plus Project and Cumulative Plus Project conditions. (*Less than Significant*)**

Project vehicle volumes are not expected to introduce or exacerbate conflicts for emergency vehicles traveling near the Project. The Project would construct two new medians at the intersection of Old Bayshore Highway and the US-101 Northbound Ramps, however these medians have been tested for emergency vehicle turning movements and would not impact emergency vehicle access. Upon construction, emergency vehicles would have full access to the Project site via three driveways on Old Bayshore Highway, and each driveway would be capable of accommodating all types of emergency vehicles. The Project is not expected to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, the Project would result in adequate emergency access, and the Project's impacts to emergency access would be less than significant under Existing Plus Project conditions and less than cumulatively considerable under Cumulative Plus Project conditions.

Mitigation Measures: None required

Appendix A: Preliminary Transportation Demand Management Plan

Peninsula Crossing

Transportation Demand Management Plan

August 2022

Prepared for:

Divco West

By: FEHR PEERS

Table of Contents–

Appendices

List of Figures

List of Tables

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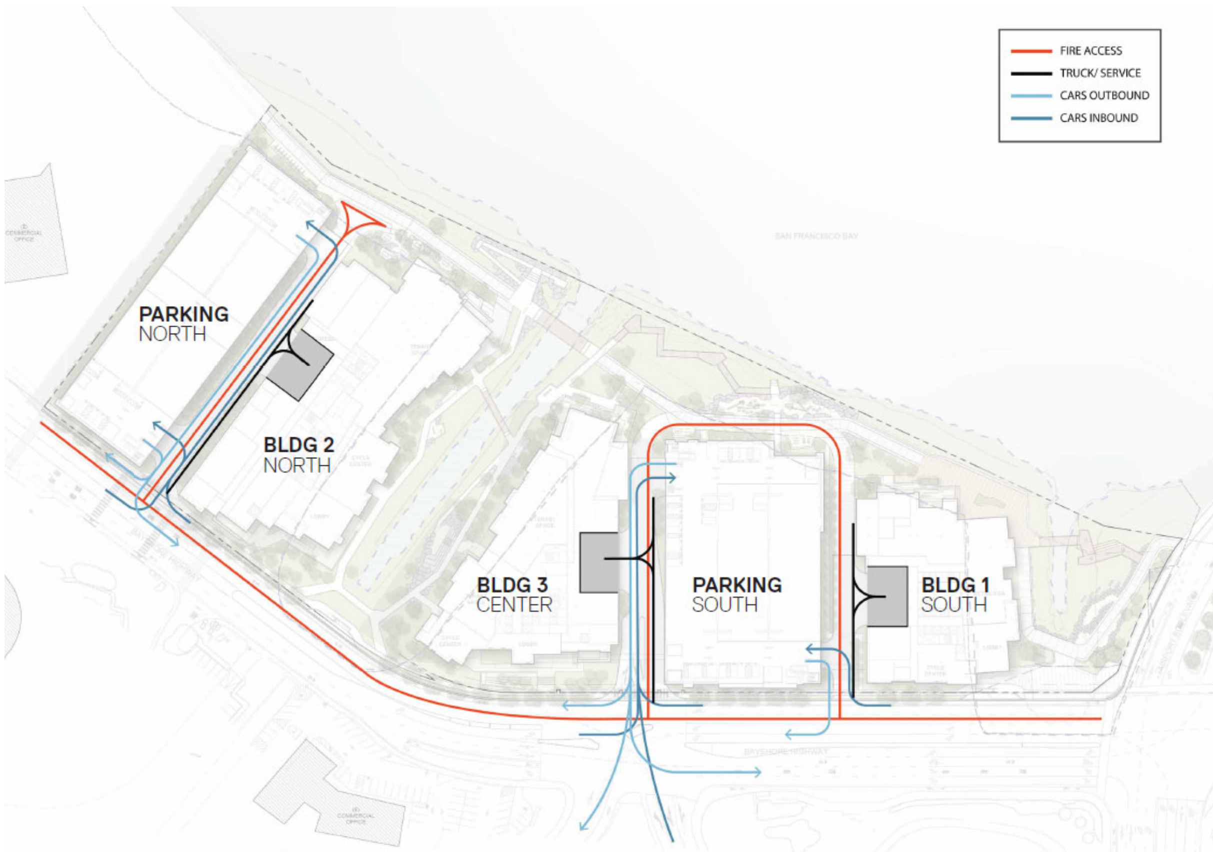
Introduction

Project Overview

The approximately 12-acre Peninsula Crossing project site is located in the City of Burlingame's Bayfront planning area at the northwestern edge of the US-101/Broadway interchange. The proposed project (the "Project") includes 1.42 million square-foot Office/life sciences area at 1200-1340 Old Bayshore Highway. The proposed site plan includes three (3) eleven-story buildings, each with a floor-area-ratio (FAR) of 2.71, plus two (2) ten-story parking structures each with two levels of below grade parking. The proposed uses include office and life sciences. Three project driveways will provide vehicle access to the Project site via Old Bayshore Highway, by allowing direct access to the north and south parking structures. All driveways provide vehicular ingress/egress for drop-off and emergency vehicle access.



Project Setting

Bicycle and Pedestrian Facilities

Old Bayshore Highway, which runs along the western edge of the Project site, is a planned Class II bicycle lane in the City of Burlingame's *Bicycle and Pedestrian Master Plan*. Primary bicycle and pedestrian access would be provided via the Bay Trail, Old Bayshore highway and Airport Boulevard. The San Francisco Bay Trail, a Class 1 shared-use trail, runs adjacent to the east side of the Project site, which is proposed to be extended 1475 linear feet south along the project boundary. The extension will improve connections to the existing portion of the trail near the southern end of the Project site. The trail continues east along Airport Boulevard, where there are jersey barriers and landscaping to provide protection for users. Existing and planned bicycle facilities are shown in **Figure 1**.

The Project includes a landscaped plaza along Easton Creek between Building 2 and 3 featuring open space, terraced seating, and one pedestrian bridge across Easton Creek. Public bicycle parking is provided at each of the three buildings and at the southern end of the Project site via Airport Boulevard.

Transit Services

1200-1340 Old Bayshore Highway is located along Commute.org's Burlingame Bayside (Millbrae BART/Caltrain) shuttle route and the SamTrans 292 route. The Commute.org shuttle provides a fixed circulator route Monday through Friday from Millbrae station to five stops along Airport Boulevard This route runs in front of the Project site on Airport Boulevard with a shuttle stop at 600 Airport Boulevard. Several transit providers, such as BART, Caltrain, and SamTrans, have stops at Millbrae Station. Three BART lines serve Millbrae Station: Richmond to Millbrae, Antioch to Millbrae, and Millbrae to SFO. Caltrain stops at Millbrae Station, providing services from San Francisco in the north and Tamien in the south. Several SamTrans bus lines serve Millbrae Station. SamTrans Route 397 connects downtown Burlingame with downtown San Francisco. Route ECR runs along El Camino Real from Palo Alto Transit Center in South Bay to Daly City BART in San Francisco. Route 292 serves cities along the Peninsula from San Mateo to downtown San Francisco, and provides direct access to the Broadway Caltrain station, which only operates on weekends. Existing transit service is shown in **Figure 2**.

Regional Rail

- BART
- Caltrain

Existing Bikeways

- Class I Shared Path
- Class II Bicycle Lane
- Class III Bicycle Route

Planned Bikeways

- Class I Shared Path
- Class II Bicycle Lane
- Class III Bicycle Route
- Class IIIb Neighborhood Bikeway
- Class IV Separated Bikeway

- Cities
- Project Site

Figure 1

Existing and Planned Bicycle Facilities

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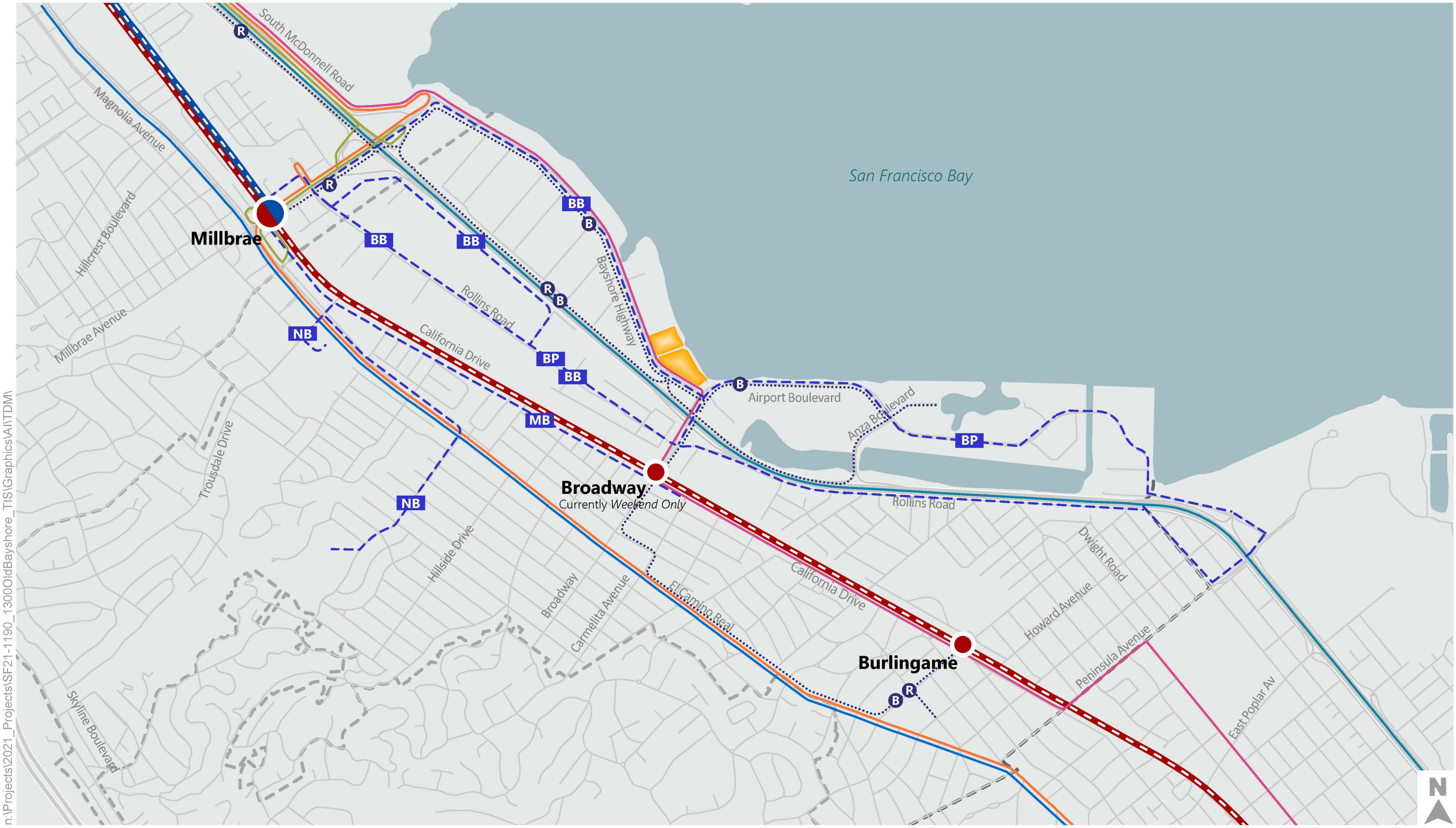


Regional Rail
- BART
- Caltrain

SamTrans Routes
- ECR
- 397
- 292
- SFO
- FCX

Commute.org Routes
- NB North Burlingame
- BB Burlingame Bayside
- BP Burlingame Point
- MB Millbrae-Broadway

Trolley Routes
- B Burlingame Trolley
- R Red Carpet Trolley

- Cities
- Project Site

Figure 2

Existing Transit Service

TDM Goals and Objectives

The primary goal of a Transportation Demand Management (TDM) program is to reduce the number of drive-alone trips generated by new developments, by shifting a proportion of trips to more sustainable modes such as walking, biking, transit, or carpooling. This, in turn, helps to alleviate traffic congestion, reduce greenhouse gas emissions and other air pollution, and reduce demand for parking.

The project is required to implement TDM strategies that would comply with both the City of Burlingame's TDM Ordinance and City/County Association of Governments of San Mateo County (C/CAG) TDM Program. Strategies include project elements and necessary commitments of future tenants. Project elements include design features that provide greater options for the mode of travel future tenants choose. Tenant commitments include programs or services tenants are required to provide to achieve the trip reduction requirements.

Reducing the share of employees driving alone to the site would reduce traffic congestion impacts on nearby roadways and Highway 101 during peak traffic periods. This would also reduce vehicle demand on regional roadways and arterials used to access the site, contributing to the goals of C/CAG's Congestion Management Program.

Additionally, a successful TDM program improves the commute experience for employees, which can support employee recruitment and keep morale high to enhance employee retention. Supporting a range of modes for employee commute trips helps to manage the stress often associated with commuting.

Compliance with Local Requirements

The City of Burlingame's Transportation Demand Management Ordinance[1] outlines trip reduction measures required of new development projects that meet certain sized criteria. All projects are required to meet vehicle trip generation rates that are 20% lower than the standard rates as established in the most recent edition of the Institute of Transportation Engineers (ITE) *Trip Generation Manual*. Additionally, the City of Burlingame requires ongoing monitoring and an annual TDM report.

The City of Burlingame's Climate Action Plan (CAP)[2] presents the City's blueprint for reducing greenhouse gas emissions in Burlingame. The CAP requires that all new commercial developments of 10,000 sq. ft. or larger incorporate TDM strategies that reduce trip generation by 20% compared to the standard rate estimated by the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition).

C/CAG's TDM Policy[3] is a component of the Congestion Management Program (CMP) that provides guidelines for analyzing the impact of land use decisions made by municipalities in San Mateo County. The policy requires that local jurisdictions implement specific measures to reduce the demand for single occupancy vehicle (SOV) trips of all new developments that are expected to generate at least 100 average daily trips (ADT). C/CAG requires submission of a TDM checklist alongside a project's development application (See **Appendix A**) and monitoring for the first three years of the development to assess compliance with the TDM plan. The Project is considered transit proximate and requires implementing associated checklist measures that result in a 25% trip reduction (25% trip reduction identified as opposed to 35% due to the Project being located less than a ½ mile from a high quality transit service – Caltrain Broadway Station).

Roles and Responsibilities

A successful TDM plan requires a combination of supportive site design elements, programming, and incentives to encourage employees to shift to non-single occupancy vehicle (SOV) modes for commuting to work and ultimately achieve the City's 20% trip reduction target. This plan delegates responsibility for implementing TDM measures among the project's developer and future tenants.

The developer has committed to implementing site design measures to support a shift to more sustainable modes by providing amenities that make walking, biking, or taking transit more convenient.

The site's building manager will support tenants by distributing TDM information to future tenants, including sample commute surveys to help tenants monitor the success of their TDM efforts.

Future tenants are responsible for managing their individual TDM programs, including providing information and support to their employees, providing financial or other incentives

[1] City of Burlingame Municipal Code Title 25, Article 3 – Chapter 25.43 https://cms6.revize.com/revize/burlingamecity/Article%203%20-%20Regulations%20and%20Standards%20Applicable%20to%20All%20Zoning%20Districts.pdf

[2] City of Burlingame's Climate Action Plan Update (August 2019), https://www.burlingame.org/document_center/Sustainability/CAP/Climate%20Action%20Plan_FINAL.pdf

[3] C/CAG TDM Program, https://ccagtdm.org/

tailored to their individual employee base, and monitoring and reporting to the City of Burlingame annually.

Table 1. TDM Roles and Responsibilities

TDM Measures	Developer	Manager	Tenants
Project TDM Elements	x		
TDM Programmatic Measures		x	x
Provide TDM Information & Support		x	x
Provide TDM Incentives			x

Transportation Demand Management Strategies

The Peninsula Crossing TDM Plan is anticipated to meet the City of Burlingame's 20% trip reduction target and the C/CAG TDM Policy's 25% trip reduction target by implementing a combination of a subset of the 'required' TDM measures and several 'additional recommended' measures strategies in the C/CAG TDM checklist which is provided in **Appendix A**. The estimated reduction from additional recommended measures listed in the checklist would compensate for the exclusion of any required measures and ensure that the total trip reduction exceeds the 20% and 25% targets, respectively. These strategies would manage travel demand through TDM measures and strategies that encourage alternatives to SOV trips.

Fehr & Peers evaluated the trip reduction effectiveness of the required C/CAG TDM strategies using *TDM+*, an analytical tool that quantifies trip and VMT reduction estimates based on the California Air Pollution Control Officers Association's (CAPCOA) 2021 report *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*. Trip reduction estimates are based on the best available data and the actual observed reductions may vary depending on implementation or the unique characteristics of a tenant's employee base and uptake.

Project TDM Elements

Based on the CAPCOA data, a combination of the Project's land use characteristics and C/CAG-required TDM strategies could result in an approximately **25% reduction** in vehicle trips from the Project's ITE-based trip generation estimate. The required TDM strategies and estimated trip reduction breakdown is presented in **Table 2**. At 13.6% of the total 25.4% estimated reduction, the CAPCOA data indicate that the Project's job density is the primary strategy in reducing vehicle trip generation from the ITE trip generation baseline by infilling an urban site that is transit proximate. A combination of physical and programmatic features is estimated to further reduce vehicle trips by an estimated 11.8%. Detailed descriptions of each TDM strategy are provided in **Appendix B**.

Table 2. Project TDM Elements & Estimated Trip Reduction from ITE Rates

TDM Measure[1]	Description	Estimated Reduction
Land Use Characteristics		
Increase Job Density (M26)	Trip reduction achieved by a project with higher job density compared to the national job density average. Higher job density results in shorter and fewer trips by single-occupancy vehicles. Measure also takes into account the presence of on-site complimentary land uses and amenities that would support reduced vehicle trips.	13.6%
Physical Features		
End-of-Trip Bicycle Facilities (M8, M25)	Providing facilities that encourages commuting to work by bicycle. This measure includes the provision and maintenance of secure bike parking, a bike repair station, showers, and personal lockers, and changing areas.	2.7% *
Pedestrian and Bicycle Network Improvements (M9)	Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of drive. Closing gaps in the bicycle network improves the accessibility and participation rate for those that are able to bicycle	0.6%
Programmatic Features		
Employee Survey	Conduct annual[2] survey of employees to understand commute patterns and ways to support the use of non-driving modes. Developer to provide sample survey to tenants. A sample survey is provided in **Appendix C.**	N/A – Required for Monitoring
Commute Trip Reduction Marketing (M3, M4)	C/CAG requires tenants to actively participate in Commute.org or Transportation Management Association Equivalent program. Additionally, this task requires information sharing and marketing by building tenants/employers to promote and educate employees about travel choices options for accessing the project site and guaranteed ride home service. Lastly, C/CAG requires that tenants provide a transportation coordinator or an employee who will be responsible for supplying orientation and information to encourage employees to use non-SOV modes of commuting to work.	4% *
Shuttle Program / Fund Transit Service (M20)	Establish a shuttle service to regional transit hubs, commercial centers, or residential areas. Shuttle service should be provided free of charge to residents, employees, and guests. Alternatively, a project site may buy into a shuttle consortium with neighboring developments to pool resources and run shuttle services to multiple nearby sites. Developers may also fund enhanced transit service to/from their project site in collaboration with SamTrans. Specifically, the Peninsula Crossing project has agreed with Commute.org to fund additional shuttle service to the project site; purchasing a second shuttle that will allow frequency to increase from approximately 20 minute headways to 15 minute headways.	4.6%
	Total Estimated Trip Reduction from ITE Rates [3]	**25.4%**

Source: TDM+ tool with Project-Specific Inputs. Fehr & Peers, 2022
Notes:

1. TDM Measure (C/CAG TDM Checklist measure) e.g., Ridesharing Program (M1).
2. An annual report is required to comply with the City of Burlingame TDM Ordinance Annual Monitoring and Evaluation (Municipal Code Title 25, Article 3 – Chapter 25.43.070 – Monitoring and Evaluation), The employee survey will be used to inform this annual report. The City of Burlingame TDM Ordinance does not include a sunset provision for the annual report. A TDM self-certification status form is required to be completed biennially for 18 years post occupancy to comply with the C/CAG TDM Policy. An travel survey of employees/occupants is required to be included in this report biennially beginning in the third year post-occupancy for a period of six years and then triennially for remaining 12 years.
3. This total does not equal the sum of each individual estimated reduction since a multiplicative dampening effect has been applied to all trip reduction program measures, which are denoted by the (*) asterisk (end-of-trip bicycle facilities and commute trip reduction marketing).

Trip Reduction Target

Table 3 shows the Project's ITE-based trip generation estimate and the maximum number of daily and AM and PM peak hour trips to meet the City's 20% trip reduction target. It also accounts for trip credit from existing uses based on observed driveway counts. To meet the target, AM and PM peak hour trips would need to be reduced by 330 and 309 trips respectively. Daily trips would need to be reduced by 2,328 trips to meet the City's performance target.

Table 3. Vehicle Trip Reduction Goal

Land Use	ITE Code	Units	Project Daily Vehicle Trip Generation	AM Peak Hour Total	PM Peak Hour Total
Proposed Uses					
General Office Building	710	1278 KSF[1]	11,640	1,648	1,546
		20% TDM Reduction	*-2,328*	*-330*	*-309*
		Existing Uses		*-73*	*-137*
		Maximum Trips	9,312	1,245	1,100

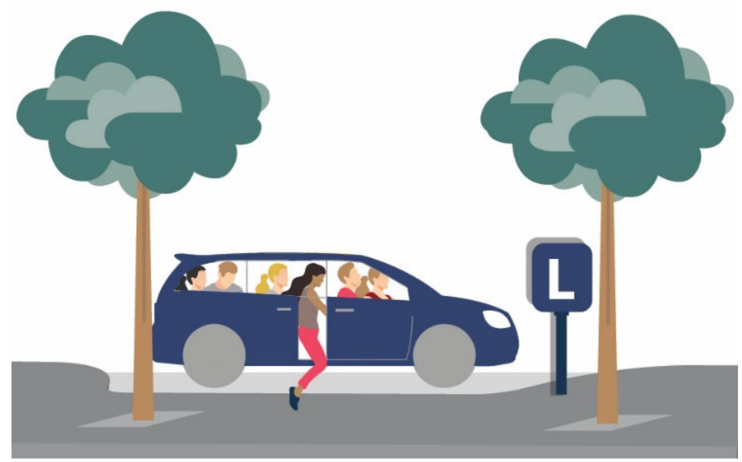
1. Gross Leasable Area (GLA), which is 90% of Gross Floor Area (GFA) used for trip generation estimate
Source: ITE Trip Generation Manual, 11th Edition

The project is estimated to generate 9,312 new daily vehicle trips, 1,245 new trips during the AM peak hour, and 1,100 new trips during the PM peak hour.[4] In order to be compliant with C/CAG's requirements, the project needs to achieve the mitigation requirements for all daily trips.

[4] ITE Trip Generation Manual, 11th Edition

Program Implementation

TDM Coordinator



Each tenant will designate a transportation manager or transportation coordinator who will provide information and marketing to encourage employees to use non-SOV modes of commuting to work, including walking, biking, transit, carpooling, vanpooling, or other means of travel. While the future building manager will support the TDM coordinator by providing information on TDM requirements, transportation options, and an example commute survey, each tenant's TDM coordinator is responsible for program implementation and monitoring.

Monitoring and Reporting

Regular monitoring and reporting will ensure that tenants are in compliance with C/CAG and City of Burlingame standards for trip reductions. Additionally, annual monitoring provides an opportunity for tenants to assess the success of their TDM programs and to make adjustments or revisions as needed to achieve their TDM reduction goal.

Trip Reduction Goals

To achieve the City of Burlingame's trip reduction target, the Project's maximum AM Peak Hour, PM Peak Hour, and Daily trips are as follows. Detailed trip generation estimates are shown in **Table 3**.

- Maximum Daily Trips: 9,312
- Maximum AM Peak Hour Trips: 1,245
- Maximum PM Peak Hour Trips: 1,100

Reporting

Future tenant(s) will be required to submit monitoring reports to the City of Burlingame and C/CAG. Each jurisdiction has a set monitoring and reporting structure. The following section includes detailed information about reporting structure requirements.

City of Burlingame Monitoring and Evaluation

An TDM report shall be prepared and submitted to the City of Burlingame annually; with the initial, or baseline, commute survey report to be conducted and submitted one year after the granting of a certificate of occupancy for 75% or more of the project, and annually after that. The specific contents of the annual TDM report will be determined in collaboration with the City, but will include at least the following elements:

1. A description of the current landlord and/or tenant TDM programs and services provided and level of use/participation of each program component (required or supplemental). This includes reporting on the number of staff who regularly use Commute.org commute to work, use of the bicycle end-of-trip facilities, including secure bike parking stations, showers/lockers, and repair station, and documentation of the transportation information and outreach provided to employees.
2. Results of an annual employee survey capturing how a representative cross-section of employees access the Project site. The main purpose of this survey is to capture weekday building occupancy, determine employee commute mode choices, and determine compliance with the tenant's vehicle trip generation goal. A sample survey is provided in **Appendix C.**
3. Findings of whether the tenant is in compliance with its TDM reduction participation goal. If the findings in the report show that the TDM reduction/participation goal has not been met, the future tenant would work with City staff to identify if there are additional TDM measures the tenant could reasonably (financially and practically) implement to further improve the site's TDM reductions and participation.

C/CAG Monitoring

Two years after Project occupancy, Commute.org will distribute a survey to the appropriate Project point of contact, who may be the original Project owner, property manager, or on-site tenant(s)/TDM coordinator(s). The survey will consist of a TDM Self-Certification Form (i.e., self-reporting implemented TDM measures) along with a brief questionnaire about user travel behavior at the Project site. Commute.org will then collect and analyze these surveys.

If there is insufficient progress toward TDM Checklist implementation, Commute.org will work with the appropriate point of contact to develop potential solutions. The local jurisdiction shall also collaborate in this issue resolution, which may include potential enforcement. The monitoring and reporting process is required to continue for 20 years post-occupancy at the following intervals for the self-certification form and the travel survey[5]:

- Self-Certification Form: Completed biennially for 18 years post-occupancy
- Travel Survey: Completed biennially beginning in the third year post-occupancy for a period of six years and then triennially for the remaining 12 years

[5] C/CAG *Transportation Demand Management Policy Update Approach – September 9, 2021* https://ccagtdm.org/wp-content/uploads/2021/12/FINAL-CCAG_TDM-Policy-Update-Document_9-9-2021.pdf

Appendix A – C/CAG Checklist

About this Form

Any new development project anticipated to generate at least 100 average daily trips is subject to the C/CAG TDM Policy and must complete a TDM Checklist and implement associated measures to mitigate traffic impacts. Read more at ccagtdm.org

Questions?
support@ccagtdm.org

A Applicant Information

Project Address	1200-1340 Old Bayshore
Contact First and Last Name	
Parcel Number	
Application Date	D D M M Y Y Y Y
Contact Phone Address	
Project Jurisdiction	City of Burlingame
Contact Email Address	

B Trip Reduction Target

Select one option based on your project's distance to high quality transit

Read more about high quality transit at ccagtdm.org/high-quality-transit

Identify your project type

- ☒ **TOD** — Less than 1/2-mile from high quality transit service — **25%** Trip Reduction Required
- ☐ **Transit Proximate** — 1/2 to 3 miles from high quality transit service — **35%** Trip Reduction Required
- ☐ **Non-Transit Proximate** — More than 3 miles from high quality transit service — **35%** Trip Reduction Required

C Required Measures

You must select all measures that apply for your project type

Click on each measure's title for more information

	Measure	Project Types	Percentage	Yes
1	**M1 - Free/Preferential Parking for Carpools** Provide free or preferential parking, including reserved spaces or spaces near an entrance or other desirable location, to incentivize ridesharing.	ALL	1%	☐
2	**M3 - TDM Coordinator/Contact Person** Provide TDM coordinator/liaison for tenants. May be contracted through 3rd party provider, such as Commute.org.	ALL	0.5%	☑
3	**M4 - Actively Participate in Commute.org or Transportation Management Association (TMA) Equivalent** Obtain certification of registration from Commute.org or equivalent TMA incorporation documents. Select only one based on Project Type	TOD & Non-transit Proximate	6.5%	☐
		Transit Proximate	16.5%	☑
4	**M5 - Carpool or Vanpool Program** Establish carpool/vanpool program for tenants and register program with Commute.org.	ALL	2%	☐
5	**M6 - Transit or Ridesharing Passes/Subsidies** Offer tenants passes or subsidies for monthly public transit or ridesharing costs incurred, equivalent to 30% of value or $50 - whichever is lower.	ALL	10%	☐
6	**M7 - Pre-Tax Transportation Benefits** Offer option for tenants to participate in a pre-tax transit program to encourage the use of sustainable transportation modes and leverage pre-tax income to pay for commute trip costs.	ALL	1%	☐
7	**M8 - Secure Bicycle Storage** Comply with CalGREEN minimum bicycle parking requirements.	ALL	1%	☑
8	**M9 - Design Streets to Encourage Bike/Ped Access** Design adjacent streets or roadways to facilitate multimodal travel.	ALL	1%	☑
9	**M25 - Showers, Lockers, and Changing Rooms for Cyclists** These amenities serve as end of trip facilities for employees arriving by bike or other active transportation forms.	ALL	2%	☑
10	**Total from Required Measures** Sum percentages from each selected measure from rows 1-9		21 %	

Form Continues on Page 2 →

D Additional Recommended

Select enough to meet the trip reduction target from section B

Click on each measure's title for more information

	Measure	Project Types	Percentage	Yes
11	**M12 - Flex Time, Compressed Work Week, Telecommute** Flex time allows employees some flexibility in their daily work schedules. Compressed work week allows employees to work fewer but longer days. Telecommuting functions similarly, allowing employees to work from home rather than the office, reducing vehicle travel on the days they work remotely.	ALL	5%	☐
12	**M14 - Paid Parking at Market Rate** Offer hourly/daily parking rates proportional to monthly rate or equivalent to cost of transit fare.	ALL	25%	☐
13	**M15 - Reduced Parking** Provide off-street parking at least 10% below locally-required minimums, or else below the locally-permitted parking maximums. Consideration may be required of potential spillover parking into surrounding areas.	ALL	10%	☐
14	**M16 - Short-Term Daily Parking** Offer daily or hourly parking rates that are proportional to the monthly rate or approximately the cost of a transit fare.	ALL	2%	☐
15	**M17 - Developer TDM Fee/TDM Fund** Voluntary impact fee payment on a per unit or square footage basis, to fund the implementation of TDM programs.	ALL	4%	☐
16	**M18 - Car Share On-Site** Provide on-site car share or vehicle fleets.	ALL	1%	☐
17	**M19 - Land Dedication or Capital Improvements for Transit** Contribute space on, or adjacent to, the project site for transit improvements. Select one or more Bus Pullout Space 1% ☐ Bus Shelter 1% ☐ Visual/Electrical Improvements (i.e., Lighting, Signage) 1% ☐ Other (i.e., Micromobility Parking Zone, TNC Loading Zone) 1% ☐	ALL	____ % Total percentages selected	☐
18	**M20 - Shuttle Program/Shuttle Consortium/Fund Transit Service** Establish a shuttle service to regional transit hubs or commercial centers. Shuttle service should be provided free of charge to employees and guests.	Non-transit Proximate	10%	☑
19	**M21 - Bike/Scooter Share On-Site** Allocate space for bike/scooter share parking.	All	1%	☐
20	**M22 - Active Transportation Subsidies** Offer biking/walking incentives to tenants, such as gift card/product raffles.	All	2%	☐
21	**M23 - Gap Closure** Construct or enhance quality of biking and walking facilities to/from site to existing trails, bikeways, and/or adjacent streets.	All	7%	☐
22	**M24 - Bike Repair Station** Offer on-site bike repair space/tools in visible, secure area.	All	0.5%	☐
23	**M26 - Pedestrian Oriented Uses & Amenities on Ground Floor** Provide on-site, visible amenities to tenants and guests, such as cafes, gyms, childcare, retail.	All	3%	☑
24	**Total from Additional Measures** Sum percentages from each selected measure from rows 11 - 23		13 %	

E Project Totals

Percentage from Required Measures (Section C Row 10): 21 %

\+ Percentage from Additional Measures (Section D Row 24): 13 %

Total Percentage from all Selected Measures (Sum of required and additional measures): 34 %

Trip Reduction Target (Copy from Section B): 25 %

Total Percentage from all selected measures must be greater than or equal to Trip Reduction Target

F Submit Checklist

See ccagtdm.org/submission for how to submit this form.

Questions?

Email Us
support@ccagtdm.org

Visit Our Website
ccagtdm.org

Appendix B – Detailed Description of TDM Measures

The following sections describe in detail each of the TDM strategies proposed as part of the development. All monitoring and reporting indicated below are for the purposes of complying with City requirements unless otherwise noted.

Increase Job Density

This measure accounts for the VMT reduction achieved by a project that is designed with a higher density of jobs compared to the average job density in the U.S. Increased densities affect the distance people travel and provide greater options for the mode of travel they choose. Increasing job density results in shorter and fewer trips by single-occupancy vehicles and thus a reduction in GHG emissions. It also takes into account the presence of on-site complimentary land uses and amenities that would support reduced vehicle trips.

Implement Commute Trip Reduction Marketing

This measure requires tenants to implement a marketing strategy that promotes employee trip reduction. This includes information sharing and marketing and additional amenities that make it easy for employees to opt for non-auto modes.

Transportation Manager and Commute Marketing Program

A transportation manager or designated employee for transportation-related marketing will generate positive impacts on the success of the TDM goals and elements. Commute industry data supports the notion that a transportation manager has a very positive impact on increasing and maintaining alternative mode use.

Each tenant’s transportation manager will be responsible for the following:

- Providing commute program assistance to employees, and serving as the primary point of contact for employees who wish to commute using an alternative.
- Working with local agencies as needed, such as Caltrain, SamTrans, 511 Rideshare, the Bay Area Air Quality Management District (BAAQMD), and Commute.org.
- Cataloging all existing incentives that encourage employees to utilize alternative transportation programs.

- Conducting annual employee surveys and providing reports to the City of Burlingame that include commute patterns, mode splits, and TDM program success (process includes yearly surveying of employees, tabulation of data and provision of results in report format).
- Evaluating survey results for alternative transportation potential and changes to the current program, and updating the program as needed.

Benefits that may be organized by the transportation manager and provided to employees include the following:

- Producing any on-site transportation fairs and promotional events, as relevant.
- Hosting Bicycle Safety Classes in coordination with Commute.org or a local bicycle advocacy organization.
- Posting informational materials on transportation kiosks in common areas, as well as distributing alternative program information to employees via posters, flyers, banners, community newsletters, etc.
- Participate in the BAAQMD Spare the Air program. Spare the Air day notices will be forwarded to employees to discourage driving alone to work.

Guaranteed Ride Home Program

A common reason that employees do not use alternative modes is the inability to leave work unexpectedly for a family emergency or the fear of being stranded if they need to work late or there are disruptions in transit service. A TDM element that allays these concerns is a Guaranteed Ride Home or similar program. With these types of programs, employees can use a taxi service, rental car, or other means to get home, and the employer pays for the service. Commute.org provides a Guaranteed Ride Home program for all employees in San Mateo County who use an alternative to driving alone to get to work. The program is free for employees to participate in, and subsidizes up to $60 per trip up to four times per calendar year.

End-of-Trip Facilities

End-of-Trip facilities include amenities that make it easier for employees to choose biking as a form of transportation, thereby reducing VMT and GHG emissions. These amenities include secure bike parking (such as bike lockers), showers, personal employee lockers, and on-site bicycle repair station. This measure includes installing and maintaining end-of-trip facilities for employee use. Facilities should be inclusive of all gender identities. Future tenants should consider including gender-neutral or single-occupancy options for additional privacy.

Pedestrian and Bicycle Network Improvements

This measure will increase the sidewalk and bicycle facility coverage to improve pedestrian and bicycle access. Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of drive. Closing gaps in the bicycle network improves the accessibility and participation rate for those that are able to bicycle. This mode shift results in a reduction in VMT and GHG emissions.

Extend Transit Network Coverage or Hours

This measure will expand the local transit network by either adding or modifying existing transit service or extending the operation hours to enhance the service near the Project site. Starting services earlier in the morning and/or extending services to late-night hours can accommodate the commute times of alternative-shift workers. This will encourage the use of transit and therefore reduce VMT and associated GHG emissions.

Employee Survey

At the time of employment, all new employees will be asked to complete a short online survey to gauge their transportation needs and commute preferences. This quick survey will also allow the transportation manager to best connect the employee with transit resources, bicycle route maps, and 511.org or Scoop ride-matching sources. This survey also acts as an early opportunity to educate employees about resources and benefits.

In addition to the new employee survey, tenants must administer, at minimum, an bi-annual employee survey that captures how each employee accesses the Project site and any trips they made during the day. The purpose of this survey is to provide reports to the City of Burlingame on commute patterns, mode splits, and TDM program success. In addition, annual surveys allow transportation managers to regularly assess and make adjustments as needed to improve transportation options available to employees. A sample survey is provided in **Appendix C**.

Appendix C – Sample Commute Survey

Peninsula Crossing TDM Monitoring & Reporting – Sample Commute Survey
NOTE: Questions should be tailored by tenants based on company policies such as work schedules, available commuter benefits, etc.

1. What is your home zip code?
2. What are your typical work hours?
   a. Start time:
   b. End time:
3. Thinking about last week, how did you get to work on each of the following days? If you used more than one, please indicate the way for the longest part of your trip.
   a. Monday
   b. Tuesday
   c. Wednesday
   d. Thursday
   e. Friday
   f. Saturday
   g. Sunday
4. Thinking about last week, how did you leave work on each of the following days? If you used more than one, please indicate the way for the longest part of your trip.
   a. Monday
   b. Tuesday
   c. Wednesday
   d. Thursday
   e. Friday
   f. Saturday
   g. Sunday
5. Thinking about last week, how often did you leave the office in the middle of the day to get lunch or run errands?
   a. Yes, multiple times a day
   b. Yes, once a day
   c. Yes, a few times a week
   d. No, I did not leave the office during the day
6. When you leave the office in the middle of the day, how do you typically travel to get lunch or run errands?
   a. Private vehicle
      i. Drove my own private vehicle (Drive alone)
      ii. Drove my own private vehicle (Carpool)
      iii. Passenger in a private vehicle (Carpool)
   b. Uber/Lyft/Taxi drop-off
   c. Transit
      i. Caltrain
      ii. SamTrans Bus
   d. Bicycle
   e. Walked
   f. Bikeshare/E-scooter
   g. Other: _____________

7. What is most important to you when you choose how to get to work? (Select up to 3.)
    a. Travel time
    b. Cost
    c. Convenience/flexibility
    d. Reliability
    e. Comfort/safety
    f. Reducing pollution
    g. Ability to make stops between home and work
    h. Stress
8. If you typically use a non-drive alone mode to commute to work, how can we better support your commute?
    a. Company subsidy for transit
    b. Company subsidy for vanpool
    c. Company subsidy for biking or walking
    d. Lower parking rates for carpooling
    e. Preferred parking for carpooling
    f. Assistance using transit or biking
    g. Assistance with
    h. Flexible work schedule
    i. Ride home in case of emergency
    j. Incentive program (prizes or contests)
    k. Other: _________
9. If you normally drive alone to work, what are your main reasons for doing so?
    a. Need a car for work
    b. Need a car for personal use during the work day
    c. No reasonable transit option
    d. No reasonable walking or biking option
    e. No options for carpooling
    f. Need a car for errands or to transport children
    g. Cannot get home in an emergency
    h. Cost of taking Caltrain
    i. Other: ___________
10. If you usually drive alone to work, which of the following transportation options (other than driving alone) would appeal most to you? (Select up to 3.)
    a. Carpooling
    b. Vanpooling
    c. Transit
        i. Caltrain
        ii. SamTrans
    d. Bicycling
    e. Walking
    f. Not interested in other transportation options for commuting
    g. Other: _________
11. If you normally drive alone to work, what would encourage you to use a non-drive alone mode to commute to work? (Select up to 3.)
    a. Company subsidy for transit

b. Company subsidy for vanpool
c. Company subsidy for biking or walking
d. Parking cash-out
e. Lower parking rates for carpooling
f. Preferred parking for carpooling
g. Assistance using transit or biking
h. Assistance finding carpool partners
i. Flexible work schedule
j. Ride home in case of emergency
k. Incentive program (prizes or contests)
l. Other: _________

12. Do you have other comments about your transportation options for commuting to work?

Appendix B: Relevant Plans & Policies

Relevant Plans & Policies

A1.1 State

California Department of Transportation

Caltrans has authority over the state highway system, including freeways, interchanges, and arterial routes. Caltrans operates and maintains state highways in the Project site vicinity. The Guide for the Preparation of Traffic Impact Studies (Caltrans 2001) provides information that Caltrans uses to review impacts on state highway facilities, including freeway segments. This guidance was updated by the Local Development – Intergovernmental Review Program Interim Guidance published in November 2016 for consistency with Senate Bill (SB) 743.

Assembly Bill 32, Assembly Bill 398, and Senate Bill 375

With the passage of Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, the state committed itself to reducing greenhouse gas (GHG) emissions to 1990 levels by 2020. The California Air Resources Board (CARB) is coordinating a response to comply with AB 32. In 2008, CARB defined its 1990 baseline level of emissions. On December 11, 2008, CARB adopted its Proposed Scoping Plan for AB 32. This scoping plan included approval of SB 375 as the means for achieving regional transportation related GHG targets. In 2011, CARB completed its major rulemaking for reducing GHG emissions. Rules on emissions, as well as market-based mechanisms such as the cap-and-trade program, took effect on January 1, 2012.

Assembly Bill 398 was passed in July 2017 to reauthorize and extend the state's economy-wide greenhouse gas reduction program to 2030 and sets a new GHG emissions target of at least 40% below the 1990 level of emissions by 2030 and raised its goal to 40 percent below 1990 levels by 2030.

SB 375 provides guidance regarding curbing emissions from cars and light-duty trucks to help the state comply with AB 32. There are four major components to SB 375. First, SB 375 requires regional GHG emissions targets. CARB's Regional Targets Advisory Committee guides the adoption of targets to be met by 2020 and 2035 for each Metropolitan Planning Organization (MPO) in the state. These targets, which MPOs may propose themselves, must be updated every 8 years in conjunction with the revision schedule of the housing and transportation elements of local general plans. Second, MPOs are required to create a Sustainable Communities Strategy (SCS) that provides a plan for meeting regional targets. The SCS and the Regional Transportation Plan (RTP) must be consistent, including action items and financing decisions. If the SCS does not meet the regional target, the MPO must produce an alternative planning strategy that details an alternative plan for meeting the target. Third, SB 375 requires regional housing elements and transportation plans to be synchronized on 8-year schedules. In addition, Regional Housing Needs Assessment allocation numbers must conform to the SCS. If local jurisdictions are required to rezone land as a result of changes in the housing element, rezoning must take place within 3 years of adoption of the housing element. Finally, MPOs must use transportation and air emissions modeling techniques that are consistent with the guidelines prepared by the California Transportation Commission. Regional transportation planning agencies, cities, and counties are encouraged, but not required, to use travel demand models that are consistent with California Transportation Commission guidelines. The adopted RTP, per SB 375 (Plan Bay Area 2040), is discussed below.

Complete Streets (AB 1358)

AB 1358, also known as the California Complete Streets Act of 2008, requires cities and counties to include "complete street" policies in their general plans. These policies address issues regarding the safe accommodation of all users, including bicyclists, pedestrians, motorists, public transit vehicles and riders, children, the elderly, and persons with disabilities. These policies can apply to new streets as well as the redesign of transportation corridors.

State of California Senate Bill 743

Senate Bill 743 (Stats. 2013, ch. 386) (SB 743) is intended to better align CEQA transportation impact analysis practices and mitigation outcomes with the State's goals to reduce greenhouse gas (GHG) emissions, encourage infill development, and improve public health through more active transportation. The law creates several key statewide changes to the California Environmental Quality Act (CEQA).

First, the law requires the Governor's Office of Planning and Research (OPR) to establish new metrics for determining the significance of transportation impacts of projects within transit priority areas (TPAs) and allows OPR to extend use of the metrics beyond TPAs. OPR selected vehicle miles of travel (VMT) as the preferred transportation impact metric and applied their discretion to require its use statewide.

Second, this legislation establishes that aesthetic and parking impacts of a residential, mixed-use residential, or employment center projects on an infill site within a TPA shall not be considered significant impacts on the environment.

Third, the new CEQA Guidelines that implement this legislation state that generally, vehicle miles traveled is the most appropriate measure of transportation impacts, and that as of July 1, 2020, this requirement shall apply statewide, but that until that date, lead agencies may elect to rely on VMT rather than LOS to analyze transportation impacts.

Finally, the law establishes a new CEQA exemption for a residential, mixed-use, and employment center project a) within a transit priority area, b) consistent with a specific plan for which an EIR has been certified, and c) consistent with a Sustainable Communities Strategy (SCS). This exemption requires further review if the project or circumstances changes significantly.

To aid in SB 743 implementation, the following state guidance has been produced:

- *Technical Advisory on Evaluating Transportation Impacts in CEQA,* California Governor's Office of Planning and Research, December 2018[1]

[1] http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

- *California Air Resources Board* (CARB) *2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals*, California Air Resources Board, January 2019[2]
- *Local Development – Intergovernmental Review Program Interim Guidance, Implementing Caltrans Strategic Management Plan 2015-2020 Consistent with SB 743*, Caltrans, November 9, 2016[3]

The California Air Resources Board 2017 *Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals* provides recommendations for VMT reduction thresholds that would be necessary to achieve the State's GHG reduction goals. CARB finds per-capita light-duty vehicle travel would need to be approximately 16.8 percent lower than existing by 2050, and overall, per-capita vehicle travel would need to be approximately 14.3 percent lower than existing levels by 2050 under that scenario. CARB also acknowledges that the SCS targets are not sufficient to meet climate goals. As stated in the report, "…the full reduction needed to meet our climate goals is an approximately 25 percent reduction in statewide per capita on-road light-duty transportation-related GHG emissions by 2035 relative to 2005."

OPR considered this research when developing recommended VMT thresholds. In the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018), OPR recommends that a per capita or per employee VMT that is 15 percent below that of existing development may be a reasonable threshold. This threshold is based on the above mentioned research documents from CARB as well as evidence that suggests a 15 percent reduction in VMT is achievable at the project level in a variety of place types[4] and would help the State towards achieving its climate goals. However, each jurisdiction must apply the statewide VMT analysis guidance based on available travel data and tools.

A1.2 Regional

San Mateo City/County Association of Governments

The San Mateo City/County Association of Governments (C/CAG) is the Congestion Management Agency (CMA) for San Mateo County and is authorized to set State and federal funding priorities for improvements affecting the San Mateo County Congestion Management Program (CMP) roadway system. The C/CAG-designated CMP roadway system in Burlingame near the Project site includes U.S. 101.

A1.3 Local

City of Burlingame General Plan (2019)

The General Plan update includes key land use, mobility, and economic development policies that focus on the Bayfront planning area, which is generally the area between the San Francisco Bay and US-101 and is the location of the Project. The Economic Development Element emphasizes the City's interest to attract

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[2] https://ww2.arb.ca.gov/sites/default/files/2019-01/2017_sp_vmt_reductions_jan19.pdf

[3] https://dot.ca.gov/programs/transportation-planning/office-of-smart-mobility-climate-change/sb-743

[4] CAPCOA (2010) Quantifying Greenhouse Gas Mitigation Measures, p. 55, available at http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

office and research and development uses to the Bayfront area while the Community Character and Mobility Elements contain goals that support this vision.

Community Character (Land Use) Element

- CC-1.5: Transportation Demand Management: Require that all major development projects include a Transportation Demand Management (TDM) program, as defined in the City's TDM regulations, to reduce single occupancy car trips. "Major development" shall be defined in the TDM regulations by square footage for commercial development, or minimum number of units for residential development.
- CC-6.3: Infill Development (Bayfront Area): Encourage increased intensity via high-quality infill development on surface parking lots, and support the conversion of surface parking lots into active commercial and hospitality uses.

Mobility Element

- M-1.1: Complete Streets: Define and develop a well-connected network of Complete Streets that can move all modes safely, efficiently, and comfortably to promote efficient circulation while also improving public health, safety, and accessibility.
- M-9.1: Vehicle Miles Traveled (VMT) Transportation Performance Measures: Update the City's transportation performance measures to use vehicle miles traveled (VMT) standards for traffic impact analyses instead of level of service (LOS) standards.
- M-14.1: Old Bayshore Highway and Airport Boulevard: Design and apply complete streets improvements to the Old Bayshore Highway and Airport Boulevard corridors.

2030 Climate Action Plan Update (2019)

The City of Burlingame's Climate Action Plan Update (CAP) presents the City's blueprint for responding to the challenge of climate change. The CAP outlines the City's climate strategy to reduce greenhouse gas emissions 40% by 2030, 60% by 2040, and 80% by 2050. To achieve the targets, the strategy includes 20 carbon-reduction measures and an implementation plan to track progress. Ten of the 20 carbon reduction strategies are related to transportation and the built environment, and the following strategy is relevant to the Project's travel demand estimate.

- Strategy #2: The City shall require new multi-unit residential developments of 10 units or more and commercial developments of 10,000 square feet or more to incorporate TDM strategies that achieve a 20% reduction in trip generation rates below the standard rate published in the latest Institute of Transportation Engineers (ITE) Trip Generation Manual (10th edition), or other reputable source. This trip reduction level may be achieved through site design, transit, bicycle, shuttle, and parking

Bicycle and Pedestrian Master Plan (2020)

The City of Burlingame's Bicycle and Pedestrian Master Plan aims wr improve the safety, health, and quality of life of Burlingame residents through transportation infrastructure, programs, and policy improvements that enhance the safety, comfort, and attractiveness of walking and bicycling for people of all ages and abilities. The plan includes a series of goals and objectives that focus on creating a connected, safe, and comfortable bicycling and walking network that's attractive for a variety of trip purposes. In the Bayfront area and the vicinity of the Project site, the plan identified a need to strengthen bicycle connections between employment areas and regional transit stations such as Millbrae BART/Caltrain and the City's two Caltrain stations. The plan recommends upgrading the existing bicycle lanes on Old Bayshore Highway with Class II buffered bike lanes.

Old Bayshore Highway Corridor Feasibility Study

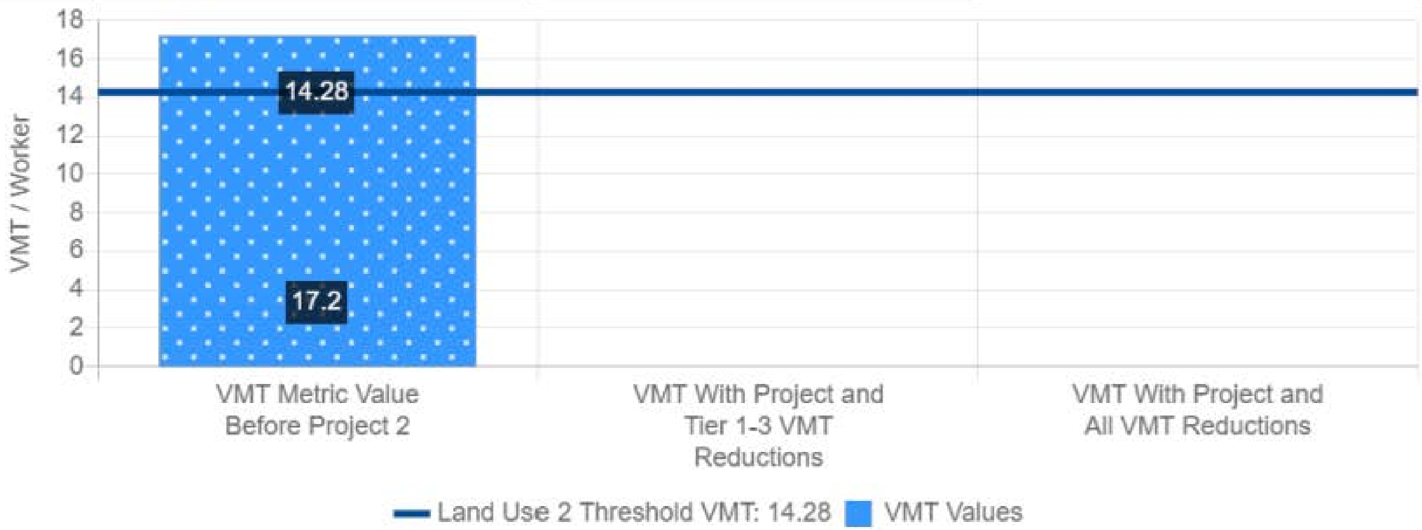
The Old Bayshore Highway Corridor Feasibility Study presents concepts for Old Bayshore Highway between the northern limit of the City of Burlingame to Broadway with the objective of creating a comfortable corridor for bicycles, pedestrians, mass transit, and vehicles, and improving connections to the Bay Trail. Within the vicinity of the Project, the study identified opportunities to improve connections to the Bay Trail through new access points and improve comfort for people walking by widening sidewalks, planting street trees, and considering pedestrian crossing enhancements like new high visibility crosswalks. The Study also recommends installing Class II buffered bicycle lanes along the length of the Old Bayshore Highway Corridor.

Appendix C: C/CAG VMT Estimation Tool Output

Office Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 2:	Office
VMT Without Project 2:	Home-Based Work VMT per Employee
VMT Baseline Description 2:	County Average
VMT Baseline Value 2:	16.8
VMT Threshold Description 2:	-15%
Land Use 2 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	17.2	null	null
Low VMT Screening Analysis	No (Fail)	null	null



Appendix WND
Pedestrian Wind Assessment

PENINSULA CROSSING

BURLINGAME, CA

PEDESTRIAN WIND ASSESSMENT

PROJECT #2103594
AUGUST 30, 2022

SUBMITTED TO

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SUMMARY

RWDI was retained to provide an assessment of the potential pedestrian level wind impact of the proposed Peninsula Crossing project located at 1200 – 1340 Old Bayshore Highway in Burlingame, California. Our assessment was based on the local wind climate, the current design of the proposed development, the existing surrounding buildings, and computational modeling and simulation of wind conditions.

Our findings are summarized as follows:

- The Bay Trail along the water's edge is predicted to have the existing conditions comfortable for walking or better in the summer and strolling or better in the winter. The conditions here are expected to improve in general with the addition of the project.
- The proposed buildings are expected to intercept and redirect winds, causing a few isolated areas where wind conditions are likely to be considered uncomfortable. Conceptual mitigation strategies are described.
- Wind conditions at the main entrances for all buildings are expected to be acceptable.
- Most of the proposed terraces are predicted to have acceptable conditions. A notable exception includes the Center and the North Building terraces that lead to the entrances where wind control strategies are described to improve the wind conditions to appropriate levels.
- Wind mapping has been prepared for all roof areas to help inform the design team should they be considering amenity spaces on roof tops. General wind control concepts are described.
- The remainder of the site is expected to become somewhat windier with the presence of the project, most notably at building corners and between buildings where wind accelerations will occur. Wind control strategies are described.

1. INTRODUCTION

Rowan Williams Davies & Irwin Inc. (RWDI) was retained to assess the potential pedestrian wind conditions around the proposed Peninsula Crossing project to be located at 1200 - 1340 Old Bayshore Highway in Burlingame, CA. The objective of this assessment is to provide an evaluation of the potential wind impacts of the proposed development for pedestrian comfort.

The proposed site is located about 1.5 miles south of San Francisco International Airport, between Airport Boulevard and Mahler Road (**Image 1**). The site is immediately surrounded by low-rise commercial developments to the south and west, with a couple of mid-rise buildings to the north and west. The site is bounded by San Francisco Bay along the east.

The project consists of three 11-story buildings providing approximately 1.42 million GSF of space with two 10-story parking garages providing approximately 3,425 stalls. The project is to be developed in three phases as identified in **Image 2,** but these buildings were studied together in the current wind assessment.

Image 1: Existing Site Context Plan ***(Credit: Google Earth)***

2. METHODOLOGY

The objective of this assessment is to provide an evaluation of the potential wind impact of the proposed development. The assessment is based on the following:

- A review of the regional long-term meteorological data from San Francisco International Airport;
- 3D e-model of the proposed project received from design team on August 03rd, 2022;
- Wind studies completed by RWDI for similar projects in the San Francisco area;
- Our engineering judgment, experience and expert knowledge of wind flows around buildings[1-3];
- The use of Orbital Stack, an in-house computational fluid dynamics (CFD) tool, to aid in visualization of general wind-flow patterns for a qualitative wind assessment; and,
- The use of RWDI's proprietary tool *WindEstimator*[2] for estimating the potential wind conditions around generalized building forms.

1. H. Wu, C.J. Williams, H.A. Baker and W.F. Waechter (2004), "Knowledge-based Desk-Top Analysis of Pedestrian Wind Conditions", *ASCE Structure Congress 2004,* Nashville, Tennessee.
2. H. Wu and F. Kriksic (2012). "Designing for Pedestrian Comfort in Response to Local Climate", *Journal of Wind Engineering and Industrial Aerodynamics*, vol.104-106, pp.397-407.
3. C.J. Williams, H. Wu, W.F. Waechter and H.A. Baker (1999), "Experience with Remedial Solutions to Control Pedestrian Wind Problems", *10th International Conference on Wind Engineering*, Copenhagen, Denmark.

2. METHODOLOGY

2.1 Simulation Model

Wind flows around the proposed development were simulated using *Orbital Stack*, an in-house computational fluid dynamics (CFD) tool.

The computer model of the existing and proposed site, as used for the simulations, is shown in **Image 3**. For the purposes of this computational study, the 3D model was simplified to include only the necessary building and terrain massing details that would affect the local wind flows in the area and around the site. The porous facades of the parking structures were modeled at approximately 50% porosity. The proposed trees from the landscape plan were included in the computer model in order to provide a more refined prediction of wind conditions.

The mean wind speed profile in the atmospheric boundary, approaching the modeled area were simulated for 16 directions (starting at 0°, at 22.5° increments around the compass). Wind data in the form of ratios of mean speeds at approximately 5 ft above ground and other concerned areas, to mean wind speed at a reference height were obtained. The data was then combined with meteorological records obtained from San Francisco International Airport.

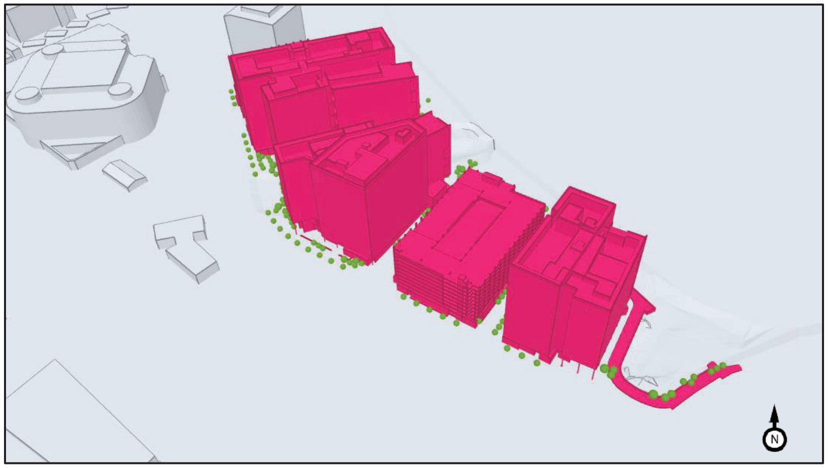


Image 3: : Computer Model of the Existing (above) and Full-Build with Landscaping (below)

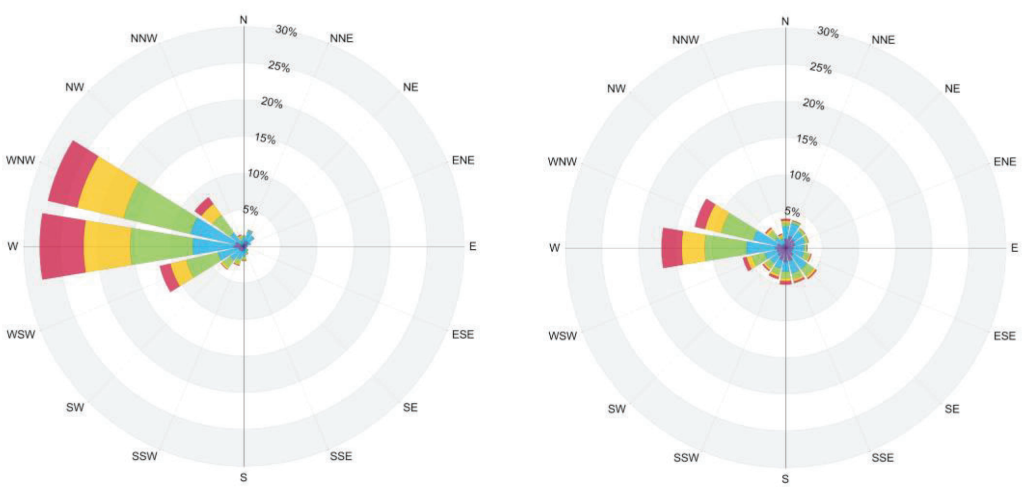
2. METHODOLOGY

2.2 Historic Wind Data

Long-term wind data recorded at San Francisco International Airport from 1988 to 2018 were analyzed for the summer (May to October) and winter (November to April) seasons. **Image 4** graphically depicts the directional distributions of wind frequencies and speeds for these two seasons. Of the primary wind directions, four have the greatest frequency of occurrence and make up the majority of the strong winds that occur. These wind directions are west-northwest, west, northwest and west-southwest. Of these, winds from the west and west-northwest are predominant.

Strong winds of a mean speed greater than 20 mph measured at the airport (at an anemometer height of 30 ft) occur for 13% and 6.7% of the time during the summer and winter seasons, respectively. Winds from the west-southwest through north-northwest and east directions potentially could be the source of uncomfortable or severe wind conditions, depending upon the site exposure and development design.

Wind statistics were combined with the simulated data to predict the wind conditions at the project site and assessed against the wind criteria for pedestrian comfort.



Summer (May through October)

Winter (November through April)

Wind Speed (mph)	Probability (%) Summer	Winter
Calm	5.1	14.5
1-5	9.6	20.7
6-10	25.3	27.8
11-15	29.0	21.0
16-20	18.0	9.2
>20	13.0	6.7

Image 4: Directional Distribution of Winds Approaching San Francisco International Airport from 1988 to 2018

3. CRITERIA

The RWDI pedestrian wind criteria are used in the current study. These criteria have been developed by RWDI through research and consulting practice since 1974. They have also been widely accepted by municipal authorities, building designers and the city planning community. The criteria are as follows:

3.1 Pedestrian Safety

Excessive gust can adversely affect a pedestrian's balance and footing. If strong winds that can affect a person's balance (**56 mph**) occur more than **0.1%** of the time or 9 hours per year, the wind conditions are considered unsafe.

3.2 Pedestrian Comfort

Wind comfort can be categorized by typical pedestrian activities:

Sitting (≤ 6 mph): Calm or light breezes desired for outdoor seating areas where one can read a paper without having it blown away.

Standing (≤ 8 mph): Gentle breezes suitable for main building entrances and bus stops.

Strolling (≤ 10 mph): Moderate winds that would be appropriate for window shopping and strolling along a downtown street, plaza or park.

Walking (≤ 12 mph): Relatively high speeds that can be tolerated if one's objective is to walk, run or cycle without lingering.

Uncomfortable: The comfort category for walking is not met.

Wind conditions are considered suitable for sitting, standing, strolling or walking if the associated mean wind speeds are expected for at least four out of five days (**80% of the time**). Wind control measures are typically required at locations where winds are rated as uncomfortable or they exceed the safety criterion.

Note that these wind speeds are assessed at the pedestrian height (i.e., 5 ft above grade or the concerned floor level), typically lower than those recorded in the airport (30 ft height and open terrain).

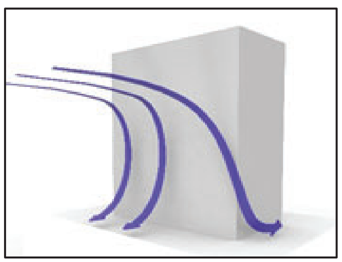
These criteria for wind forces represent average wind tolerance. They are sometimes subjective and regional differences in wind climate and thermal conditions as well as variations in age, health, clothing, etc. can also affect people's perception of the wind climate.

For the current development, wind speeds comfortable for walking or strolling are appropriate for sidewalks and parking areas; lower wind speeds comfortable for standing are required for building entrances, and calm wind speeds suitable for sitting are desired in outdoor amenity areas.

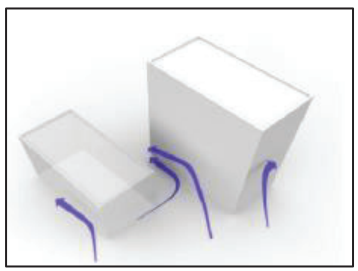
4. RESULTS AND DISCUSSION

4.1 Wind Flow Around Buildings

Buildings taller than their surroundings tend to intercept and redirect winds around them. The mechanism in which winds are directed down the height of a building is called Downwashing. These flows subsequently move around exposed building corners, causing a localized increase in wind activity due to Corner Acceleration. Groups of building with narrow separation distances tend to Channel winds between them. See **Image 5**.



Downwashing and Corner Acceleration



Channeling and Corner Acceleration

Image 5: Generalized Wind Flows

4.2 Wind Comfort Results

The results of the simulations for pedestrian wind comfort were done with trees and landscaping in place. The summer and winter season results are presented in **Images 6 and 7** as still images of color contours of predicted wind speed ranges. The results correspond to a horizontal plane approximately 5 feet above the concerned level. These results are for the average wind condition; actual wind speeds vary with time. The conditions presented are approximate and intended for reference. The following color scale is used for the representation of wind conditions against the pedestrian wind comfort criteria:

Blue regions represent low wind speed areas comfortable for sitting or standing; green indicates medium wind speeds comfortable for strolling, and yellow regions are associated with higher wind speeds comfortable for walking. The red regions are associated with the highest wind speed regions that may not be suitable for pedestrian usage.

4. RESULTS AND DISCUSSION

4.3 Existing Configuration

The existing site is occupied by low-rise buildings which are less likely to cause significant wind accelerations. **Images 6 and 7** shows some exceptions where at one of the northernmost buildings summer winds are accelerating around the corners causing uncomfortable and potentially unsafe conditions. One location where winds are channeling between the two southern most buildings is also likely to be considered uncomfortable and potentially unsafe.

4.4 Predicted Wind Conditions

As discussed in Section 4.1, the proposed buildings are taller than the existing buildings and the gaps between them will tend to promote the channeling of winds. **Images 6 and 7** presents ground-level wind comfort levels for both summer and winter for the project during the full build scenario. Summer conditions are generally worse as a result of the seasonally stronger winds and are the focus of these discussions. The proposed project will be relatively exposed and vulnerable to prevailing winds. However, some positive design features (e.g., architectural articulation of the buildings) and the proposed trees will help mitigate wind impacts.

4.4.1 Ground Level

As shown in **Images 6**, uncomfortable and potentially unsafe winds are expected between the Center Building and the South Parking. This is the result of westerly and northwesterly winds downwashing from the west side of the Center Building and channeling between the structures.

Image 8 presents the streamlines that represent the winds flowing from the west-northwest as an example. This image shows the accelerated zone of uncomfortable winds limited to the building corner and between the buildings. Reducing winds to comfortable levels within the higher wind speed area would require adding canopies / trellises and/or adding trees / screens, etc.). Alternatively, pedestrian access could simply be discouraged from this windier area, if feasible. See **Image 11** for wind control concepts.

The other potentially uncomfortable area is at the north corner of the South Building. This results from the west and northwest winds over the lower South parking Building and accelerating around the north corner of the South Building (see **Image 8**). As this will be a driveway / vehicular entrance the stronger winds may not be of concern. If there is a desire to address the condition, then there would be a need for some vertical wind screens and/or trellises in that area. See **Image 11** for wind control concepts.

As seen in **Images 6 and 7** the main entrances to all three buildings are expected to have acceptable conditions (i.e., comfortable for standing or better), except for the North Building, where conditions comfortable for walking or strolling are predicted in the summer. These favorable results are due to the overhead canopies and proposed landscaping.

The Bay Trail along the water's edge is predicted to have conditions comfortable for walking or better in the summer and strolling or better in the winter.

4. RESULTS AND DISCUSSION

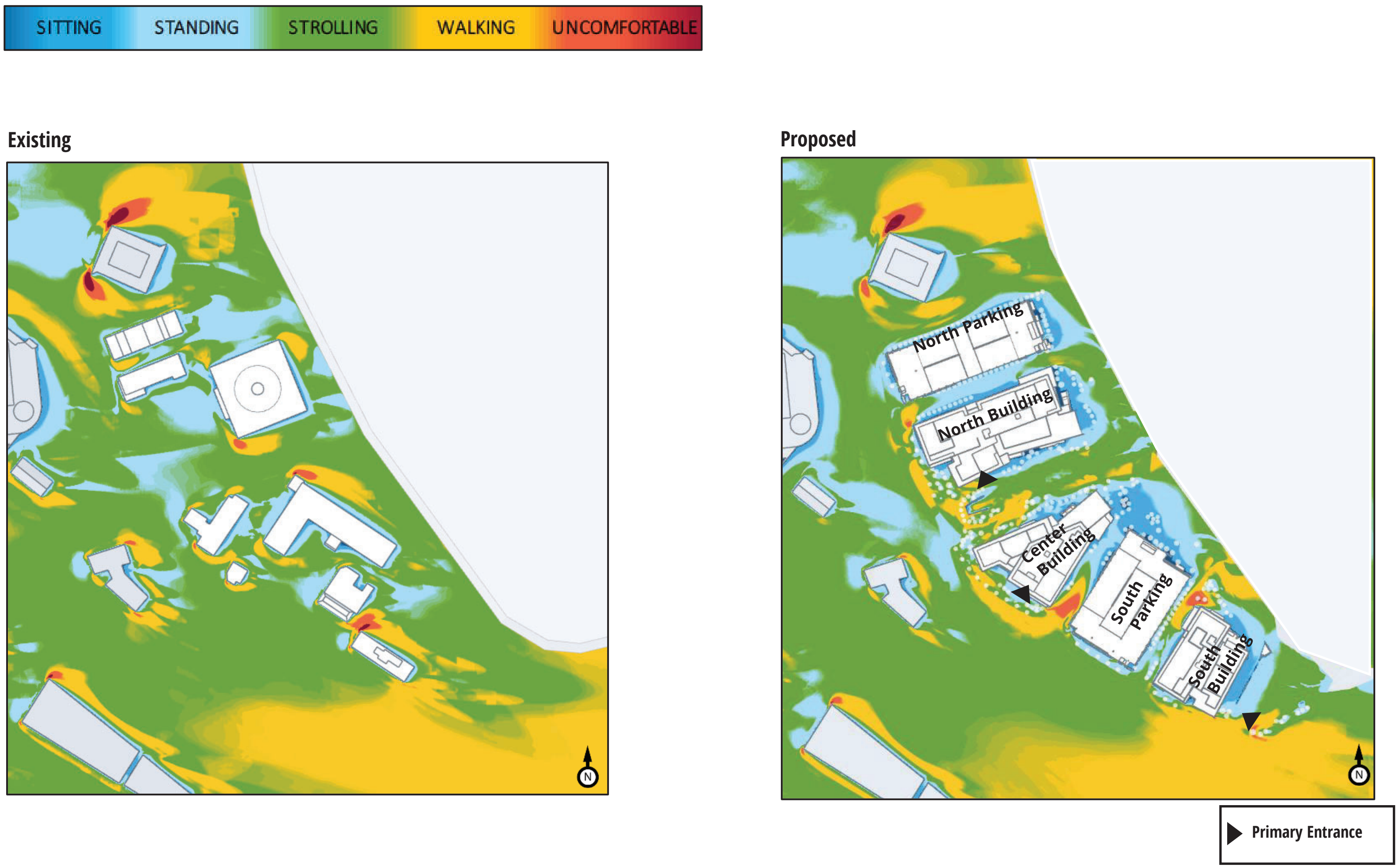
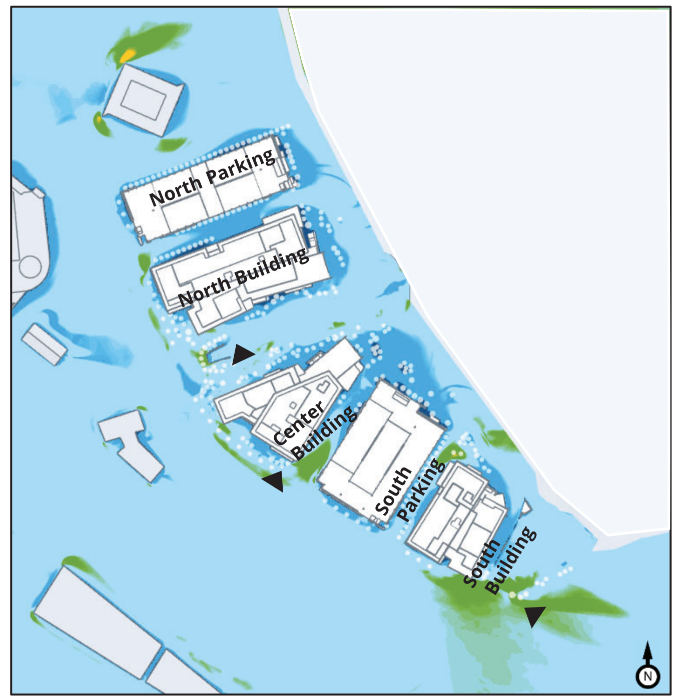


Image 6: Predicted Mean Summer Wind Conditions at Grade Level – Existing (left) and Proposed (right)

4. RESULTS AND DISCUSSION

Existing

Proposed



▶ Primary Entrance

Image 7: Predicted Mean Winter Wind Conditions at Grade Level – Existing (left) and Proposed (right)

5. RECOMMENDATIONS

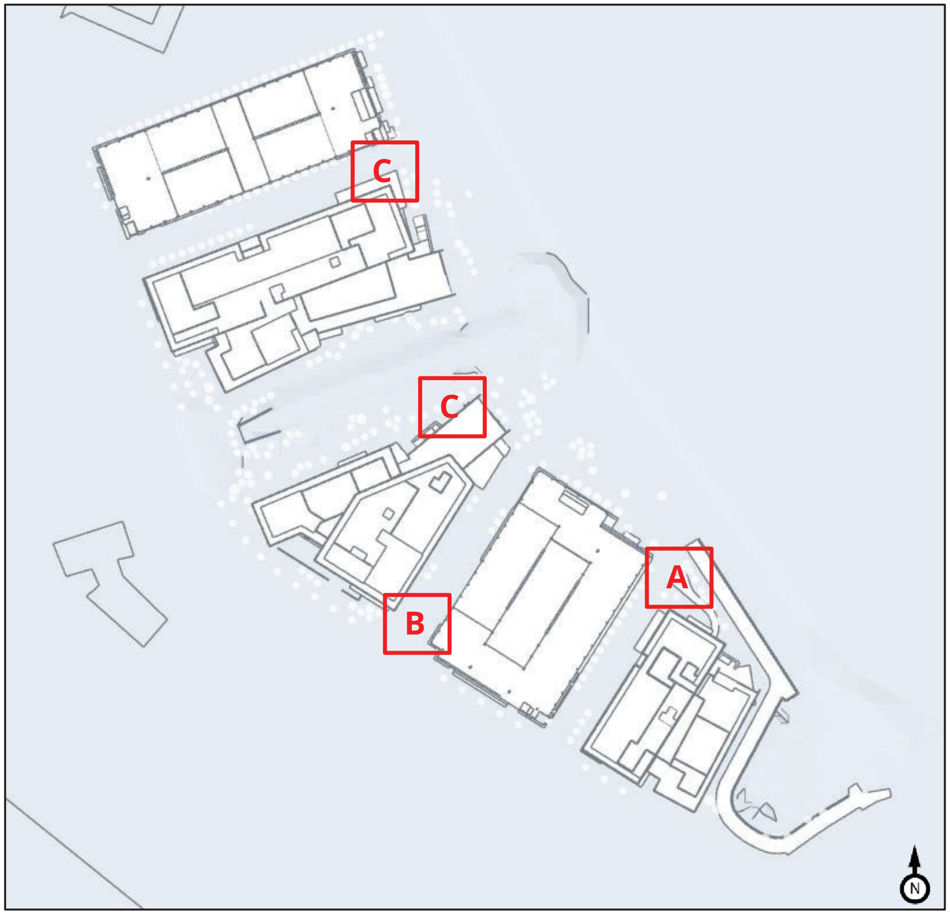


Image 11: Wind Control Concepts (to improve unsafe or uncomfortable locations to comfortable levels)

LEGEND:

A	Add canopies/trellises AND trees / screens OR discourage pedestrian access in the windy area. See **Images 13 and 14**.
B	Vertical wind screens AND canopy / trellis incorporated OR accept windier conditions on the driveway OR chamfer the northwest corner of the South Parking Garage.
C	Vertical wind screens to protect terraces. See **Image 12**.

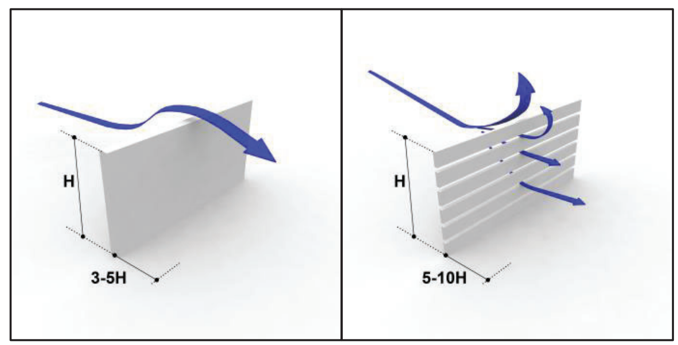


Image 12: Guidelines for Vertical Wind Screens

5. RECOMMENDATIONS

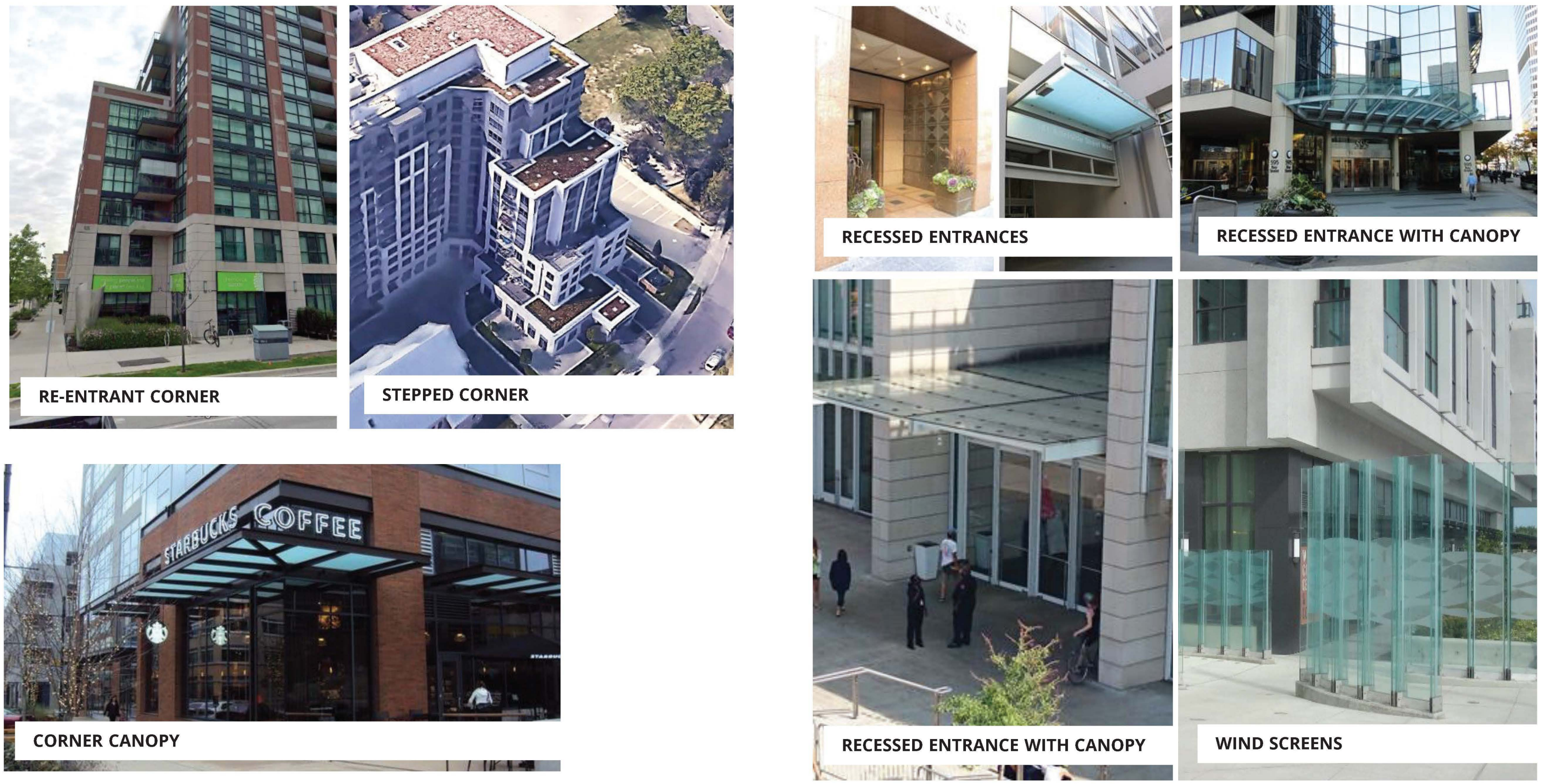


Image 13: Wind Control Examples

5. RECOMMENDATIONS

Image 14: Wind Control Examples

6. APPLICABILITY OF RESULTS

The assessment presented in this report are for the proposed Peninsula Crossing project located at 1200 - 1340 Old Bayshore Highway and is based on the information provided by design team listed in the table below. In the event of any significant changes to the design, construction or operation of the building or addition of surroundings in the future, RWDI could provide an assessment of their impact on the pedestrian wind conditions discussed in this report. It is the responsibility of others to contact RWDI to initiate this process.

File Name/Set	File Type	Date Received (mm/dd/yyyy)
ARCH-WRNS_selected_2022-08-03_03-06-15pm	Rvt Package	08/03/2022
1300-BAYSHORE-AR	rvt	03/11/2022
1300-BAYSHORE-SITE	rvt	03/11/2022
1300-BAYSHORE-NORTH-PS-AS	rvt	03/29/2022
1300-BAYSHORE-SOUTH-PS-AS	rvt	03/29/2022

Appendix WSA
Water Supply Assessment

Water Supply Assessment for 1200-1340 Old Bayshore Highway

The City of Burlingame

September 2023

PREPARED BY
EKI ENVIRONMENT & WATER, INC.

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Water Supply Assessment
1200-1340 Old Bayshore Highway
The City of Burlingame

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

FIGURES

TABLES

APPENDICES

1 INTRODUCTION

The Water Supply Assessment (WSA) law (§10910-10915 of the California Water Code [CWC or Water Code]) requires urban water supplies to prepare a WSA to the city or county that has jurisdiction to approve the environmental documentation for certain qualifying projects as defined in Water Code §10912(a). This WSA was prepared for the proposed 1200-1340 Old Bayshore Highway development ("Proposed Project"). The Proposed Project meets the definition of "project" as defined in Water Code §10912(a)(e) because it includes a commercial office building employing more than 1,000 persons or having more than 250,000 square feet (sq ft) of floor space. The Proposed Project consists of three multi-story office and research and development (R&D) buildings, two parking structures, and associated irrigated landscaping (DivcoWest, 2022; **Appendix A**). The City of Burlingame (City) will be the water service provider for the Proposed Project.

The information provided in this WSA is consistent with Water Code §10910-10912 requirements and the California Department of Water Resources' (DWR's) *Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001: To Assist Water Suppliers, Cities, and Counties in Integrating Water and Land Use Planning*, dated 8 October 2003.

The purpose of this WSA is to evaluate whether the City has sufficient water supply to meet the current and planned water demands within its service area, including the demands associated with the Proposed Project, during normal and dry hydrologic years over a 20-year time horizon. More specifically, this WSA includes:

- A summary of the WSA requirements articulated in Water Code §10910-10912 and a description of how they apply to the Proposed Project (Sections 2 and 3);
- A description and analysis of the current and projected future water demands of the Proposed Project through the year 2045 (Section 4);
- A description and analysis of the historical and current water demands for the City, and projected future water demands for its service area through the year 2045 (Section 5);
- A description and analysis of the current and projected future water supplies for the City's service area through the year 2045 (Section 6); and
- A comparison of the water supplies and demands for the City's service area, including the projected water demands associated with the Proposed Project (Section 7).

The information contained in this WSA is based primarily on the City's 2020 Urban Water Management Plan (UWMP), except where updated with relevant water demand and supply reliability and other information provided by DWR, the San Francisco Public Utilities Commission (SFPUC), the Bay Area Water Supply and Conservation Agency (BAWSCA), and the City (City of Burlingame, 2023). The findings of this WSA are contingent upon implementation of the City's Development Offset Program (Program). This Program is discussed further in Section 4.1.

1.1 WSA Determination

A significant source of uncertainty identified in the City's 2020 UWMP and this WSA is whether the Water Quality Control Plan for the San Francisco/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment)[1] will be implemented and how it will affect the supply reliability of the City and County of San Francisco's Regional Water System (RWS), which is the City's sole source of supply. Given this uncertainty, and based on information provided by the SFPUC and BAWSCA, this WSA analyzes water supply and demands through 2045 under three scenarios:

1. Scenario 1: Implementation of the Bay-Delta Plan Amendment
2. Scenario 2: Without implementation of the Bay-Delta Plan Amendment
3. Scenario 3: Implementation of the Proposed Voluntary Agreement

Scenario 1 (Implementation of the Bay-Delta Plan Amendment): With the implementation of the Bay-Delta Plan Amendment, the City has sufficient water supply to meet all of its expected future water demands, including the demands of the Proposed Project, in normal years. In dry years, the City will implement its Water Shortage Contingency Plan (WSCP) and apply the appropriate water demand reduction actions in order to ensure demand is met. Regardless of whether the Proposed Project is constructed, as described in the City's adopted 2020 UWMP and in Section 6.2.1 herein, with implementation of the Bay-Delta Plan Amendment, the City is projecting supply shortfalls of up to 45% during single dry years and up to 53% during multiple dry years in 2045 and will require significant demand reductions or development of alternative water supply sources. The City is working independently and with the other BAWSCA agencies to identify mitigation measures to improve the reliability of regional and local water supplies and to meet its customers' water needs. If conditions for large drought cutbacks to the RWS supplies persist, the City will need to implement additional demand reduction actions, invoke strict restrictions on potable water use, and accelerate efforts to develop alternative supplies of water.

Scenario 2 (Without Implementation of the Bay-Delta Plan Amendment): Without the implementation of the Bay-Delta Plan Amendment, the City has sufficient water supply to meet all of its future water demands, including the demands of the Proposed Project, in normal years, single dry years, and most multiple dry years. As discussed in Section 6.2.3 herein, it is anticipated that the City will face supply shortfalls of 14% during the 4th and 5th years of a multiple-year drought in 2045, during which the City would implement its WSCP to curtail demands and ensure that its supplies remain sufficient to serve all users, including those of the Proposed Project.

Scenario 3 (Voluntary Agreement): The SFPUC is in active negotiations with the State to see if a compromise can be reached wherein the impacts of the Bay-Delta Plan Amendment to the RWS

[1] On December 12, 2018, through State Water Board Resolution 2018-0059, the State Water Board amended the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan). It adopted the amendments to the Bay-Delta Plan and the Final SED establishing the Lower San Joaquin River flow objectives and revised southern Delta salinity objectives. On February 25, 2019, the Office of Administrative Law approved the Bay-Delta Plan amendments, which are now in effect.

can be minimized. Under this scenario, the City is assumed to have sufficient water to meet all of its future water demands, including the demands of the Proposed Project, in normal years. It is anticipated that, in single and multiple dry year scenarios, the City would implement its WSCP to curtail demands and ensure that its supplies remain sufficient to serve all users, including the Proposed Project. This scenario is based on the assumption that demand will not be curtailed beyond the SFPUC Level of Service (LOS) goal of not exceeding 20% system wide rationing.

Additionally, based on the uncertainty of future water supplies, the City Public Works Department recommends the following Project-specific measures to increase resiliency. If any of these recommendations are found to be infeasible, the Proposed Project applicant may submit a technical analysis to the Public Works Director for review:

1. Install purple piping in the frontage of the Proposed Project site for future recycled water usage;
2. Follow the Prescriptive Compliance Option of the Model Water Efficient Landscaping Ordinance (MWELO), see California Code of Regulations Title 23, Chapter 2.7, Appendix D;[2]
3. Install 100% WaterSense labeled products, as available; and
4. Under Leadership in Energy and Environmental Design (LEED) certification, incorporate a minimum of four points under the Water Efficiency credit category.[3]

This WSA concludes that, through implementation of the City's Development Offset Program, the Proposed Project will not affect the City's water supply reliability assuming actual water demands are within the projected water demands as calculated in Table 1. Based on currently available information, the City expects to be able to meet all future demands within its service area inclusive of the Proposed Project in normal hydrologic years and dry years. The shortfalls that are currently projected during dry years will be addressed through planned implementation of the City's 2020 WSCP.[4] In addition, as described herein and in the City's 2020 UWMP, the City, BAWSCA, and SFPUC are pursuing the development of additional water supplies and mitigation measures to improve the RWS and local supply reliability.

1.2 WSA Approval

Approval of this WSA by the Burlingame City Council is not equivalent to approval of the development project for which the WSA is prepared. A WSA is an informational document required to be prepared for use in the City's environmental review of a project under the California Environmental Quality Act (CEQA). Furthermore, this WSA does not verify the adequacy of existing distribution system capacity to serve the Proposed Project.

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[2] The California Code of Regulations Title 23, Chapter 2.7, Appendix D can be found online here.
[3] A list of LEED credits for water efficiency is available at https://www.usgbc.org/credits?Category=%22Water+efficiency%22
[4] The City's 2020 WSCP is available at https://www.burlingame.org/document_center/Water/CityofBurlingame_2020_UWMP.pdf

2 GENERAL REQUIREMENTS FOR A WATER SUPPLY ASSESSMENT

The purpose of this section is to outline the types of projects that require the preparation of a WSA, who is responsible for preparation, and the necessary components of a WSA.

2.1 Applicability of California Water Code to the Project

As described in detail in Section 3, the Proposed Project meets the definition of "project" as defined in Water Code §10912(a) and §10912(e) because it includes a commercial office building employing more than 1,000 persons or having more than 250,000 sq ft of floor space.

2.2 Responsibility for Preparation of the Water Supply Assessment

The Proposed Project is located within the City's service area (**Figure 1**) and the water for the Proposed Project will be supplied by the City. Therefore, in accordance with Water Code §10910(b), the City is the entity responsible for preparation and adoption of a WSA for the Proposed Project.

2.3 Purpose of a Water Supply Assessment

Per Water Code §10910(c)(4), the primary purpose of a WSA is to evaluate whether sufficient water supply is available to meet all future demands within the water supplier's service area, including those associated with the Proposed Project, during normal and dry hydrologic years for a 20-year planning horizon.

3 PROJECT DESCRIPTION

The Proposed Project is located on 13 assessor's parcel numbers (APNs) 026-113-470, 026-113-330, 026-113-480, 026-113-450, 026-142-110, 026-142-220, 026-142-200, 026-142-240, 026-142-160, 026-142-020, 026-142-030, 026-142-170, and 026-142-180. The Proposed Project is bounded to the west by Old Bayshore Highway, to the south by Airport Boulevard, and to the east by the San Francisco Bay (**Figure 2**). The approximately 12-acre development includes three multi-story office and R&D buildings. The North Building includes 620,700 sq ft of office and R&D space, the Center Building includes 434,800 sq ft, and the South Building includes 359,500 sq ft, totaling approximately 1,415,000 sq ft office and R&D use for all three buildings, and 5,000 sq ft of restaurant space split between the South and Center Buildings. The Proposed Project also includes 1,180,200 sq ft of associated parking and 137,553 sq ft of landscaped area (ESA, 2023; DivcoWest, 2022; **Appendix A**). Construction will occur in three phases, with full buildout anticipated to be complete by 2027 (DivcoWest, 2022; **Appendix A**).

As shown on **Figure 2**, the Proposed Project site is currently occupied by existing commercial use buildings. These buildings house businesses such as professional offices, a hotel, an auto rental agency, and restaurants (ESA, 2022). Historical water use at the site ranged between 3.4 to 6.5 million gallons per year (MGY) between 2017 and 2021 (City of Burlingame, 2023). The Proposed

Project is located within the City's service area and potable water service to the Proposed Project will be provided by the City.

4 PROJECT WATER DEMAND

The City has adopted green building standards and water efficient landscaping ordinances consistent with previous versions of the CalGreen building standards and the California MWELO and all new developments must comply with these efficiency standards. As discussed in Section 1, based on the uncertainty of future water supplies, the Proposed Project is highly recommended to implement the following water conservation measures to increase water resiliency:

1. Install purple piping in the frontage of the Proposed Project site for future recycled water usage;
2. Follow the Prescriptive Compliance Option of MWELO, see California Code of Regulations Title 23, Chapter 2.7, Appendix D;[5]
3. Install 100% WaterSense labeled products, as available; and
4. Under LEED certification, incorporate a minimum of four points under the Water Efficiency credit category.[6]

If these recommendations are found to be infeasible, the Proposed Project applicant may submit a technical analysis to the Public Works Director for review. For purposes of this analysis, these conservation measures are not considered in the calculations and assumptions provided herein.

As described below, average annual water demand for the Proposed Project was estimated based on: (1) information provided by the Proposed Project proponent in coordination with the City (DivcoWest, 2022; ESA, 2022; WRNS Studios, 2022; **Appendix A**); and (2) water demand factors identified in literature and other public sources for similar land uses. Total water demands include water used by the Proposed Project for office uses, R&D uses, restaurant uses, landscaping, and parking structure cleaning.

Table 1 includes a summary of the incremental water demand projections associated with the proposed land uses, in five-year increments through 2045. Full project buildout is anticipated to be achieved by 2027 (DivcoWest, 2022; **Appendix A**). **Table 1** also provides a summary of the land uses, unit water demand factors, and respective water demand associated with each land use.

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[5] The California Code of Regulations Title 23, Chapter 2.7, Appendix D can be found online here.
[6] A list of LEED credits for water efficiency is available at https://www.usgbc.org/credits?Category=%22Water+efficiency%22

4.1 City's Development Offset Program

In the City's 2020 UWMP, the City developed water consumption projections over the next 20 years for each customer class. These projections reveal a severe water shortage under the Bay-Delta Plan Amendment. Since the release of the 2020 UWMP, the City has received planning applications for new development projects that are required by CWC §10910-10915 to prepare WSAs. Water demands for some of these projects were included in the City's 2020 UWMP water demand projections and the City's 2022 water demand projections update (see Section 5.1). However, as the City received more large-scale planning applications, it became apparent that the projected water demands associated with those projects exceeded what was previously projected in the UWMP. As a result, the City has developed a Development Offset Program (Program) to show how future demands will be met through the implementation of citywide water conservation programs. The purpose of the Program is to ensure that the overall customer demand for water does not exceed available current or future supply under a range of hydrologic conditions, and to ensure the availability of water for residential, commercial, and other purposes for future water use in this service area. The City will require the project proponent to pay for water conservation programs to offset the demand overage.

4.2 Research & Development Use

The Proposed Project is not tenant-specific and may accommodate multiple tenants. Tenant improvements and usage within the buildings could range from a 100% R&D use to a 100% professional office use, or a combination thereof. This analysis conservatively assumes the 100% R&D use scenario, as R&D use has a higher water demand factor compared to that of office use; therefore, approximately 1,415,000 sq ft of R&D use is anticipated (DivoWest, 2022; ESA, 2023; **Appendix A**). It is noted that water use by R&D varies significantly based on the specific operations of the facility. In absence of specific information regarding facility water uses, the water demand for the R&D use is estimated based on a demand factor of 0.18 gallons per day per square foot (GPD/sq ft), based on information from the Draft Environmental Impact Report (EIR) for the Genentech Campus Master Plan Update, which represents a mix of laboratory, amenity, and office uses typical to an R&D campus (Genentech, 2019).[7] Based on the demand factor identified above, the total estimated R&D water use for the Proposed Project is estimated to be 93 MGY.

4.3 Restaurant Water Use

The Proposed Project includes approximately 5,000 sq ft of restaurant use (ESA, 2023). A water use factor of 0.068 GPD/sq ft from the US Energy Information Administration Commercial Buildings Energy Consumption Survey (CBECS, 2012) is used to calculate the water demand associated with restaurant use. The resultant restaurant water demand by full buildout is estimated to be 0.12 MGY.

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[7] The R&D demand factor was calculated by dividing the total water use of the Genentech campus in 2016 by the total area of the campus, which includes associated laboratory, office, and other ancillary uses typical of a R&D campus, to estimate demand per area.

4.4 Parking Structure Water Use

The Proposed Project includes two multi-story parking structures, totaling approximately 1,180,200 sq ft parking (DivcoWest, 2022; **Appendix A**). Water use associated with this space is anticipated to be minimal, limited to cleaning of the facility. For purposes of this WSA, it is assumed that the garage will be cleaned 12 times per year and that 0.02 gallons per sq ft will be used per each cleaning event (City of Los Angeles Bureau of Engineering, 2012). Thus, it is estimated that 0.28 MGY will be used for the purpose of cleaning the parking garage.

4.5 Outdoor Water Use

Per DivcoWest, the Proposed Project includes a total of 137,553 sq ft of landscaped area (**Appendix B**). As shown in **Table 2**, irrigated landscape water use was calculated based on the Maximum Applied Water Allowance (MAWA) per the City's Water Conservation in Landscape Ordinance (City of Burlingame, Water Conservation in Landscape Ch 18.17).[8] Based on this methodology, it is estimated that the total irrigated landscape water use for the Proposed Project will be 1.6 MGY.[9]

4.6 Total Project Water Demand

Historical water use for the current land use at the Proposed Project site over the last five years (i.e., 2017 – 2021) ranged between 3.4 and 6.5 MGY, and averaged 5.2 MGY (City of Burlingame, 2023). Thus, based on the above methodologies and assumptions, and adjusting for the existing water use at the site, the incremental water demand associated with the Proposed Project at full buildout and occupancy is estimated to be 90 MGY, as shown in **Table 1**. However, as discussed in Sections 4.1 and 5.1, in accordance with the City's Development Offset Program, the Proposed Project is expected to pay a Development Offset Fee that will be used to fund expanded customer conservation programs as well as accelerated water supply and water efficiency projects to offset a portion of the Proposed Project's water demand. Therefore, the Proposed Project is not expected to result in a net increase in the City's water demands beyond those projected in the City's 2020 UWMP water demand projections and the City's 2022 water demand projections update.

5 CITY OF BURLINGAME WATER DEMAND

Consistent with the UWMP Act (Water Code §10610-10656), the 2020 UWMP for the City presents estimates of projected future water demand for the City's service area in five-year increments, between the years 2025 and 2045 (City of Burlingame, 2021).

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[8] The City of Burlingame Municipal Code is available at
https://library.qcode.us/lib/burlingame_ca/pub/municipal_code/item/title_18-chapter_18_17-18_17_090

[9] MAWA demands were calculated by multiplying the Reference Evapotranspiration rate of 42.8 inches per year for Redwood City, an Evapotranspiration Adjustment Factor of .45 for non-residential areas, a conversion factor of .62, and the total project square footage, for a total of 1.6 MG.

5.1 Review of Project's Inclusion in 2020 UWMP Growth Projections

The City's 2020 UWMP demand projections account for growth projected within the City's 2019 General Plan (City of Burlingame, 2019). In 2022, the City conducted an update to its water demand projections using its Demand Management Decision Support System Model (DSS Model) to incorporate the additional residential water demand associated with the Regional Housing Needs Allocation (RHNA; ABAG, 2022) and the City's ongoing Housing Element update. The DSS Model projects the City's Commercial, Industrial and Institutional (CII) demand to be 502 MGY by 2030 and 618 MGY by 2045 (**Table 3**).

When considered with the demands of other recently approved and planned WSAs described in Section 5.4, the cumulative demand of the two most-recently proposed projects (i.e., the 1200-1340 Old Bayshore Highway project for which this WSA is being prepared and the 1499 Old Bayshore Highway project [1499 project]) is 9 MGY more than the City's projected CII demands for the year 2030 (**Table 3**).[10] Based on the proportional water demand of the two most-recently proposed projects,[11] the Proposed Project is responsible for 84% of the 9 MGY overage and the 1499 project is responsible for the remaining 16%.

As discussed in Section 7, the City has sufficient supplies for the additional 9 MGY of demand of the two most-recently proposed projects in normal years but not during single or multiple dry years with implementation of the Bay-Delta Plan Amendment. The worst-case shortfall shown in the 2020 UWMP is anticipated for a multiple dry year drought starting in 2045. In this scenario, the City would experience up to a 53.3% shortfall without the demand associated with the two most-recently proposed projects. Adding 9 MGY to this water demand would create an additional 0.3% shortfall (for a total shortfall of 53.6%), which the City has determined can be mitigated with an additional 4.2 MGY of supply or a reduction of 4.2 MGY in demand.[12]

In 2020, BAWSCA completed the Regional Water Demand and Conservation Projections Project (Demand Study; BAWSCA, 2020). This regionwide effort developed water demand and conservation projections through 2045 for each BAWSCA member agency. This Demand Study estimated that the City could achieve 56 MGY of water savings by 2045 through the implementation of water conservation measures listed in Appendix F of the Demand Study. The study also provided cost estimates for implementing conservation measures which would cost a

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[10] For the year 2030, the City is projecting a growth in CII demand of 142 MGY from the City's current (FY 2019-2020) demand. The Proposed Project along with other planned developments in the City result in a combined CII demand of 151 MGY, which is 9 MGY above the City's projected CII growth in 2030.

[11] Projected water demand for the 1499 project is approximately 17 MGY (EKI, 2023).

[12] In the worst-case scenario, the City's projected water demand without the Proposed Project and the 1499 project is 1,697 MGY and projected supply is 792 MGY, which results in a 53.3% shortfall that will be addressed through implementation of the City's 2020 WSCP. The City's projected water demand inclusive of the Proposed Project and the 1499 project is 1,706 MGY, which increases the total shortfall by 0.3% to 53.6%. To mitigate the additional 0.3% shortfall, the project proponents are responsible for either providing an additional 4.2 MGY of supply (total supply of 796.2 MGY will result in the same 53.3% shortfall) or reducing 4.2 MGY of demand (total demand of 1,701.8 MGY will result in the same 53.3% shortfall).

total of $3.5 million (in 2023 dollars) to achieve 56 MGY of water savings (or $62,500/MGY). Therefore, applying the same cost assumptions ($62,500/MGY), it is estimated that mitigating 4.2 MGY of demand would cost approximately $270,000. This WSA assumes that the cost of conservation will be proportionately split between the two projects that currently exceed the UWMP projections, which will require the Proposed Project to be responsible for 84% of the cost (i.e., a single payment of $226,800) and the 1499 project to be responsible for 16% of the cost (i.e., a single payment of $43,200). This Developer Offset Fee will be used by the City to fund customer conservation programs as well as accelerate development of water supply and water efficiency projects.

With implementation of the Developer Offset Fee, the Proposed Project will mitigate its impact on the City's demand and supply reliability. As a result, the Proposed Project is not anticipated to result in an increase in demands or decrease in supply reliability for the City relative to those projected in the City's 2020 UWMP and the City's 2020 water demand projections update. All other new developments that are expected to result in a net demand increase on the City's projected demands will also be required to comply with the Program and thus will result in no additional impact on the City's water demand and supply reliability. As noted above, the findings of this WSA are contingent upon compliance with this Program.

5.2 Current and Historical Water Demand Within the City of Burlingame Service Area

Historical water demand within the City service area from fiscal years 2005 through 2022 is summarized in **Table 4** (City of Burlingame, 2016; 2021; 2022). Total City water demand has decreased by approximately 28% between 2005 and 2022 and averaged 1,238 MGY over the past five years, i.e., from 2018 through 2022. Water use from 2005 to 2008 within the City remained fairly consistent, at an average of 1,634 MGY. Water demand decreased approximately 13% between 2008 and 2010, which generally corresponds with the 2007 to 2009 drought and the economic downturn. Then, a significant drop in water demand occurred between 2014 and 2016, corresponding to the recent historic drought and mandatory state-wide water use restrictions and water conservation targets. Since 2016, water use has rebounded but has not returned to pre-drought levels.

The largest proportion of water demand within the City service area is from the single-family residential (SFR) sector, which represented 42% of the demand in the 2017-2021 period. The remainder of the demand is split between multi-family residential (MFR) (19% of overall demand), commercial (13% of the overall demand), industrial (12% of overall demand), losses (5.6% of overall demand), landscape (5.2% of overall demand), and institutional/governmental (2.8% of the overall demand) (City of Burlingame, 2021; 2022).

5.3 The City of Burlingame's Water Demand Projections

As part of this WSA, the City updated its water demand projections to reflect the City's ongoing Housing Element update and assigned RHNA development values. The RHNA anticipated allocation to the City is 3,257 residential units, which is a larger number of units than those projected in the City's 2019 General Plan and those incorporated in the City's 2020 UWMP. The

City is currently revising its Housing Element to accommodate its RHNA values. The updated demand values incorporating the City's RHNA, which include both passive and active conservation savings, are presented in **Table 5** in five-year increments. Also considering historical water use, expected population increase and other growth, climatic variability, and other assumptions, the water demand within the City is projected to increase to 1,697 MGY by 2045, an increase of approximately 28% compared to the 2018-2022 average.

5.4 Total Projected City of Burlingame Water Demand (Inclusive of Proposed Project)

Table 5 also shows the projected water demands for the City along with the estimated Proposed Project water demands. As shown, with the implementation of the City's Program, the Proposed Project will not increase the City's projected demand beyond those projected in the City's 2020 UWMP water demand projections and the City's 2022 water demand projections update.

The City approved three WSAs between 2022 and 2023 [13] wherein the City made the determination that the water demand for those projects had been accounted for in the City's demand projections. It is noted that the City recently prepared another WSA for the 1499 project. The findings of the 1499 project WSA are that the 1499 project is expected to result in a net increase on the City's projected demands, and thus will also be required to comply with Program to mitigate its impacts on the City's water demand and supply reliability.

6 THE CITY OF BURLINGAME'S WATER SUPPLY

This section identifies the City's water supply and discusses the vulnerability of the City's supply to drought and other factors affecting water supply reliability.

6.1 Identification of Water Supply Rights

Pursuant to Water Code §10910(d)(1), a WSA is required to include identification of all water supply entitlements, water rights, and water service contracts relevant to the identified water supply for the Proposed Project. In accordance with these requirements, this WSA includes a summary of the City's supply sources and the agreements between the City and its wholesale supplier, the SFPUC, and other parties. The primary source of this information is the City's 2020 UWMP and information provided by BAWSCA and SFPUC in support of the development of the SFPUC customer agencies' 2020 UWMPs.

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[13] The three WSAs approved in 2022/23 include the 620 Airport Boulevard project, the 777 Airport Boulevard project, and the 1669/1699 Bayshore Highway & 810/821 Malcolm Road project.

6.1.1 SFPUC Regional Water System

6.1.1.1 RWS Supply Sources and Allocation

As shown in **Table 6**, the singular source of water supply to the City is treated water purchased from the City and County of San Francisco's RWS, which is operated by the SFPUC (City of Burlingame, 2021).

The RWS supply originates predominantly from the Sierra Nevada but also includes treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo Counties. Approximately 85% of the RWS supply is from the Tuolumne River via the Hetch Hetchy Reservoir and aqueducts. The City's RWS supply is sourced from the remaining 15%, which is derived from local watersheds and the San Antonio, Calaveras, Crystal Springs, Pilarcitos, and San Andreas Reservoirs.

The business relationship between the City and County of San Francisco and its Wholesale Customers (including the City) is largely defined by the Water Supply Agreement[14] between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County, and Santa Clara County (Agreement) entered into in July 2009. The Agreement, which has a 25-year term, addresses water supply availability for the RWS as well as the methodology used by the SFPUC in setting wholesale water rates. This Agreement supersedes an earlier 25-year agreement signed in 1984, and was most recently amended in 2018 (SFPUC, 2018). The amendments included extending the deadline for SFPUC to decide whether to make San Jose and Santa Clara permanent customers, a revision to the drought allocation formula, and a deadline extension for completion of its Water Supply Improvement Plan, among other things.

The Agreement provides a 184 million gallons per day (MGD) Supply Assurance to the SFPUC's Wholesale Customers collectively (City of Burlingame, 2021). Each wholesale customer's share of the 184 MGD is referred to as their Individual Supply Guarantee (ISG). The City's ISG is 5.23 MGD, or approximately 1,909 MGY (City of Burlingame, 2021). Although the Agreement expires in 2034, the Supply Assurance and ISG continue in perpetuity as both are subject to separate binding water allocation agreements described above and would continue beyond the term of the Agreement. At expiration of the Agreement, it is likely that a new agreement will be entered into as was done at the termination of the prior 1984 agreement.

Information regarding the Agreement and subsequent amendments was provided by BAWSCA and SFPUC in support of 2020 UWMP development and is provided verbatim below.

> In the 2009 Water Supply Agreement, the SFPUC committed to make three decisions before 2018 that affect water supply development:

[14] Water Supply Agreement between the City and County of San Francisco and Wholesale Customers is available at https://bawsca.org/water/reliability

- Whether or not to make the cities of San Jose and Santa Clara permanent customers,
- Whether or not to supply the additional unmet supply needs of the Wholesale Customers beyond 2018, and
- Whether or not to increase the wholesale customer Supply Assurance above 184 MGD.

Events since 2009 made it difficult for the SFPUC to conduct the necessary water supply planning and CEQA analysis required to make these three decisions before 2018. Therefore, in the 2018 Amended and Restated Water Supply Agreement, the decisions were deferred for 10 years to 2028.

Additionally, there have been recent changes to instream flow requirements and customer demand projections that have affected water supply planning beyond 2018. As a result, the SFPUC has established an Alternative Water Supply Planning program to evaluate several regional and local water supply options. Through this program, the SFPUC will conduct feasibility studies and develop an Alternative Water Supply Plan by July 2023 to support the continued development of water supplies to meet future needs.

The City's current and projected purchase quantities are approximately equal to 1,271 MG in 2020 and 1,697 MG in 2045, respectively (City of Burlingame, 2021). Both current and projected quantities are less than the City's ISG of 1,909 MGY.

6.1.1.2 RWS Supply Reliability

The RWS has historically met demand in its service area in all year types. Factors that will affect future reliability of the RWS are discussed below. Detailed information regarding factors that impact the SFPUC RWS supply reliability are provided in the City's 2020 UWMP (City of Burlingame, 2021).

The water available to SFPUC's Retail and Wholesale Customers from the RWS is constrained by hydrology, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River (SFPUC, 2021). In addition, statewide regulations and other factors can impact the system reliability. For example, the adoption of the Bay-Delta Plan Amendment is anticipated to impact the reliability of the RWS supplies in the future.

If the current Bay-Delta Plan Amendment (July 2018) is implemented, the proposed unimpaired flow volumes would significantly reduce water supply available through the RWS during future drought condition. The City would be required to reduce their water use by as much as 53% during multi-year droughts (City of Burlingame, 2021) if no new additional imported or local supplies are developed by the SFPUC or the Wholesale Customers.

In support of 2020 UWMP development, SFPUC provided a detailed discussion of the factors contributing to the significant uncertainties surrounding the Bay-Delta Plan Amendment. This discussion is excerpted below:

In December 2018, the State Water Resources Control Board (SWRCB) adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment) to establish water quality objectives to maintain the health of the Bay-Delta ecosystem. The SWRCB is required by law to regularly review this plan. The adopted Bay-Delta Plan Amendment was developed with the stated goal of increasing salmonid populations in three San Joaquin River tributaries (the Stanislaus, Merced, and Tuolumne Rivers) and the Bay-Delta. The Bay-Delta Plan Amendment requires the release of 30-50% of the "unimpaired flow"[15] on the three tributaries from February through June in every year type. In SFPUC modeling of the new flow standard, it is assumed that the required release is 40% of unimpaired flow.

If the Bay-Delta Plan Amendment is implemented, the SFPUC will be able to meet the projected water demands presented in this Urban Water Management Plan (UWMP) in normal years but would experience supply shortages in single dry years or multiple dry years. Implementation of the Bay-Delta Plan Amendment will require rationing in all single dry years and multiple dry years. The SFPUC has initiated an Alternative Water Supply Planning Program (AWSP) to ensure that San Francisco can meet its Retail and Wholesale Customer water needs, address projected dry years shortages, and limit rationing to a maximum 20 percent system-wide in accordance with adopted SFPUC policies. This program is in early planning stages and is intended to meet future water supply challenges and vulnerabilities such as environmental flow needs and other regulatory changes; earthquakes, disasters, and emergencies; increases in population and employment; and climate change. As the region faces future challenges – both known and unknown – the SFPUC is considering this suite of diverse non-traditional supplies and leveraging regional partnerships to meet Retail and Wholesale Customer needs through 2045.

The SWRCB has stated that it intends to implement the Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, assuming all required approvals are obtained by that time. But implementation of the Plan Amendment is uncertain for multiple reasons.

First, since adoption of the Bay-Delta Plan Amendment, over a dozen lawsuits have been filed in both state and federal courts, challenging the SWRCB's adoption of the Bay-Delta Plan Amendment, including a legal challenge filed by the federal government, at the request of the U.S. Department of Interior, Bureau of Reclamation. This litigation is in the early stages and there have been no dispositive court rulings as of this date.

Second, the Bay-Delta Plan Amendment is not self-implementing and does not automatically allocate responsibility for meeting its new flow requirements to the SFPUC

[15] "Unimpaired flow represents the natural water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds." (Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Dec. 12, 2018) p.17, fn. 14, available at: https://www.waterboards.ca.gov/plans_policies/docs/2018wqcp.pdf.)

or any other water rights holders. Rather, the Bay-Delta Plan Amendment merely provides a regulatory framework for flow allocation, which must be accomplished by other regulatory and/or adjudicatory proceedings, such as a comprehensive water rights adjudication or, in the case of the Tuolumne River, may be implemented through the water quality certification process set forth in section 401 of the Clean Water Act as part of the Federal Energy Regulatory Commission's licensing proceedings for the Don Pedro and La Grange hydroelectric projects. It is currently unclear when the license amendment process is expected to be completed. This process and the other regulatory and/or adjudicatory proceedings would likely face legal challenges and have lengthy timelines, and quite possibly could result in a different assignment of flow responsibility (and therefore a different water supply impact on the SFPUC).

Third, in recognition of the obstacles to implementation of the Bay-Delta Plan Amendment, the SWRCB Resolution No. 2018-0059 adopting the Bay-Delta Plan Amendment directed staff to help complete a "Delta watershed-wide agreement, including potential flow measures for the Tuolumne River" by March 1, 2019, and to incorporate such agreements as an "alternative" for a future amendment to the Bay-Delta Plan to be presented to the SWRCB "as early as possible after December 1, 2019." In accordance with the SWRCB's instruction, on March 1, 2019, SFPUC, in partnership with other key stakeholders, submitted a proposed project description for the Tuolumne River that could be the basis for a voluntary substitute agreement with the SWRCB ("March 1st Proposed Voluntary Agreement"). On March 26, 2019, the Commission adopted Resolution No. 19-0057 to support the SFPUC's participation in the Voluntary Agreement negotiation process. To date, those negotiations are ongoing under the California Natural Resources Agency and the leadership of the Newsom administration.[16,17]

The City's 2020 UWMP further summarized the current sources of uncertainty regarding RWS dry year water supply projections. This discussion is excerpted (with minor refinements) below:

- *Benefits of the AWSP are not accounted for in current supply projections.* As discussed above, SFPUC is exploring options to increase its supplies through the AWSP. Implementation of feasible projects developed under the AWSP is not yet reflected in the supply reliability scenarios presented herein and is anticipated to reduce the projected RWS supply shortfalls.
- *Methodology for Tier One and Tier Two Wholesale drought allocations have not been established for wholesale shortages greater than 20%.* As discussed further in Section 6.1.1.4 of this WSA, the current Tier One and Tier Two Plans are not designed for RWS supply shortages of greater than 20%. For UWMP planning purposes per BAWSCA

[16] California Natural Resources Agency, "Voluntary Agreements to Improve Habitat and Flow in the Delta and its Watersheds," available at https://files.resources.ca.gov/voluntary-agreements/.
[17] As of 29 October 2021, state regulators announced that the Voluntary Agreement negotiations process has ceased, with no agreement reached. San Francisco Chronicle, "California Drought: Key Talks Over Water Use Break Down, SF May Face Tighter Regulation," available at https://www.sfchronicle.com/sf/article/California-drought-Key-talks-over-water-use-16576132.php

guidance, the Tier One Wholesale share for a 16% to 20% supply reduction (62.5%) has been applied for reductions greater than 20% and an equal percent reduction has been applied across all Wholesale Customers. BAWSCA member agencies have not formally agreed to adopt this shortage allocation methodology and are in discussions about jointly developing an alternative allocation method that would consider additional equity factors if SFPUC is unable to deliver its contractual supply volume and cutbacks to the RWS supply exceed 20%.

- *RWS demands are subject to change.* The RWS supply availability is dependent upon the system demands. The supply scenarios are based on the total projected Wholesale Customer purchases provided by BAWSCA to SFPUC in January 2021. Many BAWSCA agencies have refined their projected demands during the UWMP process after these estimates were provided to SFPUC. Furthermore, the RWS demand projections are subject to change in the future based upon future housing needs, increased conservation, and development of additional local supplies.
- *Frequency and duration of cutbacks are also uncertain.* While the projected shortfalls presented in the UWMP appear severe with implementation of the Bay-Delta Plan Amendment, the actual frequency and duration of such shortfalls are uncertain. Based on the Hetch Hetchy and Local Simulation Model (HHLSM) simulations provided by BAWSCA for the Bay-Delta Plan Amendment scenario, rationing is anticipated to be required 20% of years for base year 2025 through 2035, 23% of all years for base year 2040, and 25% of years for base year 2045. In addition to the supply volumes, the above listed uncertainties would also impact the projected frequency and duration of shortfalls.
- *Voluntary agreement may be reached.* The SFPUC 2020 UWMP discussed that the implementation of the Bay-Delta Plan Amendment was under negotiation, through Voluntary Agreement negotiations between SFPUC, in partnership with other key stakeholders, and SWRCB. In November 2022, SFPUC, along with Governor Newsom's senior water policy officials and the Modesto and Turlock Irrigation Districts, reached an agreement on a Memorandum of Understanding (MOU) with an eight-year term. The MOU includes, among other things, protection of water supplies for RWS customers, as well as a commitment by the Tuolumne River parties for new flows in the Tuolumne River to benefit native fish species that are in addition to the current requirements. The MOU also provides that pending litigation concerning the adopted 2018 Bay-Delta Plan Amendment will be the subject of future negotiations.

Regardless of the recent progress made through the November 2022 MOU, a Voluntary Agreement has yet to be approved by the SWRCB as an alternative to the Bay-Delta Plan Amendment, and shortages and supply cutback values associated with this alternative are unknown. Despite this uncertainty, the relative degree of shortfall associated with the Voluntary Agreement is assumed to be less than under the Bay-Delta Plan Amendment, as further explained in a recently approved SFPUC WSA (SFPUC, 2022b):

> *However, given that the objectives of the Voluntary Agreement are to provide fishery improvements while protecting water supply through flow and non-flow measures, the RWS supply shortfalls under the Voluntary Agreement would be less than those under the*

> *Bay-Delta Plan Amendment, and therefore would require water use reductions of a lesser degree. The degree of water use reduction would also more closely align with the SFPUC's RWS* [Level of Service] *LOS goal of limiting water use reduction to no more than 20% on a system-wide basis in drought years.*

There are currently over a dozen active lawsuits challenging the SWRCB's adoption of the Bay-Delta Plan Amendment. This litigation is in the early stages and there have been no dispositive court rulings as of this date. This is a dynamic situation and the projected drought cutback allocations may need to be revised before the next (i.e., 2025) UWMP process depending on court decisions and/or an adopted implementation policy.

Per the above, numerous uncertainties remain surrounding the implementation of the Bay-Delta Plan Amendment. The water supply projections presented in SFPUC's 2020 UWMP likely represent a worst-case scenario in which the Bay-Delta Plan Amendment is implemented as written and do not account for implementation of SFPUC's AWSP or a Voluntary Agreement. Additional information regarding drought allocations can be found in Section 8 of the SFPUC 2020 UWMP, and additional information regarding water service reliability and drought risks can be found in Chapter 7 of the City's 2020 UWMP.

6.1.1.3 Efforts to Increase RWS Supply Reliability

On June 2, 2021, the SFPUC released a memorandum which outlines numerous options the SFPUC is pursuing to improve the supply reliability projected in its 2020 UWMP and meet its Level of Service (LOS) Goals. This memorandum is included as **Appendix C**. Furthermore, the SFPUC's Water Supply Improvement Program (WSIP) and its Water Management Action Plan (Water MAP) articulate the SFPUC's goals and objectives to improve the delivery reliability of the RWS, including water supply reliability.

The WSIP program goal is to improve the SFPUC's ability to reliably meet its Retail and Wholesale Customers water needs in non-drought and drought periods. In 2008, the SFPUC adopted LOS Goals and Objectives in conjunction with the adoption of the WSIP. The SFPUC's LOS Goals and Objectives include: (a) meeting average annual water demand of 265 MGD from the SFPUC watersheds for Retail and Wholesale Customers during non-drought years for system demands through 2028; (b) meeting dry-year delivery needs through 2028 while limiting rationing to a maximum 20% system-wide reduction in water service during extended droughts; (c) diversifying water supply options during non-drought and drought periods; and (d) improving use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers (SFPUC, 2018). The anticipated completion date of the overall WSIP is May 2023. As of 31 December 2021, WSIP local projects are 100% complete and regional projects are 98.9% complete (SFPUC, 2022a).

The SFPUC also developed a Water MAP in 2016 to provide the information necessary to begin developing a water supply program for the 2019 to 2040 planning horizon. The SFPUC intends that the Water MAP will guide its efforts to continue to meet its commitments and responsibilities to its customers, including the BAWSCA member agencies (BAWSCA, 2017). The Water MAP was developed with consideration of the 2018 SFPUC's supply decisions (now postponed to 2028; as discussed above), as well as recent changes to instream flow requirements and customer demand projections. The Water MAP has identified water supply needs on the RWS by 2040 and prioritized those needs in the following order:

1. Meeting existing obligations to existing permanent customers (3.5 MGD).
2. New supply in order to make the City of San Jose a permanent customer of the SFPUC (Up to 9.5 MGD).
3. New supply in order to make the City of Santa Clara a permanent customer of the SFPUC (Up to 5.0 MGD).
4. New supply to meet the City of East Palo Alto's projected needs above its ISG (Up to 1.5 MGD).

Through implementation of its Long-Term Water Supply Reliability Strategy (LTWRS), BAWCSA is also actively evaluating opportunities to increase the supply reliability of the RWS (BAWSCA, 2015). The strategy includes short- and long-term implementation plans including water supply management projects that could be implemented to meet identified needs. Potential projects include recycled water projects, desalination projects, water transfer projects, and local capture and reuse projects.

6.1.1.4 RWS Water Shortage Allocations

The Agreement includes a Water Shortage Allocation Plan (WSAP) that allocates water from the RWS to Retail and Wholesale Customers during system-wide shortages of 20% or less. As described in detail in the City's 2020 UWMP, the WSAP has two components:

1. The Tier One Plan, which allocates water between San Francisco and the Wholesale Customers collectively; and
2. The Tier Two Plan, which allocates the collective wholesale customer share among the Wholesale Customers.

We note that the dry year supply reliability projections provided herein under the Scenario 1 (Section 6.2) are obtained from the City's 2020 UWMP based on application of BAWSCA-provided revised methodology to allocate RWS supplies during projected future single dry and multiple dry years in the instance where the supply shortfalls are greater than 20%. However, BAWSCA member agencies are in discussions about jointly developing an allocation method that would consider additional equity factors in the event that SFPUC is not able to deliver its contractual supply volume, and its cutbacks to the RWS supply exceed 20%. The City is working independently and with the other BAWSCA agencies to identify regional measures to improve reliability for regional and local water supplies and meet its customers' water needs.

6.1.2 Groundwater Supply

Historically, the City has not utilized groundwater as a drinking source and does not expect to utilize groundwater as a regular potable or non-potable water source in the future. More information regarding the City's historical groundwater usage and underlying groundwater basin is provided in Section 6.2 of the City's 2020 UWMP (City of Burlingame, 2021).

6.2 Total Potable Supply in Normal, Single Dry, and Multiple Dry Years

The projected potable water supply source to the City, as described above, is surface water purchased from the RWS. Given the numerous uncertainties surrounding the implementation of the Bay-Delta Plan Amendment discussed above, this WSA analyzes water supply reliability through 2045 under three scenarios:

1. **Scenario 1**. Implementation of the Bay-Delta Plan Amendment as presented in the City's 2020 UWMP. This scenario likely represents a worst-case scenario in which the Bay-Delta Plan Amendment is implemented as written and does not account for implementation of SFPUC's AWSP.
2. **Scenario 2**. No implementation of the Bay-Delta Plan Amendment based on information provided by SFPUC and BAWSCA included in Appendix F of the City's 2020 UWMP.
3. **Scenario 3**. Implementation of the Voluntary Agreement based on the assumption that demand will not be curtailed beyond the SFPUC LOS goal to not exceed 20% system-wide rationing as result of implementation of the Voluntary Agreement under negotiation.

A discussion of each scenario, along with the projected supplies and demands for the City under normal, single dry, and multiple dry year conditions, is presented below.

6.2.1 Scenario 1: Implementation of the Bay-Delta Plan

As discussed above, this scenario likely represents a worst-case scenario where the Bay-Delta Plan is implemented as written. BAWSCA provided a revised methodology to allocate RWS supplies during projected future single dry and multiple dry years in the instance where the supply shortfalls are greater than 20% in support of 2020 UWMP development. However, BAWSCA member agencies are in discussions about jointly developing an allocation method that would consider additional equity factors in the event that SFPUC is not able to deliver its contractual supply volume, and its cutbacks to the RWS supply exceed 20%.

As shown in **Table 7a**, during normal hydrologic years, the City is expected to meet all projected demands, which are estimated to be 1,697 MG by 2045. During single dry years, the annual supply within the City's service area under this scenario will be reduced to 929 MG by 2045. Supply shortfalls relative to total demands during single dry years are estimated to range between 34% in 2025 and 45% in 2045.

During multiple dry years, the City's 2020 UWMP estimates that annual supply within the City's service area will be reduced to 981 MG in 2025 during the first year of a drought, and 843 MG in the second, third, fourth, and fifth years of drought. The City's 2020 UWMP further estimates that in 2045, annual supply will be reduced to 929 MG during the first three years of a drought, and 792 MG in fourth and fifth years of drought. Supply shortfalls relative to total demands are estimated to range between 34% during the first year of a drought in 2025 to 53% during the fifth year of a drought in 2045 (see **Table 7b**).

If the “worst-case” supply scenario described under Section 6.1.1.2 in which the Bay-Delta Plan Amendment is implemented as written, and not accounting for the implementation of actions identified as part of SFPUC’s AWSP, BAWSCA’s Long-Term Water Supply Reliability Strategy, shortfalls of up to 53% are projected during drought years. To address this issue, the City plans to enact its WSCP, which includes Mandatory Staged Restrictions of Water Use. The WSCP systematically identifies ways in which the City can reduce water demands during dry years. The overall reduction goals in the WSCP are established for six drought stages and address water demand reductions over 50%. For example, if supply shortfalls amount to 53% or 905 MG per year (“worst-case” scenario under Scenario 1), then the City would implement Shortage Level 6 of the WSCP for shortages over 50% (see Section 8 and Appendix I of the City’s 2020 UWMP) in order to ensure demand is met. The City’s WSCP was revised as part of the City’s 2020 UWMP update process and includes detailed information about how drought risks are evaluated by the City on an annual basis to determine the potential need for reductions. The City may choose to implement tiered allocation rationing to achieve the required level of water use reductions, as described further in Section 7.

6.2.2 Scenario 2: Without Implementation of the Bay-Delta Plan Amendment

This scenario represents the supply outlook for the City without implementation of the Bay-Delta Plan Amendment. Under this scenario, all BAWSCA member agencies would be allocated 100% of their contractual supply volume during single and multiple dry years up through the third year of a multi-year drought in 2045, at which point the members would be subject to their Tier Two drought cutbacks.

As shown in **Table 8a**, during normal hydrologic years and single dry years, the City is expected to meet all projected demands, which are estimated to be 1,697 MG by 2045. During multiple dry years, the City is expected to have sufficient supply to meet projected demands through the third year of a multi-year drought in 2045 (see **Table 8b**). During the fourth and fifth years of a multi-year drought in 2045, supplies would be reduced to 1,455 MG, resulting in supply shortfalls of 14%. These shortfalls would be addressed through implementation of the City’s WSCP.

6.2.3 Scenario 3: Implementation of the Voluntary Agreement

The March 1, 2019 Proposed Voluntary Agreement has yet to be accepted by SWRCB as an alternative to the Bay-Delta Plan Amendment and thus the shortages that would occur with its implementation are not known with certainty. However, given that the objectives of the Voluntary Agreement are to provide fishery improvements while protecting water supply through flow and non-flow measures, the RWS supply shortfalls under the Voluntary Agreement would be less than those projected under the Bay-Delta Plan Amendment, and therefore would require water use reductions of a lesser degree than that which would occur under Scenario 1.

It is anticipated that under this scenario, the City has sufficient water to meet all projected demands, including those of the Proposed Project, in normal years. It is expected that the degree of water use reduction during dry years would also more closely align with the SFPUC’s RWS LOS goal of limiting water use reduction to no more than 20% on a system-wide basis in drought years. The City will enact its WSCP to curtail demands and ensure that its supplies remain sufficient to serve all users, including the Proposed Project.

7 COMPARISON OF SUPPLY AND DEMAND

Pursuant to CWC §10910c(3), this WSA must include an estimate of the projected water supplies available to the City under normal, single dry, and multiple dry years, and a discussion of whether those supplies will meet the projected demand associated with the Proposed Project, in addition to the water system's existing and planned future uses. This assessment is parallel to the multiple-dry year supply reliability analysis required for UWMPs under CWC §10635. In 2018, CWC §10635 was revised to require UWMPs to extend this analysis to consider "a drought lasting five consecutive water years." Although CWC §10910(c)(3) has not yet been updated to require this for WSAs, a five-year drought scenario is also evaluated herein. However, as discussed in Section 5.1, based on the information received from the developer in the RFI (**Appendix A**), the Proposed Project is not expected to result in a net increase in water demands to the City relative to those projected in the City's 2020 UWMP water demand projections and the City's 2022 water demand projections update due to implementation of the City's Program.

7.1 Supply and Demand during Normal and Single Dry Years (All Scenarios)

It is projected that available water supplies will be sufficient to meet the demands under normal and single dry year hydrologic conditions through 2045 under all scenarios (see **Tables 7a** and **8a)** given that the Proposed Project is compliant with the requirements included in the City's Program.

7.2 Supply and Demand during Multiple Dry Years

1. Under Scenario 1, shortfalls of up to 53% are possible in drought periods representing, as discussed above, the "worst-case" supply scenario is realized in which the Bay-Delta Plan Amendment is implemented as written, and not accounting for implementation of SFPUC's AWSP. As discussed in Section 6.1.1.4, the City is working independently and with the other BAWSCA agencies to identify regional mitigation measures to improve reliability for regional and local water supplies and meet its customers' water needs. Thus, multiple dry year shortfalls would be expected to be lower than those shown in **Table 7b**.

2. Under Scenario 2, in which the Bay-Delta Plan Amendment is not implemented, the City will have sufficient supply to meet the demands in all year types through 2040 and would only anticipate a supply shortfall of 14% during the 4th and 5th year of a multi-year drought by 2045 as shown in **Table 8b**.

3. Under Scenario 3, it is anticipated that the degree of water use reduction during dry years would also more closely align with the SFPUC's RWS LOS goal of limiting water use reduction to no more than 20% on a system-wide basis in drought years. However, because negotiations of a Settlement Agreement are not complete, no values are available to explicitly model Scenario 3.

7.3 Rationing Implications to the Proposed Projects

As described in Section 6, in response to anticipated future dry-year shortfalls, the City has developed a WSCP that systematically identifies ways in which the City can reduce water demands during dry years. The overall reduction goals in the WSCP are established for six drought stages ranging from up to 10% to greater than 50% shortfalls.

While the levels of water use reduction apply to the entire City service area (i.e., up to 53% under Scenario 1 an up to 14% under Scenario 2), the City may allocate different levels of rationing to individual customers based on customer type (e.g., dedicated irrigation, single family residential, multifamily residential, commercial, etc.) to achieve the level of citywide rationing required to ensure demand is met. It is anticipated that the WSCP would include a tiered allocation approach that imposes lower levels of rationing on customers who use less water than similar customers in the same customer class and would require higher levels of rationing by customers who use more water. City staff expects that under a future WSCP adopted by the City Council, the allocation method or combination of methods that would be applied during water shortages caused by drought would similarly be subject to the discretion of the Public Works Director.

The City anticipates that, as a “worst-case” scenario under Scenario 1, the Proposed Project could be subject up to 53% rationing during a severe drought. In accordance with the WSCP, the level of rationing that would be imposed on the Proposed Project and all City customers would be determined at the time of a drought or other water shortage condition and cannot be established with certainty prior to the shortage event.

8 CONCLUSIONS

As listed in Water Code §10910I(4), the primary purpose of this WSA is to evaluate whether sufficient water supply is available to meet all future water demands within the water supplier’s service area, including those associated with the Proposed Project, during normal and dry hydrologic years for a 20-year time horizon.

This WSA concludes that, through implementation of the City’s Development Offset Program, the Proposed Project will not affect water supply reliability within the City beyond what has been projected, assuming actual water demands are within the projected water demands as calculated in Table 1. Based on currently available information, the City expects to be able to meet all future demands within its service area inclusive of the Proposed Project in normal hydrologic years and dry years. The shortfalls that are currently projected during dry years will be addressed through planned implementation of the City’s WSCP. In addition, as described herein and in the City’s 2020 UWMP, the City, BAWSCA, and SFPUC are pursuing the development of additional water supplies and mitigation measures to improve the RWS and local supply reliability.

Approval of this WSA by the Burlingame City Council is not equivalent to approval of the development project for which the WSA is prepared. A WSA is an informational document required to be prepared for use in the City's environmental review of a project under the CEQA. Furthermore, this WSA does not verify the adequacy of existing distribution system capacity to serve the Proposed Project.

9 REFERENCES

Association of Bay Area Governments (ABAG), 2022. Final Regional Housing Needs Allocation (RHNA) Plan: San Francisco Bay Area, 2023-2031, adopted December 2021, updated March 2022.

Bay Area Water Supply & Conservation Agency (BAWSCA), 2015. *Long-Term Reliable Water Supply Strategy, Phase II Final Report,* dated February 2015.

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BAWSCA, 2020. *Bay Area Water Supply & Conservation Agency's Regional Water Demand and Conservation Projections,* prepared by Maddaus Water Management, Inc., dated 26 June 2020.

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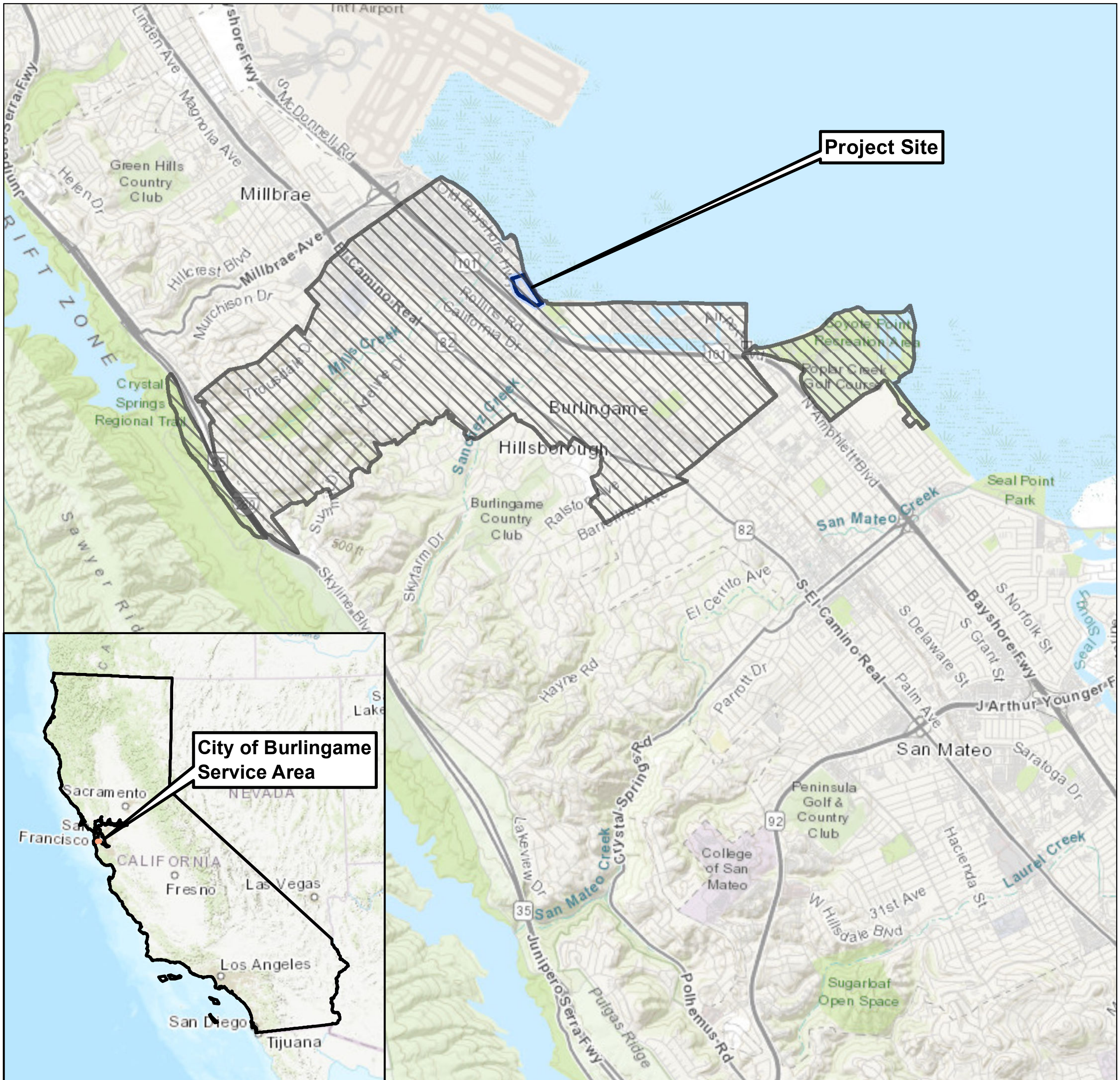
SFPUC, 2022a. WSIP Regional Projects Quarterly Report – 1st Quarter / Fiscal Year 2021-2022 https://sfpuc.org/sites/default/files/documents/Q1FY22_WSIP_Regional_Qtrly_Report.pdf, accessed 16 June 2022.

SFPUC, 2022b. Water Supply Assessment for the 395 3rd Street Project, prepared by SFPUC, dated 28 December 2022.



Legend

City of Burlingame Service Area

Project Boundary

N

0 1 2

(Scale in Miles)

Notes

1. All locations are approximate.

Sources

1. Basemap is ESRI's ArcGIS Online world aerial map, obtained 6 June 2023.

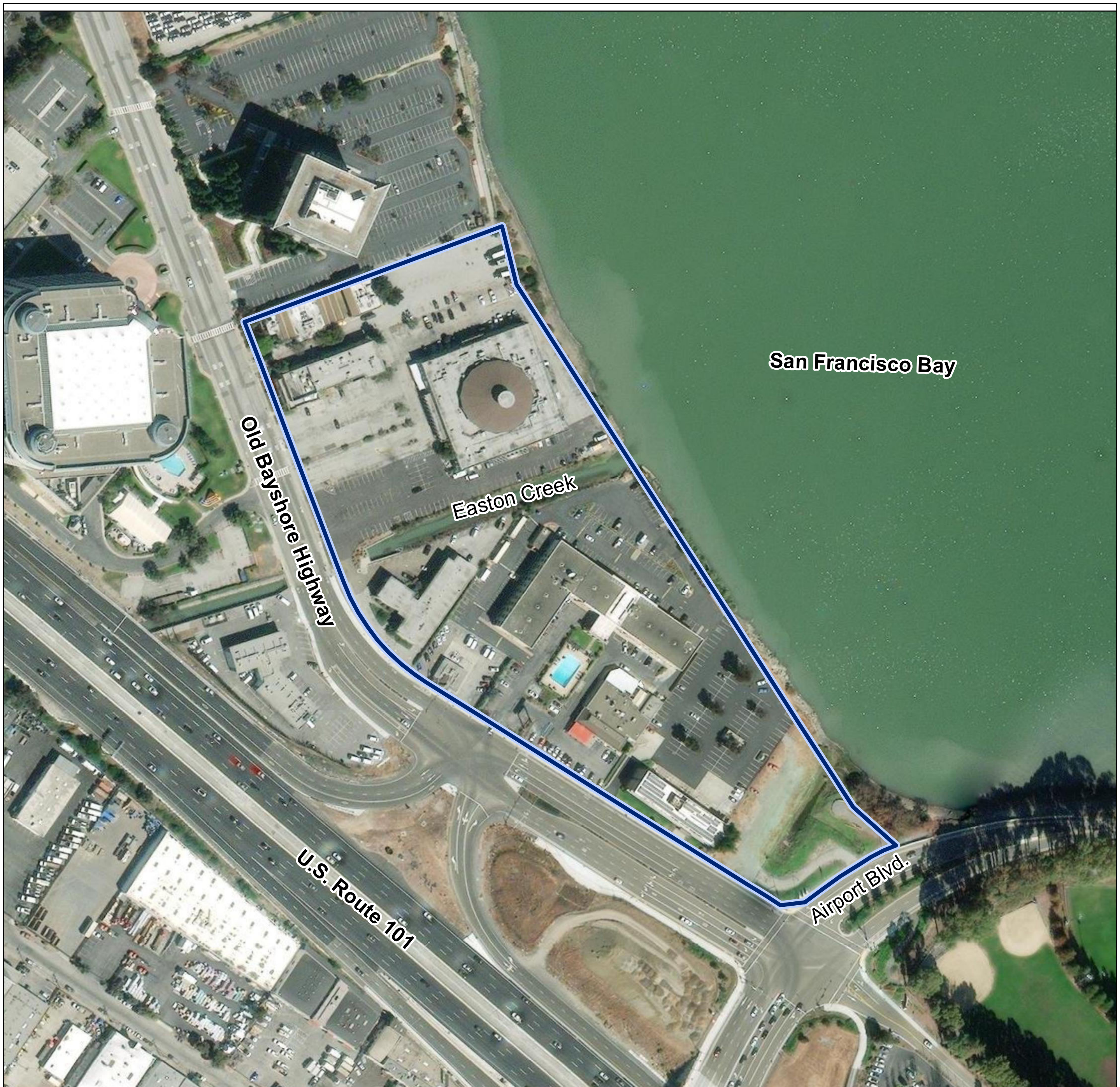
City of Burlingame
Service Area and Project Location

1200-1340 Old Bayshore Highway
Burlingame, CA
September 2023
EKI C20190.00

eki environment & water

Figure 1

Path: X:\C20190\.00\2023\06\Fig1_ServiceArea_2023_06_06.mxd



Legend

Project Boundary

N

0 250 500

Feet

Project Location

Notes
1. All locations are approximate.

Sources
1. Basemap is ESRI's ArcGIS Online world aerial map, obtained 6 June 2023.

1200-1340 Old Bayshore Highway
Burlingame, CA
September 2023
EKI C20190.00

eki environment & water

Figure 2

Path: X:\C20190\.00\2023\06\Fig2_ProjectLocation_2023_06_06.mxd

Table 1

Summary of Estimated Incremental Annual Project Water Demand

1200-1340 Old Bayshore Highway, Burlingame, California

Water Use	Area (sq ft) (a)	Demand Factor (b)	Demand Factor Units	Total Water Demand (MGY)				
				2025	**2030**	**2035**	**2040**	**2045**
R&D (c)	1,415,000	0.180	gpd/sq ft	0	93	93	93	93
Restaurant	5,000	0.068	gpd/sq ft	0	0.12	0.12	0.12	0.12
Irrigation (d)	137,553	--	--	0	1.6	1.6	1.6	1.6
Parking Garage (e)	1,180,200	0.020	gal/sq ft/cleaning	0	0.28	0.28	0.28	0.28
Existing Site Demand (f)	--	--	--	0	-5.2	-5.2	-5.2	-5.2
Net Annual Water Demand (g)				**0**	**90**	**90**	**90**	**90**

Abbreviations:

"gal" = gallon

"gpd/sq ft" = gallons per day per square foot

"MGY" = million gallons per year

"MWELO" = Model Water Efficient Landscape Ordinance

"R&D" = research and development

"sq ft" = square feet

"WSA" = Water Supply Assessment

Notes:

(a) Estimated square footage for the R&D, irrigation, and parking garage uses per Reference 1 and for the restaurant per Reference 2.

(b) The R&D demand factor was calculated by dividing the total water use of the Genentech campus, an R&D land use with similar water usage, in 2016 by the total area of the campus to estimate demand per area. Estimated demands for the R&D uses are per Reference 3 and for the restaurant per Reference 4.

(c) R&D space is assumed to comprise of both office and lab space that is part of an R&D site, along with potential amenities.

(d) Irrigation demands are calculated using the Maximum Allowable Water Allowance, per Reference 5. See Table 2.

(e) Water use associated with this space is anticipated to be minimal, limited to cleaning of the facility. For purposes of this WSA, it is assumed that the garage will be cleaned twelve times per year and that 0.02 gal/sq ft will be used per each cleaning event, per Reference 6.

(f) Existing site demands averaged over the years 2017-2022 per Reference 7. Existing demands are subtracted from total projected water demands to show the incremental increase in demands associated with the Project (i.e., the net increase in water demand).

(g) Total may not sum due to rounding.

References:

1. DivcoWest, 2022. Request for Information Form, provided by DivcoWest on 9 December 2022.
2. ESA, 2023. Information provided by ESA, received on 18 January 2023.
3. Genentech Campus Master Plan Update Draft Environmental Impact Report, Prepared by Lamphier-Gregory, dated October 2019.
4. US Energy Information Administration 2012 Commercial Buildings Energy Consumption Survey: Water Consumption in Large Buildings Summary.
5. California Code of Regulations, Title 23, Division 2, Chapter 2.7, Model Water Efficient Landscape Ordinance, 29 September 2020.
6. City of Los Angeles Bureau of Engineering, 2012. City of Los Angeles Bureau of Engineering, City of Los Angeles Bureau of Sanitation, Sewer Generation Rates Table, dated 6 April 2012.
7. City of Burlingame, 2023. Information provided by the City of Burlingame, received on 17 January 2023.

Table 2

Estimated Landscaping Water Use

1200-1340 Old Bayshore Highway, Burlingame, California

Landscaping Land Use	**Area of Land Use (ac) (a)**	[B] **Annual Reference Evapotranspiration Rate (in) (b)**	[C] **Evapotranspiration Adjustment Factor (ETAF) (c)**	[D] **Maximum Applied Water Allowance (MAWA) (MGY) D = A * B * C (d)**	**Estimated Water Use (MGY)**
Non-Residential Landscaped Area	3.16	42.8	0.45	1.6	**1.6**

Abbreviations:
"ac" = acre
"ETAF" = Evapotranspiration Adjustment Factor
"in" = inches
"MAWA" = Maximum Applied Water Allowance
"MGY" = million gallons per year

Notes:
(a) Total landscaped area per Reference 1.
(b) Annual reference evapotranspiration rate for the Redwood City region per Reference 2.
(c) The ETAF is 0.45 for non-residential areas.
(d) The MAWA calculations are described in Reference 3.

References:

1. DivcoWest, 2022. Information provided by DivcoWest, recieved on 9 December 2022.
2. California Department of Water Resources, 2012. California Irrigation Management Information System Reference Evapotranspiration Zones, January 2012.
3. California Code of Regulations, Title 23, Division 2, Chapter 2.7, Model Water Efficient Landscape Ordinance, 29 September 2020.

Table 3

Projected CII Demands for the City of Burlingame

1200-1340 Old Bayshore Highway, Burlingame, California

Water Demand	Projected Demand (MGY)				
	2025	**2030**	**2035**	**2040**	**2045**
Existing CII Demand (a)	360	360	360	360	360
Proposed Project Demand	0	90	90	90	90
Other Planned Developments' Demand (b)	29	62	62	62	62
777 Airport Boulevard	*17*	*17*	*17*	*17*	*17*
1669/1699 Old Bayshore Highway & 810/821 Malcolm Road	*4.2*	*4.2*	*4.2*	*4.2*	*4.2*
620 Airport Boulevard	*0*	*24*	*24*	*24*	*24*
1499 Old Bayshore Highway	*9*	*17*	*17*	*17*	*17*
Total Estimated CII Demands (c)	389	511	511	511	511
Projected CII Demand (d)	467	502	539	578	618
Remaining City CII Growth with Proposed Project and Other Planned Developments (e)	**78**	**-9**	**27**	**67**	**106**

Abbreviations:

"CII" = commercial, industrial, institutional

"City" = City of Burlingame

"DSS Model" = Demand Management Decision Support System Model

"FY" = fiscal year

"MGY" = million gallons per year

"Proposed Project" = 1200-1340 Old Bayshore Highway

Notes:

(a) Existing CII demand is the City's current (FY 2020) CII demand.

(b) The demands associated with the 777 Airport Boulevard Project are per Reference 2, the 1669/1699 Old Bayshore Highway & 810/821 Malcolm Road Project per Reference 3, the 620 Airport Boulevard Project per Reference 4, and the 1499 Old Bayshore Highway Project per Reference 5. Projected demands associated with developments other than the Proposed Project and the 1499 Old Bayshore Highway Project are considered in the projected City CII growth.

(c) Total estimated CII demands are the sum of existing CII demand, Proposed Project demand, and other planned developments' demands. Totals may not sum due to rounding.

(d) The City's projected CII demand is per Reference 1.

(e) Remaining City CII growth is the difference between the Projected City CII Demand and the Total Estimated CII Demand. The resulting difference may differ due to rounding. A negative value indicates demands above the City's projected CII growth, whereas a positive value indicates the remaining CII demand within the City's growth projections. Projected demands above the City's growth projections will be addressed and mitigated by the City's Development Offset Program.

Table 3

Projected CII Demands for the City of Burlingame

1200-1340 Old Bayshore Highway, Burlingame, California

References:

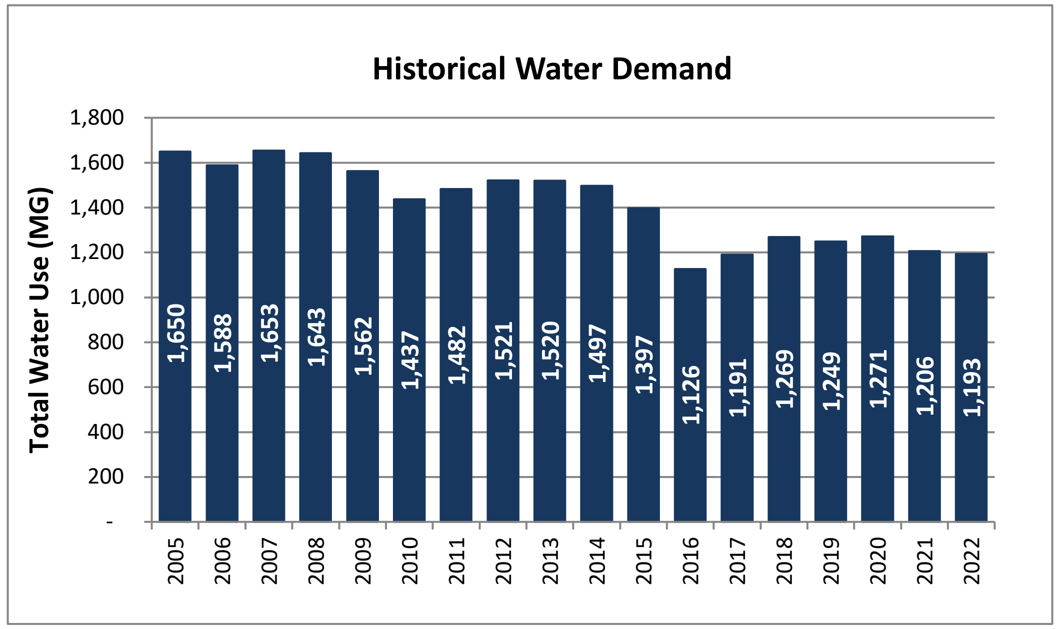
1. City of Burlingame DSS Model, updated 9 August 2022.
2. EKI, 2022. Water Supply Assessment for the 777 Airport Boulevard Project, prepared for the City of Burlingame, dated 2 September 2022.
3. EKI, 2022. Water Supply Assessment for the 1669/1699 Old Bayshore Highway & 810/821 Malcolm Road Project, prepared for the City of Burlingame, dated 9 September 2022.
4. EKI, 2022. Water Supply Assessment for the 620 Airport Boulevard Project, prepared for the City of Burlingame, dated 15 November 2022.
5. EKI, 2023. Water Supply Assessment for the 1499 Old Bayshore Highway Project, prepared for the City of Burlingame, dated July 2023.

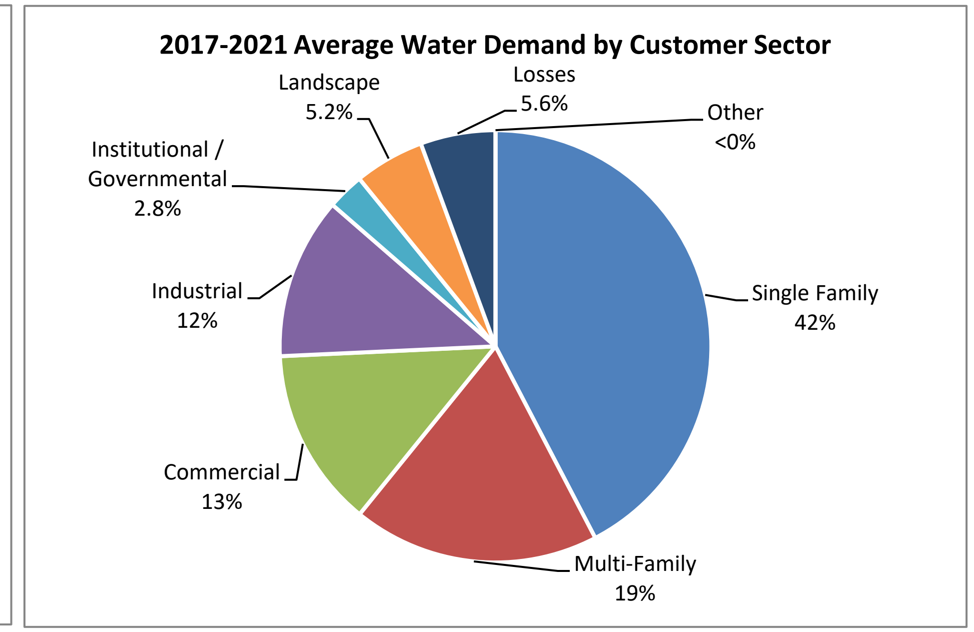
Table 4

Historical Water Demand for the City of Burlingame

1200-1340 Old Bayshore Highway, Burlingame, California

Category	City of Burlingame Annual Water Demand (MGY) (a)																	
	2005	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Potable Water Demand (b)	1,650	1,588	1,653	1,643	1,562	1,437	1,482	1,521	1,520	1,497	1,397	1,126	1,191	1,269	1,249	1,271	1,206	1,193
Total Water Demand	**1,650**	**1,588**	**1,653**	**1,643**	**1,562**	**1,437**	**1,482**	**1,521**	**1,520**	**1,497**	**1,397**	**1,126**	**1,191**	**1,269**	**1,249**	**1,271**	**1,206**	**1,193**





Abbreviations:

"FY" = Fiscal Year

"MGY" = million gallons per year

"SWRCB" = State Water Resources Control Board

"UWMP" = Urban Water Management Plan

Notes:

(a) Historical water demands from 2005-2009 per Table 3-1 in Reference 1, 2010-2020 per Table 4-1 in Reference 2, 2021 per Reference 3, and 2022 per Reference 4.

(b) All data is presented on a FY basis.

References:

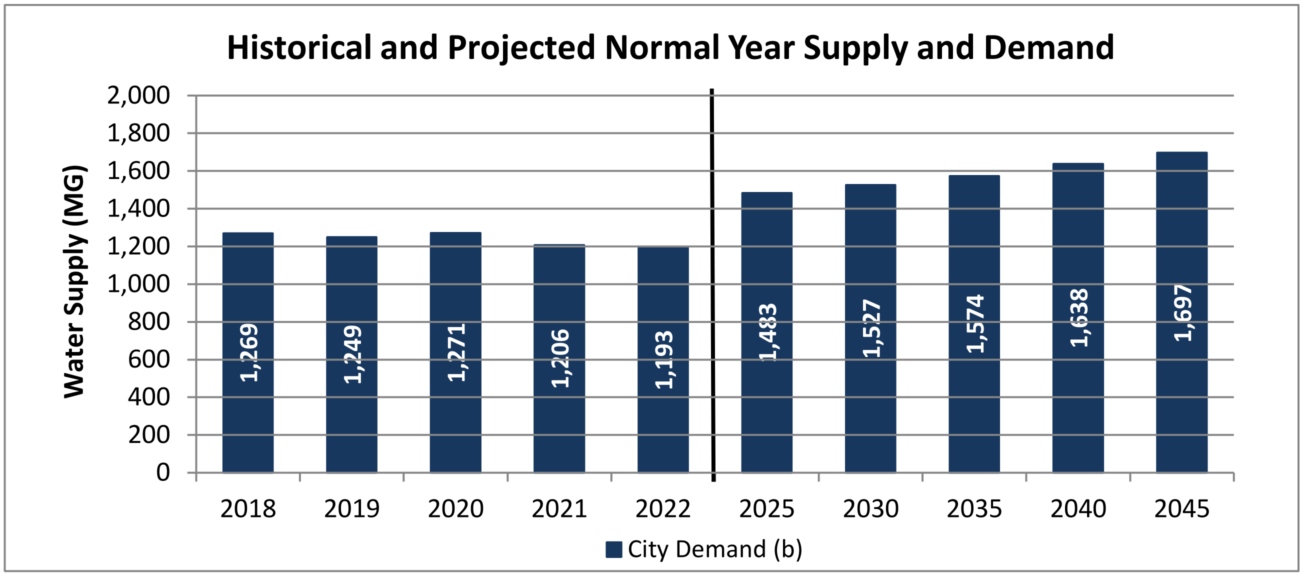
1. 2015 Urban Water Management Plan, City of Burlingame, prepared by EKI Environment & Water, Inc., dated June 2016.
2. 2020 Urban Water Management Plan, City of Burlingame, prepared by EKI Environment & Water, Inc., dated September 2021.
3. SWRCB Water Conservation and Production Reports, Urban Water Supplier Monthly Reports, dated 8 July 2022.
4. City of Burlingame, 2022. Information provided by the City of Burlingame, received 26 July 2022.

Table 5

Historical and Projected Water Demand for the City of Burlingame

1200-1340 Old Bayshore Highway, Burlingame, California

Water Demand	Historical Demand (MGY) (a)					Projected Demand (MGY)				
	2018	2019	2020	2021	2022	2025	2030	2035	2040	2045
City Demand (b)	1,269	1,249	1,271	1,206	1,193	1,483	1,527	1,574	1,638	1,697
Proposed Project (c)	-	-	-	-	-	Inlcuded in City Demands After Implementation of the Development Offset Program				



Abbreviations:

"BAWSCA" = Bay Area Water Supply and Conservation Agency
"City" = City of Burlingame
"DSS Model" = Demand Management Decision Support System Model
"FY" = Fiscal Year
"MGY" = million gallons per year
"Proposed Project" = 1200-1340 Old Bayshore Highway
"SWRCB" = State Water Resources Control Board

Notes:

(a) Historical water demand for years 2018-2020 per Table 4-1 in Reference 1, 2021 per Reference 2, and 2022 per Reference 3. Demands are presented on a FY basis.
(b) Projected City demands per Reference 4.
(c) In accordance with and through implementation of the Development Offset Program, the Proposed Project will mitigate its impact on the City’s supply reliability and will not result in a increase in demand relative to those the City's 2020 UWMP projects and those included in the 2022 demand projections update.

References:

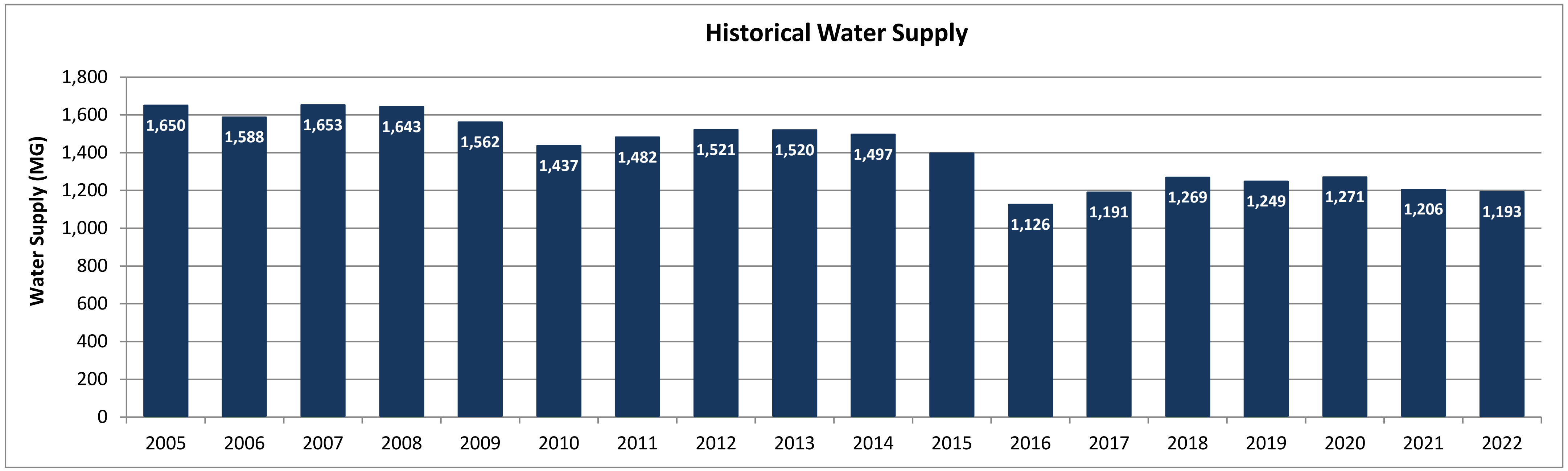
1. 2020 Urban Water Management Plan, City of Burlingame, prepared by EKI Environment & Water, Inc., dated September 2021.
2. SWRCB Water Conservation and Production Reports, Urban Water Supplier Monthly Reports, dated 8 July 2022.
3. City of Burlingame, 2022. Information provided by the City of Burlingame, received 26 July 2022.
4. City of Burlingame DSS Model, updated 9 August 2022.

Table 6

Historical Water Supply for the City of Burlingame

1200-1340 Old Bayshore Highway, Burlingame, California

Water Supply Source	Historical Water Supply (MGY) (a) (b)																	
	2005	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Purchased or Imported Water (c)	1,650	1,588	1,653	1,643	1,562	1,437	1,482	1,521	1,520	1,497	1,397	1,126	1,191	1,269	1,249	1,271	1,206	1,193
Total Water Supply	**1,650**	**1,588**	**1,653**	**1,643**	**1,562**	**1,437**	**1,482**	**1,521**	**1,520**	**1,497**	**1,397**	**1,126**	**1,191**	**1,269**	**1,249**	**1,271**	**1,206**	**1,193**



Abbreviations:

"City" = City of Burlingame

"FY" = Fiscal Year

"ISG" = Individual Supply Guarantee

"MGY" = million gallons per year

"RWS" = Regional Water System

"SFPUC" = San Francisco Public Utilities Commission

"SWRCB" = State Water Resources Control Board

"UWMP" = Urban Water Management Plan

Notes:

(a) Historical water demands from 2005-2009 per Table 3-1 in Reference 1, 2010-2020 per Table 4-1 in Reference 2, 2021 per Reference 3, and 2022 per Reference 4.

(b) All data is presented on a FY basis.

(c) Water purchased from the SFPUC RWS. The City has an ISG of 5.23 MG per day, or approximately 1,909 MG per year.

References:

1. 2015 Urban Water Management Plan, City of Burlingame, prepared by EKI Environment & Water, Inc., dated June 2016.
2. 2020 Urban Water Management Plan, City of Burlingame, prepared by EKI Environment & Water, Inc., dated September 2021.
3. SWRCB Water Conservation and Production Reports, Urban Water Supplier Monthly Reports, dated 8 July 2022.
4. City of Burlingame, 2022. Information provided by the City of Burlingame, received 26 July 2022.

Table 7a

Scenario 1: Projected Normal and Single Dry Year Water Supply and Demand for the City of Burlingame with Implementation of the Bay-Delta Plan Amendment

1200-1340 Old Bayshore Highway, Burlingame, California

Water Supply and Demand	**Projected Water Supply and Demand (MGY)**				
	2025	**2030**	**2035**	**2040**	**2045**
Normal Year Supply (a)	1,909	1,909	1,909	1,909	1,909
Single Dry Year Supply with Implementation of BDP (b)	981	1,005	1,035	1,051	929
Demand					
City of Burlingame (c)	1,483	1,527	1,574	1,638	1,697
Proposed Project (d)	Inlcuded in City Demands After Implementation of the Development Offset Program				
Water Demand Inclusive of Proposed Project	**1,483**	**1,527**	**1,574**	**1,638**	**1,697**
Normal Year Supply Shortfall (% demand)	***None***	***None***	***None***	***None***	***None***
Single Dry Year Supply Shortfall (% demand)	***34%***	***34%***	***34%***	***36%***	***45%***

Abbreviations:

"BAWSCA" = Bay Area Water Supply and Conservation Agency
"BDP" = Bay-Delta Plan Amendment
"City" = City of Burlingame
"DSS Model" = Demand Management Decision Support System Model
"ISG" = Individual Supply Guarantee
"MGY" = million gallons per year
"MGD" = million gallons per day
"Proposed Project" = 1200-1340 Old Bayshore Highway
"SFPUC" = San Francisco Public Utilities Commission
"UWMP" = Urban Water Management Plan

Notes:

(a) Water supply available to the City during normal years is assumed to be equal to the City's ISG. The City has an ISG of 5.23 MGD, or approximately 1,909 MGY.
(b) Water supply available to the City during single dry years is based on dry year supply projections, assuming the BDP is implemented as written. Supply projections with the BDP are presented per the City's 2020 UWMP; however, actual future supply allocations may vary based on actual shortage levels and the then-applicable allocation methodology being applied by BAWSCA and SFPUC. Supply volumes, which assumes implementation of the BPD, are per Reference 1.
(c) Water demand projections for the City were updated in 2022 per Reference 2.
(d) In accordance with and through implementation of the Development Offset Program, the Proposed Project will mitigate its impact on the City’s supply reliability and will not result in a increase in demand relative to those the City's 2020 UWMP projects and those included in the 2022 demand projections update.

References:

1. SFPUC Regional Water System Supply Reliability and BAWSCA Tier 2 Drought Implementation Scenarios, Updated Drought Allocations, dated 1 April 2021.
2. City of Burlingame DSS Model, updated 9 August 2022.

Table 7b

Scenario 1: Multiple Dry Year Water Supply and Demand for the City with Implementation of the Bay-Delta Plan Amendment

1200-1340 Old Bayshore Highway, Burlingame, California

Water Supply and Demand	Projected Water Supply and Demand During Multiple Dry Years (MGY) (a)																								
	2025					2030					2035					2040					2045				
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5
Multiple Dry Year Supply with Implementation of BDP (b)	981	843	843	843	843	1,005	864	864	864	864	1,035	873	873	873	809	1,051	901	901	801	801	929	929	929	792	792
Demand																									
City of Burlingame (c)	1,483	1,483	1,483	1,483	1,483	1,527	1,527	1,527	1,527	1,527	1,574	1,574	1,574	1,574	1,574	1,638	1,638	1,638	1,638	1,638	1,697	1,697	1,697	1,697	1,697
Proposed Project (d)	Inlcuded in City Demands After Implementation of the Development Offset Program																								
Water Demand Inclusive of Proposed Project	**1,483**	**1,483**	**1,483**	**1,483**	**1,483**	**1,527**	**1,527**	**1,527**	**1,527**	**1,527**	**1,574**	**1,574**	**1,574**	**1,574**	**1,574**	**1,638**	**1,638**	**1,638**	**1,638**	**1,638**	**1,697**	**1,697**	**1,697**	**1,697**	**1,697**
Supply Shortfall (% demand)	***34%***	***43%***	***43%***	***43%***	***43%***	***34%***	***43%***	***43%***	***43%***	***43%***	***34%***	***45%***	***45%***	***45%***	***49%***	***36%***	***45%***	***45%***	***51%***	***51%***	***45%***	***45%***	***45%***	***53%***	***53%***

Abbreviations:

"BAWSCA" = Bay Area Water Supply and Conservation Agency
"BDP" = Bay-Delta Plan Amendment
"City" = City of Burlingame
"DSS Model" = Demand Management Decision Support System Model
"MGY" = million gallons per year
"Proposed Project" = 1200-1340 Old Bayshore Highway
"SFPUC" = San Francisco Public Utilities Commission
"UWMP" = Urban Water Management Plan
"WSA" = Water Supply Assessment

Notes:

(a) While WSA regulations only require an analysis of a three-year drought scenario, UWMP regulations were updated in 2018 to include a five-year drought scenario (California Water Code §10635), Therefore, a five-year drought scenario is presented here.
(b) Projected supply is based on dry year allocation projections if the BDP is adopted, based on the methodology, assumptions and information utilized and provided by SFPUC and BAWSCA; however, actual future supply allocations may vary based on actual shortage levels and the then-applicable allocation methodology being applied by BAWSCA and SFPUC, per Reference 1.
(c) Water demand projections for the City were updated in 2022 per Reference 2.
(d) In accordance with and through implementation of the Development Offset Program, the Proposed Project will mitigate its impact on the City's supply reliability and will not result in a increase in demand relative to those the City's 2020 UWMP projects and those included in the 2022 demand projections update.

References:

1. SFPUC Regional Water System Supply Reliability and BAWSCA Tier 2 Drought Implementation Scenarios, Updated Drought Allocations, dated 1 April 2021.
2. City of Burlingame DSS Model, updated 9 August 2022.

Table 8a

Scenario 2: Projected Normal and Single Dry Year Water Supply and Demand for the City of Burlingame without Implementation of the Bay-Delta Plan Amendment

1200-1340 Old Bayshore Highway, Burlingame, California

Water Supply and Demand	Projected Water Supply and Demand (MGY)				
	2025	**2030**	**2035**	**2040**	**2045**
Normal Year Supply (a)	1,909	1,909	1,909	1,909	1,909
Single Dry Year Supply without Implementation of BDP (b)	1,909	1,909	1,909	1,909	1,909
Demand					
City of Burlingame (c)	1,483	1,527	1,574	1,638	1,697
Proposed Project (d)	Inlcuded in City Demands After Implementation of the Development Offset Program				
Water Demand Inclusive of Proposed Project	**1,483**	**1,527**	**1,574**	**1,638**	**1,697**
Normal Year Supply Shortfall (% demand)	***None***	***None***	***None***	***None***	***None***
Single Dry Year Supply Shortfall (% demand)	***None***	***None***	***None***	***None***	***None***

Abbreviations:

"BAWSCA" = Bay Area Water Supply and Conservation Agency
"BDP" = Bay-Delta Plan Amendment
"City" = City of Burlingame
"DSS Model" = Demand Management Decision Support System Model
"ISG" = Individual Supply Guarantee
"MGY" = million gallons per year
"MGD" = million gallons per day
"Proposed Project" = 1200-1340 Old Bayshore Highway
"SFPUC" = San Francisco Public Utilities Commission

Notes:

(a) Water supply available to the City during normal years is assumed to be equal to the City's ISG. The City has an ISG of 5.23 MGD, or approximately 1,909 MGY.
(b) Water supply available to the City during single dry years is based on dry year allocation projections if the BDP is not adopted, based on the methodology, assumptions and information utilized and provided by SFPUC and BAWSCA per Table N in Reference 1.
(c) Water demand projections for the City were updated in 2022 per Reference 2.
(d) In accordance with and through implementation of the Development Offset Program, the Proposed Project will mitigate its impact on the City’s supply reliability and will not result in a increase in demand relative to those the City's 2020 UWMP projects and those included in the 2022 demand projections update.

References:

1. SFPUC Regional Water System Supply Reliability and BAWSCA Tier 2 Drought Implementation Scenarios, Updated Drought Allocations, dated 1 April 2021.
2. City of Burlingame DSS Model, updated 9 August 2022.

Table 8b

Scenario 2: Multiple Dry Year Water Supply and Demand for the City without Implementation of the Bay-Delta Plan Amendment

1200-1340 Old Bayshore Highway, Burlingame, California

Water Supply and Demand	Projected Water Supply and Demand During Multiple Dry Years (MGY) (a)																								
	2025					2030					2035					2040					2045				
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5
Multiple Dry Year Supply without Implementation of BDP (b)	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,909	1,455	1,455
Demand																									
City of Burlingame (c)	1,483	1,483	1,483	1,483	1,483	1,527	1,527	1,527	1,527	1,527	1,574	1,574	1,574	1,574	1,574	1,638	1,638	1,638	1,638	1,638	1,697	1,697	1,697	1,697	1,697
Proposed Project (d)	Inlcuded in City Demands After Implementation of the Development Offset Program																								
Water Demand Inclusive of Proposed Project	**1,483**	**1,483**	**1,483**	**1,483**	**1,483**	**1,527**	**1,527**	**1,527**	**1,527**	**1,527**	**1,574**	**1,574**	**1,574**	**1,574**	**1,574**	**1,638**	**1,638**	**1,638**	**1,638**	**1,638**	**1,697**	**1,697**	**1,697**	**1,697**	**1,697**
Supply Shortfall (% demand)	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***14%***	***14%***

Abbreviations:

"BAWSCA" = Bay Area Water Supply and Conservation Agency
"BDP" = Bay-Delta Plan Amendment
"City" = City of Burlingame
"DSS Model" = Demand Management Decision Support System Model
"MGY" = million gallons per year
"Proposed Project" = 1200-1340 Old Bayshore Highway
"SFPUC" = San Francisco Public Utilities Commission
"UWMP" = Urban Water Management Plan
"WSA" = Water Supply Assessment

Notes:

(a) While WSA regulations only require an analysis of a three-year drought scenario, UWMP regulations were updated in 2018 to include a five-year drought scenario (California Water Code §10635), Therefore, a five-year drought scenario is presented here.
(b) Projected supply is based on dry year allocation projections if the BDP is not adopted, based on the methodology, assumptions and information utilized and provided by SFPUC and BAWSCA per Table N in Reference 1. Supply allocations in the fourth- and fifth- year drought in 2045 represent the City's Tier Two drought cutbacks.
(c) Water demand projections for the City were updated in 2022 per Reference 2.
(d) In accordance with and through implementation of the Development Offset Program, the Proposed Project will mitigate its impact on the City's supply reliability and will not result in a increase in demand relative to those the City's 2020 UWMP projects and those included in the 2022 demand projections update.

References:

1. SFPUC Regional Water System Supply Reliability and BAWSCA Tier 2 Drought Implementation Scenarios, Updated Drought Allocations, dated 1 April 2021.
2. City of Burlingame DSS Model, updated 9 August 2022.

Appendix A

Request for Information, provided by DivcoWest

City of Burlingame
Water Supply Assessment Request for Information Form

Project Address	Date Submitted
1200-1340 Old Bayshore Highway, Burlingame	8/29/2022
Project Contact's Name	**Project Contact's Information**
Virginia Calkins	2489615664 vcalkins@divcowest.com

PROJECT DESCRIPTION
Instructions: Answer the following questions using the space provided or include a separate attachment. If including an attachment, ensure that it addresses all the following questions or provide written responses below.

Provide a detailed description of the proposed Project.

Redevelopment consists of three office/life-science buildings and two parking structures with on-site and off-site improvements

Total lot size of Project (square feet):	Total building area (square feet):
523,775	1,420,000 Office/Life-Science (gsf)

Provide all assessor's parcel numbers (APNs) associated with the Project.

026-113-470, 026-113-330, 026-113-480, 026-113-450, 026-142-110, 026-142-140, 026-142-070, 026-142-150, 026-142-160, 026-142-020, 026-142-030, 026-142-170, 026-142-180

☒ **Attach a figure identifying the Project site plan that can be included in the WSA.**

Provide all Project land uses. If the Project includes housing, please specify the type of anticipated housing units with as much detail as available. If additional rows are needed, please provide as attachment.

Land Use	Square Footage	Number of Housing Units
Office/Life-Science	1,415,000 (gsf)	Click or tap here to enter text.
Retail/Restaurant/F&B	5,000 (gsf)	Click or tap here to enter text.
Structured Parking	1,180,200 (gsf)	Click or tap here to enter text.
Open Space	237,571 (gsf)	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.

City of Burlingame
Water Supply Assessment Request for Information Form

Does the Project include any of the following water using features (e.g., pools, fountains, constructed ponds, etc.)?

☐ Yes ☒ No

If yes, describe:

Click or tap here to enter text.

Is the Project expected to include any manufacturing type uses? ☐ Yes ☒ No

If yes, describe:

Click or tap here to enter text.

Is the Project expected to include any food service uses? ☒ Yes ☐ No

If yes, describe:

5,000 gsf of publicly accessible retail/food&beverage space. Up to approximately 42,000 gsf of potential tenant cafeteria space.

Is the Project expected to include any cleaning service uses? ☐ Yes ☒ No

If yes, describe:

Click or tap here to enter text.

Is the Project expected to include hotel uses? ☐ Yes ☒ No

If yes, provide the number of rooms:

Click or tap here to enter text.

Does the Project include institutional housing (e.g., hospitals, nursing homes, rehabilitation centers, etc.)? ☐ Yes ☒ No

If yes, indicate how many beds:

Click or tap here to enter text.

Will the Project use non-domestic water (e.g., process water, plumbed distilled water, etc.)? ☐ Yes ☒ No

If yes, describe:

Click or tap here to enter text.

City of Burlingame
Water Supply Assessment Request for Information Form

Provide the expected number of employees, if applicable. If Project includes multiple land uses, indicate the number of employees for each land use. If an increase is anticipated for "peak seasons," provide the number of employees and anticipated duration of the peak season(s).

4,057 to 5,163 employees (3,974 to 5,080 net new employees on the project site). Employees for the total 5,000 square feet of restaurant space have been included in this calculation.

Provide the expected number of residents, if applicable. If Project includes multiple housing types, indicate the number of residents anticipated per housing type.

N/A

Provide the anticipated buildout schedule for the Project, including anticipated date of completion and any anticipated partial occupancy milestones.

Project construction would occur in three phases and is expected to commence in the third quarter of 2023 and end in the first quarter of 2027. Phase 1 would include demolition of all existing structures on the project site and construction of the Center Building and south parking structure, and is expected to be completed by December 26, 2025. Phase 2 would include construction of the South Building and is expected to be completed by October 2, 2026. Phase 3 would include construction of the North Building and nothern parking structure, and site finishing. Phase 3 is expected to be completed by February 5, 2027.

WATER SUPPLY SOURCES

Identify any source(s) of water other than City potable water that will supply the Project (e.g., recycled water, on-site reuse, etc.).

N/A

Water Source	Annual Volume Available	Annual Volume Anticipated to be Used by Project Uses
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.

PROJECT WATER DEMANDS

Have water demands been estimated for this Project? ☒ Yes ☐ No

If yes, provide estimated annual water demand. Include estimates for all land uses and supply sources. Include a description of the basis used for the estimates.

108,850,000 gallons per year for buildings, see attached calc. + 1,615,490 gallons per year for irrigation before plants are established

eki environment & water

City of Burlingame
Water Supply Assessment Request for Information Form

☒ **Attach the landscaping plan to this form, if available.**

If the landscaping plan is included, ensure that it addresses all of the following items or provide a written response below:

Indicate the Project landscaping square footage, anticipated use (e.g., gathering space, playground, aesthetic, etc.), and water supply source. Indicate any areas associated with housing units (i.e., areas managed by the residents, not common space). Indicate if any areas meet the State Water Resources Control Board definition of *non-functional turf* (i.e., "turf that is solely ornamental and not regularly used for human recreational purposes or for civic or community events. Non-functional turf does not include sports fields and turf that is regularly used for human recreational purposes or for civic or community events.").

237,571 gsf of landscaped area. Includes native vegetation, shoreline adapted planting, trees. Supplied by domestic water day 1, but purple-piped to allow conversion to recycled water if available in the future.

Have water demands been estimated for the Project landscaping? Refer to Water Conservation in Landscape Ordinance (Chapter 18.17 of the Burlingame Municipal Code, Ordinance 1845-2010). ☒ Yes ☐ No

If yes, provide the estimated total water use (ETWU) per the Water Conservation in Landscape Ordinance, and include calculations as an attachment.

Estimated total water use for irrigation: Initial - 4426 gallons per day. After plants are established: 2213 gallons per day

If the Project includes residential uses, does the provided ETWU include water use associated with landscape areas controlled by residents? ☐ Yes ☒ No

If yes, describe how landscape water use for areas controlled by residents was calculated.

No residential uses.

ATTACHMENTS

Provide list of attachments:

Entitlement Landscape Plan

City of Burlingame
Water Supply Assessment Request for Information Form

CERTIFICATION	
I certify that the information provided in this form is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the information provided in this form and any associated attachments will be used in preparation for a Water Supply Assessment for the Project listed above. I understand that changes to the information provided to the City of Burlingame may affect assumptions for calculating the water demands associated with this Project. If there are significant changes to the plan, I will contact the City of Burlingame immediately to provide updated information.	
Print Name: Michael Carp Click or tap here to enter text.	**Print Title:** Click or tap here to enter text. Authorized Signatory
Signature (type or scan): Click or tap here to enter text. DocuSigned by: Michael Carp 8AC370E41D0042B...	**Date:** 8/29/2022 Click or tap here to enter text.

eki environment & water

Appendix B

Proposed Landscape Site Plan

2022\D202200271.00 - 1200 -1340 Bayshore Hwy Project\05 Graphics-GIS-Modeling-USE AZURE\Illustrator

SOURCE: DW Burlingame I Owner, LLC, DW Burlingame II Owner, LLC, and DW Burlingame III Owner, LLC, 2022

Figure 3-13
Proposed Landscape Site Plan

ESA

Appendix C

SFPUC Memorandum Re: Regional Water System Supply Reliability and UWMP 2020

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

TO: SFPUC Wholesale Customers

FROM: Steven R. Ritchie, Assistant General Manager, Water

DATE: June 2, 2021

RE: Regional Water System Supply Reliability and UWMP 2020

This memo is in response to various comments from Wholesale Customers we have received regarding the reliability of the Regional Water System supply and San Francisco's 2020 Urban Water Management Plan (UWMP).

As you are all aware, the UWMP makes clear the potential effect of the amendments to the Bay-Delta Water Quality Control Plan adopted by the State Water Resources Control Board on December 12, 2018 should it be implemented. Regional Water System-wide water supply shortages of 40-50% could occur until alternative water supplies are developed to replace those shortfalls. Those shortages could increase dramatically if the State Water Board's proposed Water Quality Certification of the Don Pedro Federal Energy Regulatory Commission (FERC) relicensing were implemented.

We are pursuing several courses of action to remedy this situation as detailed below.

Pursuing a Tuolumne River Voluntary Agreement

The State Water Board included in its action of December 12, 2018 a provision allowing for the development of Voluntary Agreements as an alternative to the adopted Plan. Together with the Modesto and Turlock Irrigation Districts, we have been actively pursuing a Tuolumne River Voluntary Agreement (TRVA) since January 2017. We believe the TRVA is a superior approach to producing benefits for fish with a much more modest effect on our water supply. Unfortunately, it has been a challenge to work with the State on this, but we continue to persist, and of course we are still interested in early implementation of the TRVA.

Evaluating our Drought Planning Scenario in light of climate change

Ever since the drought of 1987-92, we have been using a Drought Planning Scenario with a duration of 8.5 years as a stress test of our Regional Water System supplies. Some stakeholders have criticized this methodology as being too conservative. This fall we anticipate our Commission convening a workshop regarding our use of the 8.5-year Drought Planning Scenario, particularly in light of climate change resilience assessment work that we have funded through the Water Research Foundation. We look forward to a valuable discussion with our various stakeholders and the Commission.

Pursuing Alternative Water Supplies

The SFPUC continues to aggressively pursue Alternative Water Supplies to address whatever shortfall may ultimately occur pending the outcome of negotiation and/or litigation. The most extreme degree of Regional Water System supply shortfall is modeled to be 93 million gallons per day under implementation of the Bay-Delta Plan amendments. We are actively pursuing more than a dozen projects, including recycled water for irrigation, purified water for potable use, increased reservoir storage and conveyance, brackish water desalination, and partnerships with other agencies, particularly the Turlock and Modesto Irrigation Districts. Our goal is to have a suite of alternative water supply projects ready for CEQA review by July 1, 2023.

In litigation with the State over the Bay-Delta Plan Amendments

On January 10, 2019, we joined in litigation against the State over the adoption of the Bay-Delta Water Quality Control Plan Amendments on substantive and procedural grounds. The lawsuit was necessary because there is a statute of limitations on CEQA cases of 30 days, and we needed to preserve our legal options in the event that we are unsuccessful in reaching a voluntary agreement for the Tuolumne River. Even then, potential settlement of this litigation is a possibility in the future.

In litigation with the State over the proposed Don Pedro FERC Water Quality Certification

The State Water Board staff raised the stakes on these matters by issuing a Water Quality Certification for the Don Pedro FERC relicensing on January 15, 2021 that goes well beyond the Bay-Delta Plan amendments. The potential impact of the conditions included in the Certification appear to virtually double the water supply impact on our Regional Water System of the Bay-Delta Plan amendments. We requested that the State Water Board reconsider the Certification, including conducting hearings on it, but the State Water Board took no action. As a result, we were left with no choice but to once again file suit against the State. Again, the Certification includes a clause that it could be replaced by a Voluntary Agreement, but that is far from a certainty.

I hope this makes it clear that we are actively pursuing all options to resolve this difficult situation. We remain committed to creating benefits for the Tuolumne River while meeting our Water Supply Level of Service Goals and Objectives for our retail and wholesale customers.

cc.: SFPUC Commissioners
Nicole Sandkulla, CEO/General Manager, BAWSCA