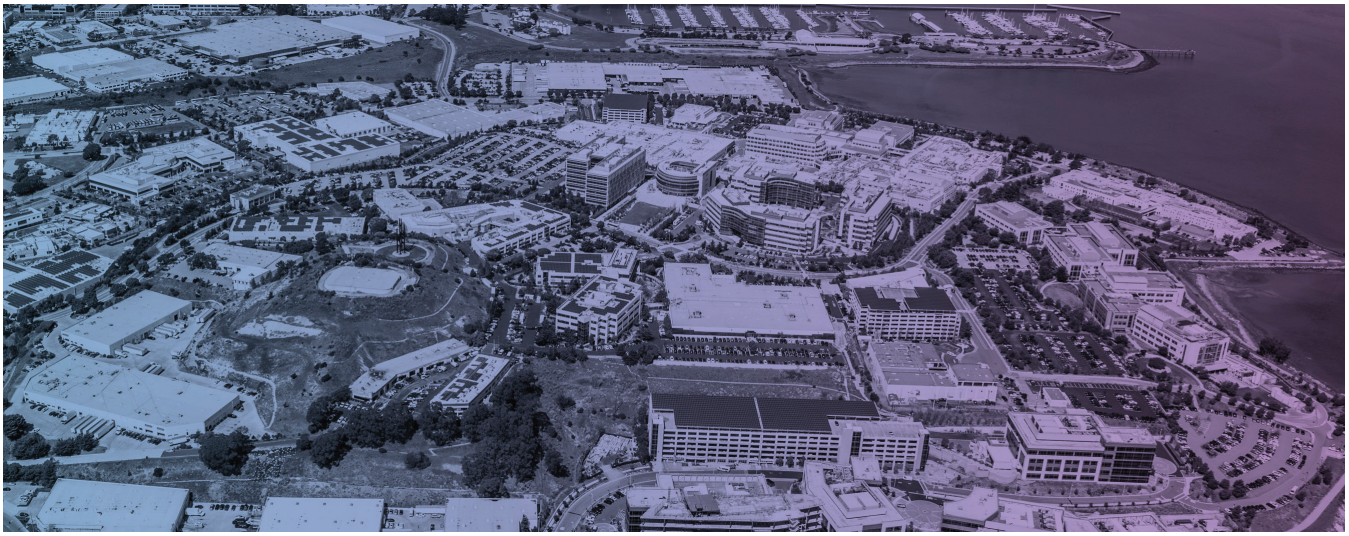
Genentech Campus Master Plan Update



Draft Environmental Impact Report

SCH # 2017052064
Lead Agency: City of South San Francisco
October, 2019

Prepared for:
City of South San Francisco Planning Division
315 Maple Avenue
South San Francisco, CA 94080

Prepared by:

LAMPHIER-GREGORY

COMBINED NOTICE of RELEASE AND AVAILABILITY OF THE DRAFT ENVIRONMENTAL IMPACT REPORT, AND NOTICE OF PUBLIC HEARINGS ON THE GENENTECH CAMPUS MASTER PLAN UPDATE PROJECT

NOTICE IS HEREBY GIVEN that the City of South San Francisco Planning Division has prepared a Draft Environmental Impact Report (Draft EIR) for the Genentech Campus Master Plan Update project. This Draft EIR is now available for public review and comment. The Draft EIR may be accessed on the City's website at http://weblink.ssf.net under Planning Division/Environmental Reports. Copies of the Draft EIR are available for review at the Orange Avenue Library at 804 W. Orange Avenue; the Grand Avenue Library at 306 Walnut Avenue; the Planning Division at 315 Maple Avenue; and at the City Clerk's Office at 400 Grand Avenue.

PROJECT LOCATION: The Genentech Campus (the Project site or Project Area) is located along the San Francisco Bay shoreline in the East of 101 Area of the City of South San Francisco. The Project site includes the approximately 162-acre Genentech Campus as analyzed in the prior 2007 Master EIR, as well approximately 45 acres of land added to the Campus pursuant to the City's zoning text and map amendments of May 16, 2013, for a total Project Area of approximately 207 acres. The location of the Genentech Campus is shown on the attached Figure 1.

PROJECT DESCRIPTION: The proposed Genentech Campus Master Plan Update (Project) provides an overall vision for future growth and development of the Genentech Campus. The Master Plan Update establishes a conceptual land use and development framework to accommodate an eventual buildout potential of up to 9 million square feet of building space at the Campus, or an increase of approximately 4.3 million net square feet. The Master Plan Update provides flexibility in implementation of this buildout potential to enable Genentech to adapt to changing conditions and new medical and scientific discoveries over time. For purposes of the EIR analysis, the EIR Project Description presents one realistic and potential vision for how the Master Plan Update's flexible framework might ultimately be developed (see Figure 2) including a forecast growth of approximately 1.6 million square feet of new lab space, approximately 2.4 million square feet of net new office space, and approximately 0.3 million square feet of various types of employee amenity spaces. The Project Description also assumes a net retention of nearly 1.3 million square feet of manufacturing, warehouse and distribution building space that is currently within the Project Area.

ENVIRONMENTAL IMPACTS: The Draft EIR identifies that the Project would result in significant and unavoidable environmental effects related to criteria air pollutant emissions, construction-period noise, and traffic impacts at local intersections, freeway ramps and freeway segments. All other potentially significant environmental effects of the Project would be reduced to less than significant levels through implementation of either existing regulatory requirements or additional mitigation measures as recommended in the Draft EIR.

PUBLIC REVIEW PERIOD: The City of South San Francisco is soliciting comments regarding the analysis contained in the Draft EIR. **All comments must be received by the City of South San Francisco Planning Division no later than 5:00 p.m. on December 23, 2019**. Written comments on the Draft EIR may be sent via U.S. mail and addressed to:

Tony Rozzi, Principal Planner
Planning Division, City of South San Francisco
P.O. Box 711
South San Francisco, CA 94083
Comments may also be sent via email to: Tony.Rozzi@ssf.net

Public Review Schedule:

Public Release of Draft EIR	November 8, 2019
Planning Commission Public Review Hearing South San Francisco Municipal Services Bldg. 33 Arroyo Drive South San Francisco, CA 94080	Thursday, December 19, 2019 at 7:00 p.m.
45 Day Review Period End Date	December 23, 2019

For additional information please contact Tony Rozzi, Principle Planner at (650) 650-877-8535

/s/Sailesh Mehra
Secretary to the Planning Commission
City of South San Francisco

Dated: 11/8/2019

Print Form

Appendix C

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #2017052064

Project Title: Genentech Campus Master Plan Update

Lead Agency: City of South San Francisco
Contact Person: Tony Rozzi, Principal Planner
Mailing Address: 315 Maple Avenue
Phone: (650) 877-8535
City: South San Francisco, CA
Zip: 94080
County: San Mateo

Project Location: County: San Mateo
City/Nearest Community: South San Francisco
Cross Streets: East Grand Avenue and DNA Way
Zip Code: 94080
Longitude/Latitude (degrees, minutes and seconds): ____° ____′ ____″ N / ____° ____′ ____″ W
Total Acres: ____
Assessor's Parcel No.: numerous
Section: ____ Twp.: ____ Range: ____ Base: ____
Within 2 Miles: State Hwy #: 101
Waterways: SF Bay
Airports: SFO
Railways: Caltrain, UPRR
Schools: ____

Document Type:

CEQA:
- ☐ NOP
- ☐ Early Cons
- ☐ Neg Dec
- ☐ Mit Neg Dec
- ☒ Draft EIR
- ☐ Supplement/Subsequent EIR (Prior SCH No.) ____
- Other: ____

NEPA:
- ☐ NOI
- ☐ EA
- ☐ Draft EIS
- ☐ FONSI

Other:
- ☐ Joint Document
- ☐ Final Document
- ☐ Other: ____

Local Action Type:

- ☐ General Plan Update
- ☐ General Plan Amendment
- ☐ General Plan Element
- ☐ Community Plan
- ☐ Specific Plan
- ☒ Master Plan
- ☐ Planned Unit Development
- ☐ Site Plan
- ☐ Rezone
- ☐ Prezone
- ☐ Use Permit
- ☐ Land Division (Subdivision, etc.)
- ☐ Annexation
- ☐ Redevelopment
- ☐ Coastal Permit
- ☐ Other: ____

Development Type:

- ☐ Residential: Units ____ Acres ____
- ☒ Office: Sq.ft. 2.4 msf Acres ____ Employees ____
- ☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
- ☒ Industrial: Sq.ft. 1.6 msf Acres ____ Employees ____
- ☐ Educational: ____
- ☐ Recreational: ____
- ☐ Water Facilities: Type ____ MGD ____
- ☐ Transportation: Type ____
- ☐ Mining: Mineral ____
- ☐ Power: Type ____ MW ____
- ☐ Waste Treatment: Type ____ MGD ____
- ☐ Hazardous Waste: Type ____
- ☒ Other: Employee amenity space, 0.3 msf

Project Issues Discussed in Document:

- ☒ Aesthetic/Visual
- ☒ Agricultural Land
- ☒ Air Quality
- ☒ Archeological/Historical
- ☒ Biological Resources
- ☒ Coastal Zone
- ☒ Drainage/Absorption
- ☒ Economic/Jobs
- ☐ Fiscal
- ☒ Flood Plain/Flooding
- ☒ Forest Land/Fire Hazard
- ☒ Geologic/Seismic
- ☒ Minerals
- ☒ Noise
- ☒ Population/Housing Balance
- ☒ Public Services/Facilities
- ☒ Recreation/Parks
- ☒ Schools/Universities
- ☐ Septic Systems
- ☒ Sewer Capacity
- ☒ Soil Erosion/Compaction/Grading
- ☒ Solid Waste
- ☒ Toxic/Hazardous
- ☒ Traffic/Circulation
- ☒ Vegetation
- ☒ Water Quality
- ☒ Water Supply/Groundwater
- ☒ Wetland/Riparian
- ☒ Growth Inducement
- ☒ Land Use
- ☒ Cumulative Effects
- ☐ Other: ____

Present Land Use/Zoning/General Plan Designation:

Genentech Campus - office, R&D and manufacturing/Genentech Campus Master Plan zoning/GP land use: Business and Tech.

Project Description: *(please use a separate page if necessary)*

The 2017 Master Plan Update is the second 10-year update to the Genentech Master Plan. The goal of the Master Plan Update is to create a dynamic and future-looking development plan for the Genentech Campus that promotes sustainability, is built for tomorrow's workforce, and can guide future Campus-centered growth while providing needed flexibility to adapt, change and innovate. Genentech currently has approximately 4.7 million square feet of building space within its 207-acre Campus. The Master Plan Update will provide for an overall buildout potential of just over 9 million square feet, enabling construction of approximately 4.3 million square feet of net new building space.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

_____ Air Resources Board
_____ Boating & Waterways, Department of
_____ California Emergency Management Agency
_____ California Highway Patrol
_____ Caltrans District #_____
_____ Caltrans Division of Aeronautics
_____ Caltrans Planning
_____ Central Valley Flood Protection Board
_____ Coachella Valley Mtns. Conservancy
_____ Coastal Commission
_____ Colorado River Board
_____ Conservation, Department of
_____ Corrections, Department of
_____ Delta Protection Commission
_____ Education, Department of
_____ Energy Commission
_____ Fish & Game Region #_____
_____ Food & Agriculture, Department of
_____ Forestry and Fire Protection, Department of
_____ General Services, Department of
_____ Health Services, Department of
_____ Housing & Community Development
_____ Native American Heritage Commission

_____ Office of Historic Preservation
_____ Office of Public School Construction
_____ Parks & Recreation, Department of
_____ Pesticide Regulation, Department of
_____ Public Utilities Commission
_____ Regional WQCB #_____
_____ Resources Agency
_____ Resources Recycling and Recovery, Department of
_____ S.F. Bay Conservation & Development Comm.
_____ San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
_____ San Joaquin River Conservancy
_____ Santa Monica Mtns. Conservancy
_____ State Lands Commission
_____ SWRCB: Clean Water Grants
_____ SWRCB: Water Quality
_____ SWRCB: Water Rights
_____ Tahoe Regional Planning Agency
_____ Toxic Substances Control, Department of
_____ Water Resources, Department of

_____ Other: _____
_____ Other: _____

Local Public Review Period (to be filled in by lead agency)

Starting Date November 8, 2019 Ending Date December 23, 2019

Lead Agency (Complete if applicable):

Consulting Firm: Lamphier-Gregory
Address: 1944 Embarcadero
City/State/Zip: Oakland, CA 94606
Contact: Scott Gregory
Phone: (510) 535-6671

Applicant: Robert Cook, Director of Real Estate Assets
Address: Genentech, Inc., 1 DNA Way
City/State/Zip: South San Francisco, CA 94080
Phone: (650) 296-2988

Signature of Lead Agency Representative: _____ **Date:** 11/7/19

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

Table of Contents

Genentech Master Plan Update
Draft EIR

Chapter Number | Page

Appendices

(Appendices are included on a Compact Disk in the back cover of the Draft EIR document.)

List of Tables and Figures

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1
Introduction

This Draft Environmental Impact Report (Draft EIR) has been prepared by the City of South San Francisco in accordance with the California Environmental Quality Act (CEQA)[1] and associated CEQA Guidelines.[2] The purpose of this document is to describe the potential environmental consequences of the proposed Genentech Master Plan Update. This Draft EIR is intended to serve as an informational document for use by public agency decision makers and the public in their consideration of the proposed Master Plan Update.

Proposed Project

Project Location

The City of South San Francisco is located on the west shore of the San Francisco Bay in northern San Mateo County and is directly served by major transportation corridors including US-101, I-280 and I-380, as well as BART, Caltrain, the Union Pacific Railroad and the San Francisco International Airport. The Genentech Campus (the ***Project site or Project Area***) is located along the San Francisco Bay shoreline in the East of 101 portion of the City of South San Francisco. The Project site includes the approximately 162-acre Genentech Campus as analyzed in the 2007 MEIR, as well approximately 45 acres of lands added to the Campus pursuant to the City's zoning text and Map amendments of May 16, 2013, for a total Project Area of approximately 207 acres. Genentech also occupies other leased building space in the East of 101 area (e.g., the Gateway Business Park near US-101) that are not a part of the Master Plan Update.

Background

Genentech is the world's first biotechnology company, founded in 1976 and initially operated out of former industrial warehouses in the South San Francisco industrial area east of US-101. Today, the Genentech Campus serves as the headquarters for all Roche Pharmaceutical operations in the United States, is the principal employer in the City of South San Francisco and is one of the largest single biotech research facilities in the world. At the South San Francisco Campus, plus other satellite buildings in the East of 101 Area, Genentech employs approximately 12,000 people working in more than 5.2 million square feet of laboratory, office and manufacturing spaces. Major prior planning milestones at the Genentech Campus include:

- Genentech's first Master Plan was adopted by South San Francisco in 1995 to provide an integrated framework for development within its Campus. A Genentech R&D Overlay zoning district (previously Chapter 20.39 through 20.40 of the South San Francisco Municipal Code) was adopted concurrently with, and based on the 1995 Master Plan.
- The second Genentech Master Plan was prepared in 2007 (the 2007 Master Plan) as a 10-year update to the 1995 Master Plan. The 2007 Master Plan established a temporary limit (through the year 2016) on the overall buildout potential of the Campus, at a total of 6 million square feet.

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[1] The California Environmental Quality Act (CEQA) is codified in section 21000, et seq., of the California Public Resources Code

[2] The CEQA Guidelines are set forth in sections 15000 through 15387 of the California Code of Regulations, Title 14, Chapter 3

Concurrently, South San Francisco updated its zoning code and established the Genentech Master Plan zoning district (Chapter 20.260 of the City of South San Francisco Municipal Code). The Genentech Master Plan zoning district establishes facility-wide development standards and design guidelines for properties subject to that zoning.

- In May of 2013, South San Francisco added additional properties to the Genentech Master Plan zoning district, including previously entitled development along Forbes Boulevard and the previously entitled 27-acre Britannia East Grand project (now known as the Genentech South Campus).

Master Plan Update

Genentech is now proposing a second update to the Genentech Master Plan (referred to in this document as the ***Project***, or ***Master Plan Update***). The goal of the Master Plan Update is to retain those close physical relationships between Genentech's various business units that are critical toward meeting the long-term growth needs of the company, and that can only be made possible in a campus setting. This can be achieved by:

- enabling scientists to work in a collaborative environment that supports research, development and production goals by clustering Genentech's scientific facilities in close proximity
- maximizing the efficiency and support capabilities of administrative functions by keeping these functions centralized and physically proximate to scientific facilities
- retaining Genentech's ability to transform scientific discoveries into new medicines quickly and efficiently by retaining close physical relationship between R&D and manufacturing facilities
- providing efficient logistics support to the Campus with ready access to warehouse and distribution facilities
- fostering a sense of community among its employees and with the broader South San Francisco community by creating interconnectivity and ease of access, and
- assuring Genentech's continued proximity to world-class scientific and academic institutions

A more detailed description of the Project's Goals and Objectives can be found in Chapter 3 Project Description.

Campus Boundaries

The Master Plan Update confirms and refines the boundaries of Genentech's Campus and its smaller component neighborhood campuses, which include the three original 1995 neighborhood campuses (Lower, Mid and Upper Campus), a fourth neighborhood campus added in 2007 (the West Campus), and expansions of the West Campus and an additional new South Campus as established with the 2013 zoning additions. In total, the Campus is now proposed to include approximately 207 acres.

Development Potential

Genentech currently has approximately 4.7 million square feet of building space within its Campus boundaries. The 2007 Master Plan limited total development within the then-defined Genentech Campus to 6 million square feet at buildout. Genentech now proposes to utilize the Genentech Master Plan zoning district's floor area ratio (FAR) of 1.0 times the total area of the Campus, to enable a buildout potential of just over 9 million square feet, or approximately 4.3 million square feet of net new building space, not including any satellite building space outside of the Campus. The 9 million square-foot buildout potential of the Master Plan Update establishes an upper limit on development that Genentech considers large enough to accommodate mid- to long-term growth, but unlike the prior Master Plans, this buildout is not tied to a specific buildout year. For purposes of this EIR analysis, the cumulative scenario is generally defined at year

2040, consistent with cumulative land use and trip generation forecasts from the City of South San Francisco Travel Model as updated in July 2018 (see further discussion in Chapter 4: Approach to Analysis).

Flexibility

Like the prior 2007 Master Plan, the precise development program for the Campus is not determined under this Master Plan Update. Instead, the Master Plan Update defines an overall development program that will ultimately result in a cohesive and integrated Campus reflecting Genentech's needs based on future innovations in science and medicine, individual site conditions, transportation synergies and broader Citywide goals and objectives. The Master Plan Update focuses on specific organizing themes that lay a foundation for built form, connections, and open space and amenities to be incrementally developed in the future. The Master Plan Update does not define precise building locations, shapes or forms. The Master Plan Update is intentionally flexible, enabling Genentech to adapt its Campus to accommodate future innovation in medicine and science, and to enable creative new urban design strategies to influence future building plans.

Other Important Master Plan Update Concepts

The Master Plan Update also addresses a comprehensive range of additional topics including urban design and campus place-making, transportation and Transportation Demand Management (TDM), parking, on-campus circulation (pedestrian and bike), infrastructure needs and environmental sustainability.

EIR Project Description

To provide detail and specificity for this EIR, the EIR Project Description provides one potential detailed buildout scenario that meets the goals of the Master Plan Update, and is used for quantitative analytical purposes for this EIR. This Project Description is intended to be specific enough to allow for detailed analysis in the EIR, representing the maximum development potential that could occur within the Campus (i.e. Project Area) pursuant to the Master Plan Update. The EIR Project Description is based on an estimate of projected employment growth and future building space needs by land use type and/or function, increasing building space from approximately 4.7 million square feet today to a maximum of 9 million square feet at buildout (or approximately 4.3 million square feet of net new building space). This estimate includes a forecast growth of:

- approximately 2.4 million square feet of net new office space (inclusive of potentially relocating employees from nearly 0.5 million square feet of off-Campus leased space to new, on-Campus space)
- approximately 1.6 million square feet of new lab space, and
- approximately 0.3 million square feet of various types of new employee amenity space

The Master Plan Update also assumes a net retention of the nearly 1.3 million square feet of manufacturing, warehouse and distribution building space that is on Campus today.

The EIR Project Description also identifies the most likely locations where new development or redevelopment will occur within the Campus. These locations are identified in the Master Plan Update as Opportunity Sites. These Opportunity Sites generally include:

- development of new building space on existing surface parking lots (combined with a new structured parking strategy)
- redevelopment of older, less efficient buildings with new buildings that are larger, taller and more architecturally and functionally complex
- infill development at locations within the Campus where vacant or under-used infill sites exist, and

- new buildings and/or parking structures constructed into existing hillsides within the Campus, such that these new buildings can also serve as “bridges” that link together the upper and lower elevations of the Campus

Additionally, the EIR Project Description includes an expected Genentech-sponsored TDM program that meets or exceeds City-required alternative mode split ratios, and that provides transit linkages between the Campus and other transit services such as Caltrain and BART.

Description of the EIR

Notice of Preparation

The City of South San Francisco (***City***) determined that an Environmental Impact Report (EIR) is required for the proposed Project. The City circulated a Notice of Preparation (NOP) for this EIR on May 23, 2017 (see **Appendix 1A**). The public comment period on the scope of the EIR lasted through June 23, 2017. The NOP was sent to responsible agencies, neighboring cities, interested organizations and individuals, and to the State Clearinghouse. A scoping session was held on June 8, 2017 at the Annex City Hall Conference Room at 315 Maple Avenue, South San Francisco. Notice of this scoping meeting was provided to San Mateo County, the City and County of San Francisco, and to the cities of Colma, Brisbane, Pacifica, Daly City and San Bruno. It was also provided to Responsible Agencies (any public agency that has jurisdiction by law with respect to the project) and to any agency or individual who has filed a written request for notice of such types of EIRs.

Both written and oral comments received by the City on the NOP and scoping session were taken into account during the preparation of this EIR. The written comments received are included in **Appendix 1B,** and generally summarized below:

BCDC Comments (letter dated June 23, 2017)

- the DEIR should analyze the effects of sea level rise on the Project's waterfront and discuss how Genentech intends to address the Commission's policies on public access
- the DEIR should note the Commission's policies on Appearance, Design, and Scenic Views
- the DEIR should consider the transportation policies in the Bay Plan to ensure that the shoreline will remain accessible to the community and the public via diverse forms of transportation
- the DEIR should consider the Bay Plan policies related to shoreline protection, including the requirement that levees and seawalls be designed to withstand the effects of projected sea level rise and to be integrated with adjacent shoreline protection
- the DEIR should discuss the relevant policies governing the protection of the Bay's natural resources, including fish, other aquatic organisms, and wildlife, and certain habitat needed for their protection, such as tidal flats, marshes and subtidal areas

San Mateo County City/County Association of Governments (letter dated June 2, 2017)

- the TIA and EIR for this project should comply with the San Mateo County Congestion Management Program (CMP) Traffic Impact Analysis (TIA) Policy and Land Use Guidelines
- traffic forecasts and expected impacts of the project should address the CMP roadway network as outlined in the TIA policy,
- if the project will generate a net of 100 or more peak-hour trips on the CMP roadway network, mitigation measures should be required to reduce the impact of the project (e.g., reducing project scope, building roadway and/or transit improvements, collecting traffic mitigation fees, and requiring project sponsors to implement TDM programs

Native American Heritage Commission (letter dated June 1, 2017)

- recommended contacting the California Historical Research Information System (CHRIS) Center for an archaeological records search
- recommended contacting the NAHC for a Sacred Lands File search and a Native American Tribal Consultation List
- recommended inclusion of mitigation and monitoring provisions for the identification and evaluation of inadvertently discovered archaeological and cultural resources

San Mateo County Department of Public Works (letter dated June 23, 2017)

- indicated that storm water runoff from the site must not be directed to drain into City storm drain lines which ultimately enter the District's flood control channel
- advocated that trash management measures be incorporated into the design elements of the storm drainage system and appurtenances

Governor's Office of Planning and Research, State Clearinghouse (letter dated May 24, 2017)

- listed the EIR with State Clearinghouse Number #2017052064
- included a list of State agencies copied on the NOP and encouraged those agencies to express their concerns early in the environmental review process

Program EIR

One of the purposes of this EIR is to assess in a comprehensive manner the entirety of potential environmental impacts that may be associated with adoption and implementation of the Master Plan Update. Specifically, it evaluates the physical environmental and land use changes that may result from all future development that could occur pursuant to adoption and implementation of the Master Plan Update. Such impacts are described at a level of detail consistent with the level of detail provided in the Master Plan Update. Accordingly, as provided for under CEQA Guidelines Section 15168, the City has determined to prepare this document as a new Program EIR, rather than as a Subsequent or Supplement to the prior 2007/2012 Master EIR.

A Program EIR is appropriate for environmental review of the proposed Master Plan Update because it establishes the framework for a number of individual future development projects. These future development projects are related geographically within the Genentech Campus, are logical parts in a chain of contemplated actions, will be carried out under the same authorizing statute and regulatory authority of the City of South San Francisco, and will have similar environmental impacts that can be mitigated in similar ways. This programmatic environmental review is used to analyze the series of actions pursuant to the Master Plan Update that are characterized as one large project. This Program EIR focuses on broad policy alternatives and mitigation measures, as well as regional influences, secondary effects, cumulative impacts and other factors that apply to the Master Plan Update as a whole (pursuant to CEQA Guidelines Section 15168[b][4] and [d][2]). This programmatic approach provides the City and other responsible agencies with the ability to consider program-wide mitigation measures and cumulative impacts that might be slighted in a case-by-case analysis approach.

Project-Level Analysis

Preparation of this Program EIR is also intended to simplify the task of preparing subsequent project-level environmental documents for future projects proposed pursuant to the Master Plan Update. Where feasible and where an adequate level of detail is available such that potential project-level environmental effects may be understood and analyzed, this EIR also provides a project-level analysis intended to minimize the need for

subsequent CEQA review of individual development projects that could occur pursuant to the Master Plan Update. Although not required under CEQA, project-level impacts of reasonably foreseeable developments are analyzed to the extent that such impacts are known. The EIR Project Description provides one example of a detailed development program for the Genentech Campus pursuant to the Master Plan Update, providing physical development plans that indicate general density and intensity of use, building height and bulk, and location (by Opportunity Sites) of anticipated future development and public infrastructure and transportation improvements. The Master Plan Update also provides a maximum development envelope (defined in terms of both maximum square feet of new building space and a "Trip Cap") which govern the maximum amount of development which may occur within the Campus. The Trip Cap is based on the maximum number of net new AM peak-hour vehicle trips that anticipated future development would generate. The physical development envelope and the Trip Cap have been used to provide project-level assessments.

South San Francisco intends to use the streamlining and tiering provisions of CEQA to the maximum feasible extent, such that future environmental review of specific development projects within the Campus that are carried out in furtherance of the Master Plan Update are expeditiously undertaken, without the need for repetition and redundancy.

Use of Prior CEQA Documents

Prior CEQA Document Overview

Together, the following documents are collectively referred to throughout this EIR as the Prior Environmental Impact Reports (Prior EIRs):

2007 Master EIR

In 2007, the City of South San Francisco certified an EIR for the *2007 Genentech Corporate Facilities Research & Development Overlay District Expansion and Master Plan Project* (***2007 Master Plan***). That 2007 EIR considered the environmental impacts that may result from development of approximately 3.2 million square feet of new building space, to a buildout of 6 million square feet, pursuant to the 2007 Master Plan on Genentech's then 160-acre Campus as well as a broader 220-acre Study Area. That 2007 EIR (State Clearinghouse No. 2005072165) was certified by the City of South San Francisco on March 14, 2007. After certification of the 2007 EIR, the City Council subsequently adopted the 2007 Genentech Master Plan and amended the City's Zoning Ordinance to allow expansion of the Genentech Research and Development Overlay (R&D) zoning district. That 2007 EIR was prepared as a "Master EIR" (***2007 Master EIR or MEIR***) pursuant to CEQA Guidelines Section 15175 through 15179.5.

2012 Supplemental Master EIR

The City updated the 2007 MEIR in a 2012 Supplemental Master Environmental Impact Report for the Genentech Corporate Facilities Research & Development Overlay District Expansion and Master Plan Project (**2012 Supplemental Master EIR or SMEIR,** - also SCH No. 2005072165).

This 2012 SMEIR reviewed the adequacy of the 2007 MEIR pursuant to the five-year limitations of the 2007 MEIR as set forth in CEQA Guidelines Section 15179, and included additional environmental review to supplement the 2007 MEIR. The 2012 SMEIR focused largely on regulatory changes that had occurred since certification of the 2007 MEIR in the areas of air quality, greenhouse gas emissions and land use/planning, and new information and changed circumstances since certification of the 2007 MEIR in the area of traffic/transportation development. The 2012 SMEIR assessed impacts of the remaining approximately 2.7 million square feet of new building space pursuant to buildout of 6 million square feet.

2002 Britannia East Grand EIR

In 2002, the City of South San Francisco certified the *Britannia East Grand Project EIR* (***2002 BEG EIR*** – SCH No. 2001052085). The Britannia East Grand Project was located at the east terminus of East Grand Avenue and consisted of a campus of 12 buildings devoted to research and development use, including high technology and biotechnology industries, offices, and auxiliary services within a total of approximately 804,500 gross square feet of building space. After certification of this EIR and completion of entitlements, construction of the Britannia East Grand project was conducted to suit Genentech's needs and became fully leased to Genentech as its South Campus. The 2007 Master Plan acknowledged the Britannia East Grand project as Genentech's South Campus, but it did not include the South Campus as part of the 2007 EIR Study Area.

In 2013, Genentech requested that the City add the South Campus properties to the Genentech Master Plan zoning district.[3] In May of 2013, the City Planning Commission recognized that addition of these South Campus properties would "increase the baseline of existing development and the total amount of development within the Genentech Master Plan area and Genentech Master Plan zoning district, but would not increase the amount of new development authorized by the 2007 Master Plan".[4] The South Campus was added to the Genentech Master Plan zoning district in 2013 with prior CEQA review under the 2002 EIR.

Incorporation by Reference and Tiering

The City of South San Francisco has determined that this environmental document is to be a new Program EIR, rather than a Master EIR or a second Supplemental Master EIR. Both the City and Genentech have concluded that the five-year update requirements for master EIRs as set forth in CEQA Guidelines Section 15179 have potential to limit the intended streamlining of later environmental review of projects carried out in furtherance of the Master Plan Update, and introduce additional CEQA processes which may be repetitive or redundant. This new Program EIR is also necessary to address changes that are part of the Master Plan Update (e.g., increasing the maximum development potential on the Campus to 9 million square feet), as well as changes in baseline conditions during the 10-year interval since certification of the 2007 MEIR.

South San Francisco has used the streamlining and tiering provisions of CEQA, such that relevant information from these Prior EIRs is used to the maximum extent reasonable and applicable. For example, pursuant to CEQA Guidelines Section 15150, this document incorporates by reference portions of these Prior EIRs (including descriptions of the environmental setting that remain consistent and regulatory provisions that remain applicable.

Scope and Structure of the EIR

Environmental Topics Addressed

Based on the written and oral comments received by the City on the NOP, as well as CEQA Guidelines Appendix G, the following environmental topics are addressed in this EIR following the initial Chapters 1 through 4:

- Chapter 5: Aesthetics
- Chapter 6: Air Quality
- Chapter 7: Biological Resources

[3] The Genentech Corporate Facilities Research & Development Overlay zoning district was amended and modified in 2013, and is now the Genentech Master Plan zoning district (South San Francisco Municipal Code, Section 20.260)

[4] City of South San Francisco, Zoning text and map amendments, May 16, 2013

- Chapter 8: Cultural and Historic Resources
- Chapter 9: Geology and Soils
- Chapter 10: Greenhouse Gas Emissions and Climate Change
- Chapter 11: Hazards and Hazardous Materials
- Chapter 12: Hydrology and Water Quality
- Chapter 13: Land Use and Planning
- Chapter 14: Noise
- Chapter 15: Population, Housing and Employment
- Chapter 16: Public Services and Recreation
- Chapter 17: Transportation, Circulation and Parking
- Chapter 18: Utilities and Service Systems
- Chapter 19: Other Less-than Significant Effects (agriculture and forest resources and mineral resources)

Report Organization

The EIR is organized into the following chapters:

Chapter 1 – Introduction

Discusses the overall EIR purpose; provides a summary of the proposed Specific Plan; describes the EIR scope; and summarizes the organization of the EIR

Chapter 2 – Executive Summary

Provides a summary of the significant environmental impacts that would result from implementation of the proposed Master Plan Update, and describes those regulatory requirements and recommended mitigation measures that would avoid or reduce significant impacts

Chapter 3 - Project Description

Provides a description of the Project Area, Master Plan Update objectives and assumptions, overarching planning strategies, expected buildout under the proposed Master Plan Update, and required approval process

Chapter 4: Overall Approach to the Analysis

Chapter 5-19 - Setting, Impacts, and Mitigation Measures

Describes the following for each environmental topic: existing (or baseline) physical setting; applicable regulatory setting including relevant regulations applicable to the Master Plan Update that serve to reduce or avoid potential environmental impacts; thresholds of significance; potential environmental impacts; mitigation measures as applicable; and identification of the resulting level of significance following implementation of mitigation measures. Potential impacts are identified by level of significance, as follows:

- No Impact - No noticeable adverse effect on the environment would occur.
- Less than Significant (**LTS**) - The Project would cause an environmental effect, but that effect would not exceed the City's threshold of significance.

- Less than Significant with Mitigation Measures **(LTS with MM)**– The proposed Project could cause an adverse environmental effect, but that impact can be reduced to a less than significant level with implementation of recommended mitigation measures as identified in this EIR.
- Significant and Unavoidable **(SU)** – The proposed Project would cause an adverse impact that exceeds the threshold of significance and cannot be avoided or reduced through implementation of recommended mitigation measures, or recommended mitigation measures would have secondary adverse effects that cause the mitigation measure to be rejected.

Chapter 20 - Alternatives

Evaluates a reasonable range of alternatives to the proposed Master Plan Update and identifies an environmentally superior alternative

Chapter 21 - CEQA-Required Assessment Conclusions

Provides the required analysis of cumulative impacts, growth-inducing impacts, significant and irreversible changes, effects found not to be significant and significant unavoidable impacts

Chapter 22 - Report Preparation

Identifies preparers of the EIR, references used, and the persons and organizations contacted

Appendices

The appendices contain the NOP and written comments submitted on the NOP, as well as other technical studies and reports relied upon in the EIR.

Effects of the Environment on the Project

CEQA requires the analysis of potential adverse effects of a project on the environment. Analyses or mitigation for effects of the environment on a project is not required under CEQA. This EIR nevertheless analyzes certain potential effects of the environment on the project (e.g., the effects of sea level rise) in order to provide information to the public and decision-makers. Where a potential significant effect of the environment on the project is identified, the document identifies Project-specific and non-CEQA recommendations to address these issues.

Public Review

This Draft EIR is available for public review and comment during the period identified on the Notice of Availability of a Draft EIR accompanying this document. This Draft EIR and all supporting technical documents and referenced documents are available for public review at the offices of the City of South San Francisco Planning Department, located at 315 Maple Avenue, South San Francisco, CA 94080.

During the public review period, written comments on the Draft EIR may be submitted to the City of South San Francisco Planning Department at the address indicated on the notice. Oral comments on the Draft EIR may be stated at the public hearing on the Draft EIR, which shall be held as indicated on the notice.

Following the public review and comment period, the City will prepare responses to comments received on the environmental analysis in this Draft EIR. The responses and any other revisions to the Draft EIR will be prepared as a Response to Comments document. The Draft EIR and its appendices, together with the Response to Comments document will constitute the Final EIR for the proposed Master Plan Update.

Intended Uses of this EIR

Adoption of the Master Plan Update

Under CEQA, the City of South San Francisco is the Lead Agency for the proposed Genentech Master Plan Update (the "***Project***").[5] As the Lead Agency, the City intends that this EIR serve as the CEQA-required environmental documentation for consideration of the Project by City decision-makers, the public, and other responsible agencies and trustee agencies.[6] This EIR is intended to serve as a public information and disclosure document for use by governmental agencies and the public. Its purpose is to identify and evaluate potential environmental consequences of the proposed Master Plan Update, to evaluate and recommend mitigation measures that would substantially lessen or eliminate adverse impacts, and to examine a range of feasible alternatives to the proposed Master Plan Update. The information contained in this EIR is subject to review and consideration by the City of South San Francisco, prior to the City's decision to approve, reject or modify the proposed Master Plan Update. In accordance with CEQA Guidelines Section 15146, such impacts and mitigations are discussed in this EIR to the level of detail necessary to allow reasoned decisions about the Project.

The City must ultimately certify that it has reviewed and considered the information in the EIR and that the EIR has been completed in conformity with the requirements of CEQA before making any decision on the proposed Master Plan Update. This EIR identifies significant environmental effects that would result from the proposed Master Plan Update. Pursuant to CEQA Guidelines Section 15091, the City cannot approve the Master Plan Update unless it makes one or more of the following findings:

- That changes or alterations have been required in, or incorporated into the Master Plan Update which avoid or substantially lessen significant environmental effects as identified in the EIR
- That such changes or alterations are within the responsibility and jurisdiction of another public agency (not the City of South San Francisco), and that such changes have been adopted by such other public agency, or can and should be adopted by such other agency
- Specified economic, legal, social, technological or other considerations make infeasible the mitigation measures or alternatives identified in the EIR

Zoning Actions

The Master Plan Update does not propose any amendments to the City of South San Francisco General Plan, but it does include conforming Zoning Code text amendments, as more fully described in the Project Description, in order to enable development as proposed. This EIR provides the environmental review necessary for City decision-makers to consider these zoning text actions.

Individual Projects

This EIR is intended to provide sufficient detail to enable the City to make informed site-specific decisions on individual development or infrastructure projects located within the Project Area. This EIR is intended to provide the City with the ability to consider mitigation measures and cumulative impacts resulting from total

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[5] CEQA Guidelines section 15367 defines the "Lead Agency" as the public agency that has the principal responsibility for carrying out or approving a project. The City of South San Francisco is the Lead Agency for the proposed Master Plan Update, ultimately responsible for adopting the Master Plan Update and all associated and subsequent approvals.

[6] Under the CEQA Guidelines, the term "Responsible Agency" includes all public agencies, other than the Lead Agency, that have discretionary approval power over aspects of the project for which the Lead Agency has prepared an EIR. Under the CEQA Guidelines, the term "trustee agency" means a state agency having jurisdiction by law over natural resources affected by the project that are held in trust by the people of California, such as the Department of Fish and Game.

buildout of the Master Plan Update that might be might otherwise not be addressed in a case-by-case analysis approach. It is also intended to enable the City and Genentech to carry out all or portions of the Master Plan Update without having to prepare additional site-specific environmental documents, and/or to simplify the task of preparing subsequent project-level environmental documents for future projects pursuant to the Master Plan Update, as applicable.

The City intends to use the streamlining and tiering provisions of CEQA to the maximum feasible extent, so that future environmental review of specific development projects and public improvement projects carried out in furtherance of the Master Plan Update are expeditiously undertaken, without the need for repetition and redundancy. Specifically, pursuant to CEQA Guidelines Section 15183, Section 15183.3, and/or Section 15162-15164, future environmental analyses may rely on, or be tiered from this EIR:

- CEQA Guidelines Section 15183 mandates that projects that are consistent with the development density established by existing zoning, community plan, or general plan policies for which an EIR was certified, shall not require additional environmental review, except as might be necessary to examine whether there are project-specific significant effects which are peculiar to the project or its site. This streamlines the review of such projects and reduces the need to prepare repetitive environmental studies.
- CEQA Guidelines Section 15183.3 provides for streamlining of certain qualified, infill projects. Under this provision, CEQA would not apply to the effects of an eligible infill project if the effect was adequately addressed as a significant effect in this EIR, and if uniformly applied development standards apply to the infill project that would substantially mitigate that effect;
- CEQA Guidelines Sections 15162-15164 allow for the preparation of a Supplemental or Subsequent EIR, and/or an Addendum to a certified EIR when certain conditions are satisfied.

The above are examples of possible streamlining/tiering mechanisms that the City may pursue and do not dictate the City's approach to future environmental review of specific projects.

In some cases, the formulation of site-specific issues will not be known until subsequent design occurs, leading to the preparation of later, project-level environmental documentation. When considering the applicability of the streamlining provisions of CEQA, the City of South San Francisco intends to limit the examination of environmental effects of these later projects to:

- those effects that are peculiar to the project or parcel on which the project would be located, and/or
- subsequent projects that may result in impacts that were not analyzed as significant effects in this EIR, or which may result in impacts that are identified in this EIR but which may be determined to have a more severe adverse effect than discussed in this EIR (per CEQA Guidelines, section 15183)

At such time as individual actions (i.e., development proposals and public infrastructure and transportation improvements) contemplated under the proposed Project are proposed for implementation, the City will consider:

- whether the action's environmental effects were fully disclosed, analyzed, and as needed, mitigated within this EIR
- whether the action is exempt from CEQA
- whether the action warrants preparation of a subsequent or supplemental environmental document or an addendum, or
- whether the action warrants preparation of focused environmental review limited to certain site-specific issues

2
Executive Summary

Project Overview

This Draft Environmental Impact Report (Draft EIR) has been prepared by the City of South San Francisco (as lead agency) to describe the potential environmental consequences of the proposed Genentech Master Plan Update for the Genentech Campus in the East of 101 Area of South San Francisco. The Genentech Camps (Project Site) is approximately 207 acres in size, and currently contains approximately 4.7 million square feet of building space. Genentech's Master Plan Update proposes a Campus-wide buildout at a floor-area ratio (FAR) of 1.0 times the total area of the Campus, resulting in a buildout potential of just over 9 million square feet of building space, or an approximately 4.3 million square-foot increase in net new building space.

The Master Plan Update is intentionally flexible, enabling Genentech to adapt its Campus to accommodate future innovation in medicine and science, and to enable creative new urban design strategies to influence future building plans. To maximize flexibility, the Master Plan Update allows the land use mix within the Campus to evolve over time, depending upon Genentech's future needs. To provide detail and specificity for this EIR, the EIR Project Description provides one potential detailed buildout scenario that meets the goals of the Master Plan Update, and is used for quantitative analytical purposes for this EIR. This Project Description includes a forecast growth of approximately 2.4 million square feet of net new office space, approximately 1.6 million square feet of new lab space and approximately 0.3 million square feet of various types of new employee amenity spaces. The EIR Project Description also assumes a net retention of the nearly 1.3 million square feet of manufacturing, warehouse and distribution building space that is on Campus today.

This Draft EIR is intended to serve as an informational document for use by public agency decision makers and the public in their consideration of the proposed Master Plan Update.

Summary of Impacts and Mitigation Measures

The following **Table 2-1** provides a summary of potential environmental impacts, the regulatory requirements applicable to new development within the Campus, recommended mitigation measures (as necessary), and the resulting level of significance after implementation of all regulatory requirements and mitigation measures. For a more complete discussion of potential environmental impacts and mitigation measures, please refer to individual topic area chapters of this Draft EIR.

Significant and Unavoidable Impacts

Based on the analysis presented in this EIR, the Project would result in the following environmental impacts that would be considered significant and unavoidable:

Air Quality

Operational Criteria Pollutants

During operations, the Project would result in a cumulatively considerable net increase of criteria pollutants for which the region is non-attainment, including emissions that exceed quantitative thresholds for ozone precursors. Specifically, the Project's average daily operational emissions are projected to exceed 54 pound per day of reactive organic gas (ROG) and nitrogen oxides. Regulatory Requirement AQ 4 - New Source Review Offset requires Genentech to purchase offset credits pursuant to BAAQMD Regulation 2-2: New Source Review, Section 302 Offset Requirements for each new permitted stationary source of NOx and/or ROG emissions, and for any modifications to existing stationary emission sources that result in increased NOx and/or ROG emissions. Although TDM, energy efficiency features and regulatory requirements are incorporated into the Project, total emissions of criteria pollutants from mobile sources and other sources not requiring separate permits from BAAQMD would exceed the thresholds of significance. The health impacts associated with criteria pollutant emissions from the Project are conservatively estimated and the analysis indicates that anticipated health impacts are vanishingly small and that the actual health impacts may be zero.

Noise

Construction Noise

Construction activities pursuant to the Project could generate noise levels that exceed the noise standards established in SSFMC Section 8.32.030. Construction projects pursuant to the Project will be required to implement

- Mitigation Measure Noise 1A - Construction Period BMPs for construction that is within 50 feet of an adjacent off-site property and where construction noise may exceed the 90-dBA limit of the SSF Municipal Code
- Mitigation Measure Noise 1B - Truck Routes (requiring that heavily loaded trucks be routed away from noise-sensitive and vibration-sensitive uses, and

With implementation of Genentech Noise Attenuation and Logistics Plans, construction-period noise effects on Genentech's own on-Campus buildings would meet applicable OSHA requirements for safe workspaces and other private Genentech-based noise standards for healthy workplaces. Construction noise is typically not considered significant if its duration is for a period of less than one year, construction noise is temporary and episodic in nature and mitigation measures presented include all reasonable and feasible methods to reduce construction noise effects. However, since the details of construction activity cannot be known in advance, this impact is conservatively considered significant and unavoidable.

Transportation

Local Intersection Level of Service – Existing plus Project

The Project would contribute traffic to intersections in the Project vicinity that would result in conflicts with applicable plans, ordinances or policies that establish measures of effectiveness for intersection levels of service (LOS) or queuing at twenty (20) of the 27 traffic study intersections. Regulatory requirements and/or mitigation measures have been identified that are capable of reducing these impacts at 13 of the 20 affected intersections, but no feasible or certain improvements have been identified as capable of reducing impacts to a less than significant level at 7 affected study intersections.

Payment of fair-share contributions toward signal timing improvements and intersection improvements as included in the City's current East of 101 Transportation Impact Fee Program (Regulatory Requirements Transp 1A and Transp 1B) would reduce Project impacts at 9 intersections. Either fully funding certain improvements subject to fee credits, or paying City Transportation Impact Fees if the City's then-current CIP includes improvements at the time of issuance of building permits (pursuant to Mitigation Measure Transp-1), the Project's impacts would be reduced to less than significant at 4 intersections. However, either there are no feasible improvements capable of reducing the Project's impacts, or implementation of mitigation improvements are within the jurisdiction of a separate agency (Caltrans) at seven (7) intersections, and impacts would remain significant and unavoidable at the following locations:

- 101 NB/Oyster Pt. Boulevard off Ramp (Caltrans jurisdiction)
- 101 SB/Gateway Boulevard/Oyster Pt. Boulevard Off Ramp (Caltrans jurisdiction)
- Gull Drive/Forbes Boulevard (limited right-of-way)
- Airport Boulevard/Miller Avenue/ US-101 SB Off-Ramp (Caltrans jurisdiction)
- Airport Boulevard/Grand Avenue (unavailable capacity for southbound left turn queue)
- South Airport Boulevard/US-101 On- and Off-Ramps/ Wondercolor Drive (constrained right-of-way)
- South Airport Boulevard / I-380 Westbound ramp (constrained right-of-way and downstream queuing on the I-380 westbound ramp)

Freeway Segments – Existing plus Project

The Project would generate more than 100 peak hour trips onto the Congestion Management Program roadway network, resulting in conflicts with applicable plans, ordinances or policies that establish measures for effective levels of service along two freeway segments.

- Southbound US-101 north of Oyster Point Boulevard during the AM peak hour (with a 5.1% increase in traffic volume)
- Northbound US-101 south of Produce Avenue during the AM peak hour (with a 5% increase in traffic volume)

Consistent with C/CAG guidelines, the Project will implement a TDM program that is consistent with and exceeds City requirements. That TDM program will serve to reduce its otherwise greater contribution of trips on the CMP network, including increased traffic on US-101 freeway segments. However, there are no feasible mitigation measures for these impacts to freeway segments due to constrained right-of-way and a corresponding inability to add traffic capacity or reduce vehicular delays.

Local Intersection Level of Service – Cumulative

The Project would contribute to cumulative traffic levels that would result in conflicts with applicable plans, ordinances or policies that establish measures of effectiveness for intersection levels of service (LOS) at 22 intersections. Mitigation measures identify improvements that could be made at 7 of the 22 affected intersections, but 4 of these improvements do not currently have an identified funding source. No feasible improvements have been identified as being capable of reducing impacts to less than significant levels under the Cumulative plus Project scenario at 15 affected study intersections.

Regulatory requirements and mitigation measures identified under Existing plus Project conditions (Mitigation Measure Transportation 6A) would reduce Cumulative plus Project impacts to less than significant levels at 3 intersections.

Improvements identified in Mitigation Measure Transportation-6B could effectively reduce impacts at 4 of intersections, but these improvements are not currently included under the City's East of 101 Transportation Impact Fee Program or in the City's Capital Improvement Program (CIP), and there is no fair-share funding mechanism is established by the City to provide for fair-share payments toward the improvements.

Even with improvements identified in MM Transportation-6B, there are 15 intersections that would be adversely affected by Cumulative plus Project-generated traffic for which there are no feasible improvements capable of reducing cumulative impacts to below threshold levels, and these impacts would remain significant and unavoidable at the following locations:

- Airport Boulevard/Sister Cities Boulevard/Oyster Point Boulevard (constrained roadway right-of-way)
- Dubuque Avenue/Oyster Point Boulevard (no space available to add additional queuing)
- Oyster Point Boulevard/Gateway Boulevard (constrained roadway right-of-way)
- Oyster Point Boulevard/Veterans Boulevard (constrained street right-of-way)
- Oyster Point Boulevard/Eccles Avenue (constrained street right-of-way)
- Gull Drive/Forbes Boulevard (constrained street right-of-way)
- Airport Boulevard/Grand Avenue (adding vehicle capacity would be inconsistent with the Pedestrian Priority Zone identified in the South San Francisco Station Area Specific Plan)
- East Grand Avenue/Gateway Boulevard (roadway widening would conflict with the City of South San Francisco's Complete Streets Policy)
- East Grand Avenue/Harbor Way/Forbes Boulevard (constrained roadway right-of-way)
- Produce Avenue/Airport Boulevard/San Mateo Avenue (constrained roadway right-of-way)
- South Airport Boulevard/Gateway Boulevard (constrained roadway right-of-way)
- South Airport Boulevard/US-101 On- and Off-Ramps (constrained roadway right-of-way)
- South Airport Boulevard/Utah Avenue (no feasible mitigations at this intersection)
- I-380 Westbound Ramp/South Airport Boulevard (unavailable capacity for queue lengths on the southbound right turn movement)

Freeway Ramps - Cumulative

The Project would generate more than 100 peak hour trips onto the Congestion Management Program roadway network, contributing to cumulative traffic levels that would conflict with applicable plans, ordinances or policies that establish measures for effective levels of service at two nearby freeway interchanges under Cumulative plus Project conditions (US-101/Oyster Point Boulevard interchange in the PM peak hour, and US-101/Produce Avenue interchange in the AM peak hour). Consistent with C/CAG guidelines, the Project will implement a TDM program that is consistent with and exceeds City requirements. That TDM program will serve to reduce its otherwise greater contribution of trips on the CMP network, including its contributions of traffic to freeway ramps, but impacts will remain significant and unavoidable.

Freeway Segments – Cumulative

The Project would generate more than 100 peak hour trips onto the Congestion Management Program roadway network, contributing to cumulative traffic levels that would conflict with applicable plans, ordinances or policies that establish measures for effective levels of service on the following freeway segments:

- Northbound US-101 north of Oyster Point Boulevard (the Project would contribute 1.2 and 3 percent of the cumulative traffic on this freeway segment during both peak hours, respectively)
- Southbound US-101 north of Oyster Point Boulevard (the Project would contribute 5 percent of the cumulative traffic on this freeway segment during the AM peak hour)
- Northbound US-101 between Oyster Point Boulevard and Grand Avenue (the Project would contribute 2 percent of the cumulative traffic on this freeway segment during the PM peak hour)
- Southbound US-101 between Oyster Point Boulevard and Grand Avenue (the Project would contribute 1.1 percent of the cumulative traffic on this freeway segment during the PM peak hour)
- Northbound US-101 between Grand Avenue and Produce Avenue (the Project would contribute 5 percent of the cumulative traffic on this freeway segment during the AM peak hour)
- Southbound US-101 between Grand Avenue and Produce Avenue (the Project would contribute 4 percent of the cumulative traffic on this freeway segment during the PM peak hour)
- Northbound US-101 south of Produce Avenue (the Project would contribute 5 percent of the cumulative traffic on this freeway segment during the AM peak hour)

Consistent with C/CAG guidelines, the Project will implement a TDM program that is consistent with and exceeds City requirements. That TDM program will serve to reduce its otherwise greater contribution of trips on the CMP network, including increased traffic on US-101 freeway segments.There are no feasible mitigation measures for these impacts to freeway segment due to constrained right of way on US-101, and these cumulative impacts remain significant and unavoidable.

Summary of Alternatives

Two alternatives were considered in preparation of this EIR, but rejected. A “No New Development Alternative” was rejected because the Project is a revision of the existing 2007 Genentech Campus Master Plan, and the “no project” alternative will be rejection of the Project but continuation of the existing Master Plan and existing zoning regulations into the future. This EIR does not analyze nor does it foresee any “no build” scenario under which there is no new development beyond what exists at the Campus under the current baseline condition. CEQA Guidelines state that an alternative site location should be considered when, “feasible alternative locations are available, and the significant effects of the project would be avoided or substantially lessened by putting the project in another location.” Although Genentech's corporate headquarters and main laboratory facilities are located in the East of 101 Area of South San Francisco, Genentech does have additional manufacturing facilities in Vacaville and Oceanside, California and in Hillsboro, Oregon. Genentech also has a manufacturing facility in Singapore. It is possible that Genentech could consider an alternative of developing additional office, laboratory and associated building space as envisioned under the Project at one of these other locations. However, development of the Project at one of these other locations would not enable Genentech to achieve its basic Project objectives. There is no information to suggest that development of up to approximately 4.3 million square feet of Genentech operational facilities at any of these other locations would avoid or substantially lessen any significant effects of the Project, but instead would likely transfer those effects

from one place to another. For these reasons, an alternative site location was eliminated from further consideration in this EIR.

Alternatives Analyzed

Three alternatives are analyzed in this EIR. These alternatives are intended to meet the CEQA requirements for the EIR to describe the no project alternative as well as a range of reasonable alternatives to the Project that would feasibly attain most of the basic objectives of the Project, but would avoid or substantially lessen significant effects.

Alternative #1: No Project

CEQA Guidelines Section 15126.6(e)(3)(A) states that, if the project is the revision of an existing land use or regulatory plan, policy or operation, the "no project" alternative will be the continuation of the existing plan, policy or operation into the future. Alternative #1 (or the No Project) is defined as the current 2007 Master Plan and the existing Genentech Master Plan Zoning District remaining in place. Consistent with growth projections as analyzed in the prior 2007 Master EIR and 2012 Supplemental Master EIR, new development within the Campus would remain limited to a maximum buildout of up to 6 million square feet of building space, plus the 821,000 square feet added as the South Campus (originally the Britannia East Grand project) in 2013.

Alternative 2: Reduced Project

Alternative 2 (the Reduced Project) would establish an overall growth limit within the Campus boundaries of up to 7.9 million square feet, or an overall floor area ratio (FAR) of 0.88 times the total area of the approximately 208-acre Campus. A 7.9 million square-foot buildout potential represents a mid-point between the 6.8 million square-foot buildout of the currently effective 2007 Master Plan, and the 9 million square-foot buildout potential of the proposed Project. The Reduced Project Alternative assumes that the Genentech Campus would meet a 28% trip reduction rate, consistent with current City requirements.

Alternative 3: Alternative Mix of Land Uses

Under Alternative #3, the overall net new development within the Campus would be approximately 4.3 million square feet (same as the EIR Project Description) to a buildout of 9 million square feet. However, the mix of land uses within the Campus would have a substantially different shift from the higher trip-generating office land use assumed in the EIR Project Description, to the lower trip-generating lab and manufacturing space uses. One of the purposes of having an Alternative that mixes the land use composition of the future Campus buildout is to demonstrate the flexibility of the Master Plan Update and its proposed Trip Cap to respond to potentially changing building space demands at the Campus over time.

Environmentally Superior Alternative

None of the alternatives is capable of changing a significant impact of the Project to less than significant impact, or is capable of fully avoiding an environmental effect of the Project. Rather, the differences between the Project and the alternatives are measured in relative magnitude.

Generally, the lower development potential of Alternative #1 (the No Project) would generate less overall construction-period and operational emissions of air quality pollutants, toxic air contaminants, GHG emissions, less vehicle trips and lower demands on utilities, as compared to the Project. Alternative #1 has a reduced development footprint, fewer identified Opportunity Sites where new development may occur, and does not include Opportunity Sites on steeper hillsides where mitigation measures would otherwise be required to address potential slope failure. Based on order of magnitude effects,

Alternative #1 (the No Project Alternative) is environmentally superior to the Project and to all other alternatives. CEQA requires this EIR to identify another alternative that would be considered environmentally superior in the absence of the No Project Alternative. Like the No Project Alternative, the lower development potential of Alternative #2 would generate less overall construction-period and operational emissions of air quality pollutants, toxic air contaminants and GHGs, and would lower demands on utilities as compared to the Project. Based on order of magnitude effects, Alternative #2 (the Reduced Project Alternative) is the environmentally superior alternative, but Alternative #2 (like the No Project Alternative) does not substantially lessen or avoid any significant environmental effects of the Project that cannot otherwise be substantially lessened or avoided with implementation of all feasible mitigation measures identified in this EIR.

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
Aesthetics		
Aesthetics 1: New development pursuant to the Project would not result in a substantial adverse effect on a scenic vista.	None needed	Less than Significant
Aesthetics 2: New development pursuant to the Project would not substantially damage scenic resources including, but not limited to, trees, rock outcroppings or historic buildings within a state scenic highway.	None needed	Less than Significant
Aesthetics 3: New development pursuant to the Project would not substantially degrade the visual character or quality of the Project Area.	**Regulatory Requirement Aesthetics 3, Design Review**: Pursuant to the City of South San Francisco's Zoning Code (Chapter 20.480: Design Review) the City will continue to review the design of new buildings on Campus. The City's Design review criteria will be used to ensure that new buildings promote high-quality design, are well crafted and maintained, use high-quality building materials and are attentive to the design and execution of building details and amenities.	Less than Significant
Aesthetics 4: New development pursuant to the Project could result in new sources of increased daytime glare and nighttime illumination.	**Regulatory Requirement Aesthetics 4, Design Review for Light and Glare**: Consistent with South San Francisco Municipal Code Section 20.480.006, new development pursuant to the Master Plan Update will be required to comply with the following design considerations relative to light and glare: 1. Open space, pedestrian walks, signs, illumination, and landscaping (including irrigation) shall be designed and developed to enhance the environmental quality of the site, achieve a safe, efficient, and harmonious development, and accomplish the objectives set forth in the precise plan of design and design criteria (Municipal Code section 20.480.006.6) 2. Electrical and mechanical equipment or works, and fixtures and trash storage areas, shall be designed and constructed so as not to detract from the environmental quality of the site. Electrical and mechanical equipment or works and fixtures and trash storage areas shall be concealed by an appropriate architectural structure that uses colors and materials harmonious with the principal structure, unless a reasonable alternative is identified (Municipal Code section 20.480.006.7) 3. Components considered in design review shall include but not be limited to exterior design, materials, textures, colors, means of illumination, landscaping, irrigation, height, shadow patterns, parking, access, security, safety, and other	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	usual on-site development elements (Municipal Code section 20.480.006.8) **Mitigation Measure Aesthetics 4A, Night Lighting**: Maintain appropriate levels of night lighting at building entries, walkways, courtyards, parking lots and private roads, consistent with minimum levels detailed in Genentech's Security Plan and City building codes. **Mitigation Measure Aesthetics 4B, Non-Reflective Glass and Surfaces**: Design for new structures within the Project Area shall include the use of textured or other non-reflective exterior surfaces and non-reflective glass types, including double-glazed and non-reflective vision glass, while achieving the requisite performance for energy conservation, internal comfort and glare control. All exterior glass must meet the specifications of all applicable building codes	
Air Quality		
AQ 1: Implementation of the Project would not conflict with or obstruct implementation of the applicable air quality plan	None needed	Less than Significant
AQ 2: Throughout buildout of the Project, construction activities would result in emissions of criteria pollutants for which the region is non-attainment, including releasing emissions of ozone precursors and particulates. However, with implementation of Basic BMPs for all construction projects, and Additional BMPs for those construction projects that exceed screening criteria, construction emissions would be unlikely to exceed applicable thresholds.	**Best Management Practices AQ 2A, Basic Construction Measures**: Consistent with BAAQMD recommendations, the following BMPs shall be implemented by all construction projects, regardless of itemized construction emission levels: a) All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. b) All haul trucks transporting soil, sand, or other loose material off-site shall be covered. c) All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. d) All vehicle speeds on unpaved roads shall be limited to 15 mph. e) All roadways, driveways and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. f) Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	access points. g) All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. h) Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations. It is possible that variations in construction schedules will occur, resulting in construction of individual buildings exceeding the assumed annual average, or that multiple buildings may be constructed across the Campus at the same time. Therefore, the following requirement is recommended as a Condition of Approval for the Project, to address subsequent development-specific circumstances: **Recommendation AQ 2: Project-Specific Construction Emission Analysis**: A project-specific construction emissions analysis is required for all projects that exceed the assumptions of this analysis, including: a) Annual construction exceeding 215,000 square feet a year. b) Construction projects that individually exceed 227,000 square feet in size (the lower of BAAQMD screening sizes for either office parks or industrial parks) c) When two or more simultaneously occurring construction projects would exceed this screening size, or construction projects include more than two simultaneously occurring construction phases d) Construction projects that would include demolition, that would involve extensive site preparation (i.e., greater than default assumptions used by the URBEMIS model), or that involve extensive material transport (in amounts greater than 10,000 cubic yards of soil import/export) e) If a project-specific emission analysis exceeds the per-day construction emissions thresholds presented in Table 6-2, then a demonstration of consistency with the results in AQ-3 would also be required.	
AQ 3: During construction activities, the Project could expose sensitive receptors to substantial pollutant concentrations from construction-related emissions. Specifically, the Project's construction emissions could cause an excess cancer risk level exceeding 10 in 1 million at the maximally exposed sensitive receptor.	None needed for construction activities on each of those Opportunity Sites as indicated on Figure 6-3 as not contributing to construction-period health risks (i.e., impacts would be less than significant). All construction activities pursuant to buildout of the Project may proceed on all Opportunity Sites without further site-specific or project-specific analysis if Mitigation measure AQ 3: Diesel Particulate Filters, are installed on all diesel construction	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	equipment (i.e., where health risk impacts would be mitigated to less than significant levels). **Mitigation Measure AQ 3, Diesel Particulate Filters**: Construction activity that occurs in proximity to the Genentech daycare center or the Early Years preschool on Allerton Avenue shall use off-road construction equipment installed with diesel particulate filters capable of reducing PM10 and PM2.5 emissions by as much as 85%.	
AQ 4: During operations, the Project would result in a cumulatively considerable net increase of criteria pollutants for which the region is non-attainment, including emissions that exceed quantitative thresholds for ozone precursors. Specifically, the Project's average daily operational emissions are projected to exceed 54 pound per day of reactive organic gas (ROG) and nitrogen oxides.	**Regulatory Requirement AQ 4, New Source Review Offset**: Genentech shall purchase offset credits pursuant to BAAQMD Regulation 2-2: New Source Review; Section 302, Offset Requirements for each new permitted stationary source of NOx and/or ROG emissions, and for any modifications to existing stationary emission sources that result in increased NOx and/or ROG emissions.	**Significant and Unavoidable** Although TDM, energy efficiency features and regulatory requirements are incorporated into the Project, total emissions of criteria pollutants from mobile sources and other sources not requiring separate permits form BAAQMD would exceed the thresholds of significance -
AQ 5: During operational activities, the Project could expose sensitive receptors to substantial health risk from operational-related emissions if operational sources of TAC emissions are not limited in location and operational parameters.	None needed for operational source of TAC emission that operate within the emission parameters used in this analysis and located on any of those Opportunity Sites shown on Figures 6-5 and 6-6 as not contributing to operational-period health risks – (i.e., less than significant). Individual projects that include new sources of operational TAC emissions that would operate outside of the operational parameters used in this EIR are subject to the following mitigation measure: **Mitigation Measure AQ 5A, Parameters for Operational Emissions**: New operational sources of TAC emissions (i.e., emergency generators, laboratories with emissions stacks, or natural gas combustion at the Miura boilers or potential CHP) shall operate within the operational parameters as used in this analysis (as shown in Table 6-9). For any operational source of TAC emissions that does not operate within these	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	parameters, a subsequent, project-specific health risk analysis shall be performed. Any such subsequent, project-specific health risk analysis must be able to demonstrate that the proposed operational source of TAC emissions would not contribute to new or substantially more significant health risks to sensitive receptors than those health risks presented in this EIR. This conclusion may account for any additional project-specific measures to reduce TAC emissions included as part of such an emission source. Individual projects that include new operational sources of TAC emissions and that are sited at locations not shown on Figure 6-5 (for laboratories) or Figure 6-6 (for emergency generators) are subject to the following mitigation measure: **Mitigation Measure AQ 5B, Locational Restrictions on Future Operational Emission Sources:** Emergency generators and laboratories with emissions stacks shall be limited to those locations as shown on Figure 6-5 (for laboratories) or Figure 6-6 (for emergency generators), where their operations have been demonstrated to not exceed health risk thresholds. For any operational source of TAC emissions that are located outside of these locations, a subsequent project-specific health risk analysis shall be performed. Any such subsequent, project-specific health risk analysis must be able to demonstrate that the proposed location would not contribute to new or substantially more significant health risks to sensitive receptors than those health risks presented in this EIR. This conclusion may account for any additional project-specific measures to reduce TAC emissions included as part of such an emission source.	
Biological Resources		
Bio 1: The Project could potentially have an indirect adverse effect on Central California Coast steelhead, green sturgeon, longfin smelt and their tidal aquatic habitat within the Bay.	**Regulatory Requirement Hydro 1A, Construction General Permit and Stormwater Pollution Prevention Plan**: All qualifying construction projects pursuant to the Master Plan Update shall comply with Provision C.6 of the Municipal Regional Permit (MRP), including filing a Notice of Intent for permit coverage under the Construction General Permit 1) To obtain Construction General Permit coverage, construction projects must include a Stormwater Pollution Prevention Plan (SWPPP) that demonstrates compliance with the City's Grading Ordinances and other local requirements. 2) The SWPPP must demonstrate implementation of seasonally appropriate and effective best management practices (BMPs) to prevent construction site discharges of pollutants into the storm drains, before approval and issuance of local grading permits. 3) Such construction projects are required to implement the stormwater BMPs identified by the San Mateo Countywide Stormwater Pollution Prevention	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	Program, including plans to address materials and waste management, equipment management and spill control, grading and earthmoving to prevent erosion, paving and asphalt work, concrete and mortar applications, painting and paint removal, landscaping and dewatering. **Regulatory Requirement Hydro 1B, Provision C.3 Requirements/Stormwater Management Plan**: All new Regulated Projects pursuant to the Master Plan Update will be required to comply with Provision C.3 of the MRP, including requirements to incorporate post-construction stormwater control and low-impact development (LID) measures. Each individual development project must meet Provision C.3 requirements capable of reducing long-term impacts of development on stormwater quality. Some combination of the following post-construction stormwater controls will be required to demonstrate compliance with the hydraulic design criteria of the MRP: 1) Site design may include minimizing impervious surfaces minimizing impervious surfaces that are directly connected to the storm drain system, or using landscaping as a drainage feature. 2) Source control measures may include roofed trash enclosures, berms that control runoff from a pollutant source, use of indoor mats/equipment wash racks that are connected to the sanitary sewer (where allowed under separate sewer discharge permits), and regular inspection and cleaning of storm drain inlets. 3) Stormwater treatments may be met by a combination of measures that may include but are not limited to bioretention areas, flow-through planter boxes, infiltration trenches, extended detention basins, green roofs, pervious paving and grid pavements, rainwater harvesting and subsurface infiltration systems.	
Bio-2: The Project may cause a substantial adverse effect, both directly and through habitat modification, on California Ridgway's rail (federally and state listed as endangered and designated as a state fully protected species).	**Mitigation Measure Bio 2A, Seasonal Avoidance**: To avoid causing the abandonment of an active California Ridgway's rail nest, construction activities within 750 feet of the coastal salt marsh habitat in the southeastern corner of the site (see Figure 7-9) shall be avoided during the rail breeding season (from February 1 through August 31). If avoidance is not possible, protocol-level surveys (see Mitigation Measure Bio 2, below) shall be conducted by a qualified biologist to determine rail locations and territories. **Mitigation Measure Bio 2B, Protocol-Level Surveys and Buffers around Calling Centers**: Prior to any construction activity near the coastal salt marsh along the southeastern edge of the biological Study Area, a protocol-level survey, which involves a series of site visits between mid-January (beginning no later than January 31) and late March, shall be conducted by a qualified biologist. The survey needs to be approved by the USFWS and CDFW in advance. If breeding rails are determined to be present, construction activities shall not occur within 750 feet of an identified calling center	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	during the breeding season. **Mitigation Measure Bio 2C, Initiate Work during the Non-Breeding Season**: Regular, ongoing disturbance within a work area that begins prior to the start of the nesting season or nest establishment in an area may deter California Ridgway's rails from nesting near construction activities. If construction activities need to occur within 750 feet of suitable California Ridgway's rail nesting habitat, such activities shall be initiated and shall reach peak levels of disturbance prior to the onset of the nesting season. Peak levels of disturbance is defined as construction noise in the vicinity of the suitable habitat reaching maximum levels, and construction activities that occur as near to the suitable habitat as required for the project. If an active nest is identified subsequent to construction activities reaching a peak level of disturbance, a buffer of 750 feet shall be established between Project activities and the nest.	
Bio 3: The Project would not cause a substantial adverse effect, either directly or through habitat modification, on burrowing owls. Burrowing owls are a migratory species protected under the federal MBTA and California Fish and Game Code, and designated as a state species of special concern.	None required	Less than Significant
Bio 4: The Project may cause a substantial adverse effect, either directly or through habitat modification, on Alameda song sparrow, San Francisco common yellowthroat (both California species of special concern) and other native bird species protected by the MBTA and California Fish and Game Code.	**Mitigation Measure Bio 4A, Seasonal Avoidance**: To the extent feasible, construction activities should be scheduled to avoid the nesting season. If construction activities are scheduled to take place outside the nesting season, all impacts on nesting birds protected under the MBTA and California Fish and Game Code will be avoided. The nesting season for most birds in San Mateo County extends from February 1 through August 31. **Mitigation Measure Bio 4B, Pre-construction/Pre-disturbance Surveys**: If it is not possible to schedule construction activities between September 1 and January 31, then a pre-construction survey for nesting birds shall be conducted by a qualified ornithologist to ensure that no nests will be disturbed during Project implementation. These surveys should be conducted no more than seven days prior to the initiation of any construction activities. During this survey, the ornithologist shall inspect all trees and other potential nesting habitats (e.g., trees, shrubs, ruderal grasslands, buildings) in and immediately adjacent to the impact area, as well as a construction zone of up to 300 feet from the edge of the construction zone into the southerly coastal salt marsh habitat (if applicable), for nests. **Mitigation Measure Bio 4C, Buffers:** If an active nest is found sufficiently close to work areas such that it would be disturbed by construction activities, the ornithologist	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	shall determine the extent of a construction-free buffer zone to be established around the nest (typically 300 feet for raptors and 100 feet for other species). Any active nests shall be monitored by the ornithologists to determine when the young fledge, and construction within the buffer zone can resume.	
Bio 5: The Project could potentially have an indirect adverse effect on harbor seal and California sea lion (both protected species under the Marine Mammal Protection Act), and their tidal aquatic habitat within the Bay.	**Regulatory Requirement Hydro 1A, Construction General Permit/Stormwater Pollution Prevention Plan**: (see additional details under Bio 1, above). **Regulatory Requirement Hydro 1B, Provision C.3 Requirements/Stormwater Management Plan**: (see additional details under Bio 1, above).	Less than Significant
Bio 6: The Project would not interfere substantially with migratory bird corridors due to bird strikes with buildings.	None required	Less than Significant
Bio 7: The Project could potentially result in adverse effects on coastal salt marsh and other sensitive habitat due to the spread of invasive and non-native plant species.	**Mitigation Measure Bio 7, Invasive Weed Control**: Prior to ground disturbing activities, the Project work areas shall be surveyed by a qualified biologist/botanist for the presence of pampas grass, fennel and other highly invasive plant species from the California Invasive Plant Council list. a) Any invasive plants found within the area that is to be disturbed by development shall be removed and disposed of in a sanitary landfill. Alternatively, invasive plants may be disposed of in a high-temperature composting facility that can compost using methods known to kill weed seeds, taking care to prevent any seed dispersal during the process by bagging material or covering trucks transporting such material from the site. b) Cut soils from areas infested by weeds such as pampas grass and fennel that will be reused as fill elsewhere in the Project Area will be buried under hardscape or placed in areas to be managed with landscaping. c) During construction activities, all seeds and straw materials used on site shall be weed-free, and all gravel and fill material shall be certified weed-free. d) Construction vehicles and all equipment will be washed (including wheels, undercarriages and bumpers) before entering the Project Area. Vehicles will be cleaned at existing construction yards or car washes. Genentech will document that all vehicles have been washed prior to commencing work.	Less than Significant
Bio 8: The Project will not 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	**Regulatory Requirement Hydro 1A, Construction General Permit/Stormwater Pollution Prevention Plan**: (see additional details under Bio 1, above). **Regulatory Requirement Hydro 1B, Provision C.3 Requirements/Stormwater**	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
of Fish and Wildlife or U.S. Fish and Wildlife Service.	**Management Plan**: (see additional details under Bio 1, above).	
Bio 9: The Project will not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.), waters of the U.S., and waters of the state through direct removal, filling, hydrological interruption or other means.	**Regulatory Requirement Hydro 1A, Construction General Permit/Stormwater Pollution Prevention Plan**: (see additional details under Bio 1, above). **Regulatory Requirement Hydro 1B, Provision C.3 Requirements/Stormwater Management Plan**: (see additional details under Bio 1, above). **Mitigation Measure Bio 9, Drainage Channel Wetland Delineation**: Although drainage channels within the site lack many of the habitat features usually present in jurisdictional waters of the State, there is some possibility these drainage ditches may be claimed as jurisdictional by the RWQCB. Prior to any proposed fill or material alteration of on-site drainage ditches (those indicated on prior Figure 7-8), a wetlands delineation based on the criteria of most current Corps of Engineers Wetlands Delineation Manual and any regional supplements shall be conducted. a) Presuming this wetland delineation finds the on-site drainage ditches are not Waters of the US and that these delineations are accepted by the Corps, then no further federal wetlands permitting is required. b) If the RWQCB claims jurisdiction of these features, any alteration of the drainage ditches would require a permit from the RWQCB and compliance with all standards and requirements of such permit. c) The RWQCB is likely to consider these drainage ditches as required parts of the overall Campus' Stormwater Management Plan, and pursuant to subsequent Statewide General Construction Permits will likely require that the storm drainage functions of these features be replaced if they are affected.	Less than Significant
Bio 10: The Project will not 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.	None required	Less than Significant
Bio 11: The Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	**Regulatory Requirement Bio 11A, Tree Removal Permit**: All new development pursuant to the Project will be required to comply with City of South San Francisco Municipal Code 13.30, which prohibits the removal or pruning of protected trees without a permit. Pursuant to this regulatory requirement, Genentech will be required to retain a certified arborist to conduct pre-construction surveys of trees within the Project Area, and provide a map to the applicant and the City. Each identified protected tree that will be directly impacted by removal or pruning will require a Tree Pruning/Removal Permit pursuant to the South San Francisco Municipal Code. This	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	permit will be submitted to the City and must be approved before building permits are issued. **Regulatory Requirement Bio 11B, Tree Replacement Planting**: Replacement trees will be determined as set forth in Municipal Code Section 13.30.080, which provides that any protected trees that are removed shall be replaced as follows: 1) Replacement will be three 15-gallon size or two 24-inch box minimum size landscape trees for each tree removed as determined below. However, the director maintains the right to dictate size and species of trees in new developments. 2) Any protected tree removed without a valid permit will be replaced by three 24-inch box minimum size landscape trees of a species approved by the director for each tree so removed as determined below. 3) Replacement of a protected tree can be waived by the director if a sufficient number of trees exist on the property to meet all other requirements of the tree preservation ordinance. 4) If replacement trees cannot be planted on the property, payment of the replacement value of the tree, as determined by the International Society of Arboriculture Standards, plus the costs to the city to plant an equivalent tree elsewhere in the city, will be made to the city.	
Bio 12: The Project will not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan or other habitat conservation plan approved by local, regional or state agencies.	None required	Less than Significant
Cultural Resources		
Cultural 1: Future development pursuant to the Project is not anticipated to cause a substantial adverse change in the significance of any known historical resources.	None needed	Less than Significant
Cultural 2: Future development pursuant to the Project is not anticipated to uncover or disturb a known paleontological resource.	None needed	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
Cultural 3: During ground disturbing activities associated within the Project Area, it is possible that currently unidentified historic-period archaeological resources could be discovered and disturbed.	**Mitigation Measure Cultural 3A, Cultural Resources Worker Environmental Awareness Program**: A qualified archaeologist should conduct training for all construction personnel prior to Project-related construction and ground-disturbing activities. The training should include basic information about the types of artifacts that might be encountered during construction activities, and procedures to follow in the event of a discovery. **Mitigation Measure Cultural 3B, Halt Construction Activity, Evaluate Find and Implement Mitigation**: In the event of discovery of paleontological or historical archaeological resources during site preparation, excavation or other construction activity, all such activity within 25 feet of the discovery shall cease until the resources have been evaluated by a qualified professional. Historic-period archaeological resources may include stone or adobe foundations or walls, structures and remains with square nails, and refuse deposits or bottle dumps. a) If the qualified archaeologist determines the find is not significant and that there is no potential for the find to be a tribal cultural resource, then proper recordation and identification will ensue, and the project construction activity may continue without further delay. b) If the qualified archaeologist determines the find may potentially be a tribal cultural resource, a tribal representative shall be consulted to determine whether it is in fact a tribal cultural resource (see MM Cultural #D, below). c) If the qualified archaeologist determines an archaeological find is significant, then the archaeologist will excavate the find in compliance with state law and keeping project delays to a minimum, and shall implement specific mitigation measures to protect these resources in accordance with sections 21083.2 and 21084.1 of the California Public Resources Code. d) If it is determined that avoidance of the resource is not feasible, then a mitigation plan (including monitoring and data recovery) shall be prepared, with specific steps and timeframe identified. Work near the find may only resume upon completion of a mitigation plan or recovery of the resource. **Mitigation Measure Cultural 3C, In the Event of Discovery of Human Remains**: In the event of a discovery of buried human remains or suspected human remains, all construction activity within 50 feet shall cease until the remains have been evaluated by the County Coroner. a) If the County Coroner determines that an investigation into the cause of death is required, or that the remains are Native American, all work shall cease within 50 feet of the remains until appropriate arrangements are made.	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	b) In the event that the remains are Native American, the City shall contact the California Native American Heritage Commission (NAHC), pursuant to subdivision (c) of section 7050.5 of the California Health and Safety Code to identify the Most Likely Descendant. The Most Likely Descendant shall be consulted as to means for treating or re-interring the human remains and any associated grave goods, with appropriate dignity.	
Cultural 4: During ground disturbing activities associated within the Project Area, it is possible that currently unidentified or non-located tribal cultural resources could be discovered and disturbed.	**Mitigation Measure Cultural 3A, Cultural Resources Worker Environmental Awareness Program** (WEAP): see above **Mitigation Measure Cultural 3B, Halt Construction Activity, Evaluate Find and Implement Mitigation**: see above **Mitigation Measure Cultural 3C, In the Event of Discovery of Human Remains**: see above **Mitigation Measure Cultural 4A, Cultural Resources Monitoring:** A qualified archaeologist shall monitor all construction-related activity expected to involve excavating, drilling or trenching at depths that may reach native sediment in those areas where tribal cultural resources are likely present (i.e., along the Project's shoreline areas within the South and Lower Campus). Monitoring will continue for the duration of such activity or until culturally sterile sediments are reached (e.g., bedrock). The qualified archaeologist may determine to decrease or increase the monitoring efforts based on sediments observed, findings or the number of large ground-disturbing machines in operation. **Mitigation Measure Cultural 4B, In the Event of Discovery of a Tribal Resource:** If a Tribal cultural resource is uncovered during construction, work should be halted within 25 feet of the discovered materials and workers shall avoid altering the materials and their context until a qualified professional archaeologist has evaluated the situation and provided appropriate recommendations. Project personnel should not collect cultural resources. Native American resources include chert or obsidian flakes, projectile points, mortars, and pestles; and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. A tribal representative shall be consulted to determine an appropriate mitigation plan (including monitoring and data recovery), with specific steps and timeframe to be stipulated. Work near the found tribal cultural resource may only resume upon completion of a mitigation plan and/or recovery of the tribal cultural resource.	Less than Significant
Geology and Soils		

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
Geology 1: With implementation of all applicable regulatory requirements, future development pursuant to the Project would not expose people and/or structures to potentially substantial adverse effects resulting from strong seismic ground-shaking and seismic-related ground failure.	**Regulatory Requirement Geology 1, Seismic Hazards**: Pursuant to regulatory requirements, Genentech will be required to retain a certified licensed geotechnical engineer to prepare site-specific geotechnical studies for each new development project pursuant to the Project. 1. Required geotechnical studies shall include site-specific geotechnical recommendations demonstrating compliance with all applicable seismic-related geotechnical engineering standards. 2. Recommendations shall be incorporated into individual development project designs and construction, providing an acceptable level of protection against seismic-related hazards. All new development pursuant to the Project will be required to comply with all applicable regulatory requirements for seismic hazards, including but not limited to the following: **California Seismic Hazards Mapping Act**, which enables the City of South San Francisco to withhold development permits until geologic or soils investigations are conducted for specific sites, and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils **California Building Code**, which provides minimum standards for building design including but not limited to regulations governing seismically resistant construction (Chapter 16, Section 1613) **City of South San Francisco Municipal Code -** Chapter 15.08, which includes CBC standards as further modified by amendments, additions, and deletions adopted as the building code of the City of South San Francisco **East of 101 Area Plan, Chapter 10**, which sets forth policies and specific guidelines pertaining to site development and building design applicable to the unique geological hazards in the East of 101 Area, including the Project Area	Less than Significant
Geology 2: With implementation of all applicable regulatory requirements, most future development pursuant to the Project would not expose people and structures to potentially substantial adverse effects resulting from landslides. Future development on steep hillside sites could pose increased risks of slope instability and landslide potential.	**Regulatory Requirement Geology 2, Landslide Hazards**: Pursuant to regulatory requirements, Genentech will be required to retain a certified licensed geotechnical engineer to prepare site-specific geotechnical studies for each new development project pursuant to the Project. 1. Required geotechnical studies shall include site-specific geotechnical recommendations demonstrating compliance with all applicable excavation design and slope stability standards. The East of 101 Area Plan Geotechnical Safety Element policies (specifically Policy Geo-7 through Geo-9) are designed specifically to mitigate impacts associated with landsliding and unstable slope	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	conditions. 2. Recommendations shall be incorporated into individual development project designs and construction, providing an acceptable level of protection against landslide hazards. **Mitigation Measure Geology 2, Geotechnical Requirements for Hillside Opportunity Sites**: Site-specific geotechnical studies required for each new development at hillside Opportunity Sites (sites with slopes of 30 percent or greater) shall including site-specific geotechnical recommendations to address the stability of existing and proposed slopes, as well as the stability of all proposed excavations. These investigations and recommendations may include, but are not limited to the following: a) A geologic evaluation of the bedding properties of the underlying bedrock to determine if joints or fractures may project out of the proposed excavation during construction b) Recommendations for appropriate shoring systems to be used when making vertical cuts, including evaluation of the stability of the excavation as well as job-site safety considerations c) Evaluation of the drainage and infiltration properties of the existing slope bank d) Installation of horizontal drains to remove seepage e) Construction of a buttress wall at the base of the slope to reduce the risk of damage in the case of an accidental slope failure	
Geology 3: With implementation of all applicable regulatory requirements, future development pursuant to the Project that may be located on a geologic unit or soil that is unstable or that could become unstable because of development, and future development that may be on expansive soil, will not create a substantial risk to life or property.	**Regulatory Requirement Geology 3, Soils Hazards**: Pursuant to regulatory requirements, Genentech will be required to retain a certified licensed geotechnical engineer to prepare site-specific geotechnical studies for each new development project pursuant to the Project. 1. Geotechnical studies shall include site-specific geotechnical recommendations demonstrating compliance with all applicable soils-related building design requirements. 2. Site-specific recommendations may include design features (such as expansion joints, mounting foundations on concrete piles), or replacing existing soils on a project site with stable fill material such that structures can withstand soils expansion. Building pad substrates may also be applicable on soils subject to expansive potential, and weak soils may require re-engineering specifically for stability. Soil treatment programs (replacement, grouting, compaction, drainage control, etc.) may be included in excavation and construction plans, and/or piling supports that conform to implementation criteria described in the CBC, Chapters	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	16, 18, and A33 may need to be designed and implemented. 3. All recommendations shall be incorporated into individual development project designs and construction, providing an acceptable level of protection against soils-related hazards. All new development pursuant to the Project will be required to comply with all applicable regulatory requirements to address soils constraints, including but not limited to the following: **California Seismic Hazards Mapping Act**, which enables the City of South San Francisco to withhold development permits until geologic or soils investigations are conducted for specific sites, and mitigation measures are incorporated into plans to reduce hazards associated with seismically unstable soils **California Building Code**, Chapters 18A and 23 (or Uniform Building Code for Zone 4), which addresses building foundations and structural support requirements, subject to structural peer review **City of South San Francisco Municipal Code -** Chapter 15.08, which includes CBC standards as further modified by amendments, additions and deletions adopted as the Building Code of the City of South San Francisco **East of 101 Area Plan**, Chapter 10: Geotechnical Safety Element, which sets forth policies and specific guidelines pertaining to site development and building design applicable to soils conditions that exist in the East of 101 Area	
Geology 4: With implementation of all applicable regulatory requirements, future development pursuant to the Project would not result in substantial soil erosion or the loss of topsoil.	**Regulatory Requirement Geology 4, Grading Regulations**: Pursuant to regulatory requirements, Genentech will be required to retain a certified licensed geotechnical engineer to prepare site-specific geotechnical studies for each new development project pursuant to the Project. Geotechnical studies shall include site-specific geotechnical recommendations demonstrating compliance with all applicable erosion control requirements, including but not limited to the following: 1. California Building Code, Chapter 18 (which regulates excavation activities and the construction of foundations and retaining walls) and Chapter 33 (which regulates grading activities, including drainage and erosion control) 2. Bay Area Air Quality Management District Rules regarding fugitive dust, which would stabilize soils and prevent erosion through the reduction of dust generation by up to 85 percent 3. All new qualifying construction projects pursuant to the Master Plan Update will be required to comply with Provision C.6 of the Municipal Regional Permit (MRP), including filing a Notice of Intent for permit coverage under the Construction	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	General Permit, and preparation of a Stormwater Pollution Prevention Plan (SWPPP) that demonstrates compliance with the City's Grading Ordinances and other local requirements (see further details in Regulatory Requirement Hydro 1A in the Hydrology chapter of this EIR) 4. The evaluation of potential erosion of steeper slopes is also required as part of new development design in accordance with East of 101 Area Plan Geotechnical Safety Element policies. These policy requirements specify that slopes be graded and compacted during construction to reduce the likelihood of surface slumping or erosion, and that vegetative cover be applied to protect the slope from soil erosion.	
Geology 5: Future development pursuant to the Project would be served by the existing municipal sewer system. No septic tanks or alternate waste disposal systems are proposed for development.	None needed	No Impact
Greenhouse Gas Emissions		
GHG 1: The Project's stationary source emissions will not conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of GHGs. Specifically, the Project will comply with the CARB Cap-and-Trade program, which is a method to achieve statewide reduction goals as set forth in AB 32.	**Regulatory Requirement GHG 1, Cap and Trade**: Genentech is committed to minimizing emissions from stationary sources and continuing participation in the Cap-and-Trade program. Pursuant to this program, Genentech must meet the requirements by ensuring permits (through increased cap or trade) are obtained for incremental growth in these types of stationary source emissions. The Cap-and-Trade allowances must meet or exceed stationary source emission levels as reported to CARB pursuant to mandatory GHG reporting requirements. Compliance with the Cap-and-Trade program can be verified through publicly accessible data maintained by the California Air Resources Board, which includes statewide and facility-specific information on emissions reporting, offsets and allocations, and facility compliance with the Cap and Trade Program	Less than Significant
GHG 2: The Project's stationary source emissions that are not otherwise addressed under the Cap-and-Trade program will not exceed 10,000 MT of CO2e per year, and thus will not contribute to global climate change at a level that is considered cumulatively considerable.	None needed.	Less than Significant
GHG 3: The Project's operational emissions will not conflict with an applicable plan, policy, or regulation	None needed. The Project's indirect, operational GHG emissions attributable to mobile sources, water use, wastewater treatment and waste disposal are fully	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
adopted for the purposes of reducing the emissions of GHGs. Specifically, the Project is consistent with the City's Qualified GHG Reduction Strategy (i.e., the SSF Climate Action Program, or CAP). Those operational-related GHG emissions that are fully covered under the SSF CAP do not represent a cumulatively considerable contribution to global climate change, and emissions that comply with the CAP are excluded from analysis of GHG emissions against the numerical land use-based threshold.	addressed in the City of South San Francisco's Climate Action Plan (a Qualified GHG Reduction Strategy). The CAP allows the City to determine that future development projects will have a less than significant impact on CAP-related GHG emissions if they comply with CAP GHG reduction measures.	
GHG 4: The Project will not generate land use-based GHG emissions, other than those emissions addressed pursuant to the City CAP, that exceed the efficiency threshold of 4.6 MT of CO2e per year per service population (Project jobs) at year 2020. The Project's land use-based GHG emissions would not contribute significantly to global climate change, and this impact is considered less than cumulatively considerable.	No mitigation is required. The Project would not exceed the service-based efficiency threshold for land use-based GHG emissions by year 2020.	Less than Significant
GHG 5: The Project will not generate land use-based GHG emissions, other than those emissions addressed pursuant to the City CAP, that exceed the efficiency threshold of 2.7 MT of CO2e per year per service population at year 2030. The Project's land use-based GHG emissions would not contribute significantly to global climate change, and this impact is considered less than cumulatively considerable.	No mitigation is required. The Project would not exceed the service-based efficiency threshold for land use-based GHG emissions by year 2030.	Less than Significant
Hazards and Hazardous Materials		
Hazards 1: Implementation of the Project would not expose Genentech employees or the nearby public to significant hazards due to the routine transport, use, disposal or storage of hazardous materials (including chemical, radioactive and biohazardous waste).	**Regulatory Requirements Hazards 1A, Use of Chemical Materials**: Genentech shall comply with all State, federal and local regulations, and Genentech programs, practices and procedures that ensure that the potential for worker and/or public exposure to hazardous chemicals from improper or unsafe activities or from accidents is less than significant. 1) To reduce the potential for exposure to airborne chemicals, workers shall take standard precautions such as working under fume hoods when using chemicals	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	that could present exposure hazards. The chemical fume hood is a critical health and safety control in the laboratory setting, ensuring an adequate level of protection from possible harmful effects of chemicals. Proper use of fume hoods keeps toxic air contaminant levels within indoor laboratories below levels identified in guidelines of the American Conference of Governmental Industrial Hygienists (Threshold Limit Values) and OSHA legal limits (Permissible Exposure Levels). 2) To prevent exposure through skin contact, Genentech shall require that protective clothing such as laboratory coats, gloves and safety glasses, be worn while handling hazardous materials. Proper washing after handling chemicals is required. Eating, drinking and smoking are prohibited in laboratories and other areas where hazardous materials are used. These procedures are disclosed to all staff that work with hazardous materials, and this training increases the safety awareness of Genentech employees and further reduces the risks of exposure to hazardous chemicals through inhalation, absorption, ingestion and injection. Should an accident occur that could cause exposure of an individual to hazardous materials, required emergency equipment (e.g., fire extinguishers, eyewashes and safety showers) are also available. 3) Cal/OSHA requires all institutions that use hazardous materials to implement a Hazard Communication Program and to train employees that use hazardous chemicals in the safe use of those materials. Genentech implements all safety procedures and conducts safety programs to ensure that these OSHA safety procedures are consistently followed. Genentech will continue to implement these (or equivalent) programs, practices and procedures, and will expand these programs as needed. Title 8 of the California Code of Regulations (Section 3203 of the General Industry Safety Orders) also requires every California employer to have a written Injury and Illness Prevention Program to provide a safe and healthful workplace. OSHA mandates methods of documenting, investigating and controlling accidents that result in skin penetration. Evidence presented during OSHA rule-making procedures indicates that these programs and methods are effective in reducing the number and severity of injuries and illness in the workplace. **Regulatory Requirements Hazards 1B, Use of Radioactive Materials**: The use of radioactive material at the Genentech site is specifically subject to the conditions of a radioactive materials license issued and administered by the Radiologic Health Branch of the DHS. Genentech administers and monitors facility compliance with license requirements. Radioactive materials licensing requirements include routine inspection and monitoring of areas where radioactive materials are used, to ensure that surfaces	

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	are not contaminated with radioactivity above background levels. Under the radioactive materials license, renovation or demolition of facilities using radioactive material requires decommissioning of the facilities. This involves radiation testing and conducting decontamination and waste handling activities in accordance with applicable regulations. 1) Use of radioactive materials at Genentech is monitored to ensure consistency with requirements of Genentech's radioactive materials license as issued and administered by the Radiologic Health Branch of the DHS. These licensing requirements articulate standards to maintain radiation exposure levels below applicable legal standards, thereby protecting users of radioactive materials. 2) Like all hazardous materials, the effects of the routine use of radioactive materials are limited to areas where exposure may occur and decreases substantially with distance. For this reason, the individuals most at risk would be those specially trained in the use of radioactive materials, thereby reducing the likelihood for accidental exposure through improper handling techniques. All individuals who handle radioactive waste are required to wear a personal monitor that determines their cumulative exposure to radiation. If the monitor indicates that established safety levels might be exceeded, the individual is prevented from being exposed to potential sources of radiation until the monitor indicates that safety levels can be maintained. **Regulatory Requirements Hazards 1C, Use of Biohazardous Materials**: Genentech complies with guidelines promulgated by the United States Department of Health and Human Services (USDHHS), Centers for Disease Control and Prevention, and National Institutes of Health that determine the level of safety precautions that must be used for four tiers of relative hazards. Biosafety Level 1 is for the least hazardous biological agents, and Biosafety Level 4 is for the most hazardous biological agents. Biosafety Levels for infectious agents are based on the characteristics of the agent (virulence, ability to cause disease, routes of exposure, biological stability and communicability), the quantity and concentration of the agent, the procedures to be followed in the laboratory, and the availability of therapeutic measures and vaccines. Biosafety Level 1 agents pose minimal or no known potential hazards to individuals and the environment. Biosafety Level 2 agents are considered to be of ordinary potential hazard and may produce varying degrees of disease through accidental inoculation, but may be effectively contained by ordinary laboratory techniques and specific laboratory equipment. Biosafety Level 3 agents pose a more substantial risk, and work with these agents must be conducted in contained facilities for which airflow is directed into the laboratory and access is controlled separately from public areas.	

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	1. Occupational and public safety is protected by selecting the appropriate biological and physical containment levels for each biological material handled. Standard microbiological practices, such as limiting facility access, washing hands after handling, de-contaminating work surfaces, wearing gloves and other safety equipment, using biosafety cabinets, and proper disposal reduce risks resulting from exposure to biohazardous materials. 2. Current state testing, monitoring and disposal regulations, and Genentech's own programs pertaining to the management of biohazardous materials (including infectious agents), further ensure that risks associated with use of biohazardous substances remain less than significant. 3. Medical wastes are managed by Genentech as a biohazardous material, in accordance with Section 117635 of the California Health and Safety Code and with USDHHS guidelines and DHS regulations. Biohazardous medical waste is generally regulated in the same manner as hazardous waste, except that special provisions apply to storage, disinfection, containment, transportation and disposal. **Regulatory Requirements Hazards 1D, Disposal of Hazardous Materials**: Genentech disposes of hazardous wastes in compliance with Titles 8, 14, 17 and 22 of the California Code of Regulations. 1. Spent hazardous materials generated on a daily basis in research, production and maintenance facilities are placed in special containers and are kept in specially designated and ventilated accumulation areas. These hazardous wastes are collected and accumulated in designated and secured areas designed to prevent accidental release to the environment. Wastes are transported off- site by licensed hazardous waste transporters to permitted hazardous waste disposal facilities, and emergency response procedures for all on-site storage sites are included in the Genentech Hazardous Waste Contingency Plan. Biohazardous wastes are managed in the same way, though separately. 2. In accordance with strict regulatory guidelines of the Department of Energy, the Nuclear Regulatory Commission, the US EPA and the California Radiation Control Law (California Health & Safety Code Sections 114960-114985), Genentech collects, prepares and packages its radioactive waste. Radioactive waste is then transported by a radioactive waste broker to a licensed radioactive waste disposal facility. **Regulatory Requirements Hazards 1E, Hazardous Materials Transport**: The CHP and US DOT strictly regulate the transportation of hazardous materials to and from the site. Procedures mandated by federal and state laws and regulations including driver training and licensing, standardized hazard warning placards for vehicles, shipping	

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	manifest requirements and standards for classifying, handling and packaging hazardous materials, as well as continuation of existing (or equivalent) Genentech programs, practices and procedures, will ensure that the use, transport or disposal of hazardous materials does not expose employees, visitors or the nearby public to significant health or safety risks.	
Hazards 2: Implementation of the Project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	**Regulatory Requirements Hazards 2A, Off-Site Transportation of Hazardous Materials**: The USDOT Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials, as described in Title 49 of the Code of Federal Regulations, and implemented by Title 13 of the California Code of Regulations. Transportation of hazardous materials along any City or state roadways within or near Genentech is also subject to all hazardous materials transportation regulations established by the California Highway Patrol pursuant to the California Vehicle Code and the South San Francisco Fire Department (SSFFD). 1. In compliance with these regulations, Genentech's programs, practices and procedures specifically govern receipt of hazardous materials. Licensed vendors bring hazardous materials to and from the facility, and manifests are completed and maintained by Genentech for all hazardous waste that is transported. The DTSC maintains copies of Genentech's waste manifests. In conformance with additional legal requirements, incoming radioactive material is monitored and recorded for each acquisition. Genentech processes and delivers all incoming radioactive materials to end users. 2. Section 31303 of the California Code of Regulations requires that when hazardous materials are transported on state or interstate highways, the highways that offer the shortest overall transit time possible shall be used. As required by federal and state laws, all other hazardous materials transportation regulations must be followed, including USDOT regulations for packaging and handling hazardous materials to prevent accidental spills of hazardous materials during transit. Compliance with all applicable federal and state laws, as well as all Genentech programs, practices and procedures related to the transportation of hazardous materials will continue to reduce the likelihood and severity of accidents during transit. **Regulatory Requirements Hazards 2B, Hazardous Materials Use, Storage and On-Site Transportation**: Management of risk and minimizing the potential for upset and accident conditions involving the release of hazardous materials is regulated by numerous federal, State and local laws and regulations. 1. The Cal EPA's regulations pursuant to the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program addresses (among other	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	matters) a number of programs specifically designed to minimize such risks. These programs require all businesses that handle hazardous materials to prepare a Hazardous Materials Release Response Plan and inventory, a Risk Management and Prevention program, and compliance with Unified Fire Code requirements. These programs are implemented at the local level, and in South San Francisco, the San Mateo County Department of Environmental Health (SMCDEH) is the designated Certified Unified Program Agency (CUPA) responsible for implementation of these programs. 2. The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that any business that handles hazardous materials prepare a Business Plan. That Business Plan must include details of the facility and business conducted at the site, an inventory of hazardous materials that are handled or stored on site, an emergency response plan and a training program for safety and emergency response for new employees, with annual refresher courses. 3. The USDHHS, CDC, NIH and DHS all prescribe containment and handling practices for use in microbiological, biomedical and animal laboratories. Medical wastes must be managed as a biohazardous material, in accordance with Section 117635 of the California Health and Safety Code, and the management of biohazardous materials must comply with USDHHS guidelines and DHS regulations. 4. The Atomic Energy Act ensures the proper management of source, special nuclear, and by-product material. The California Radiation Control Law California Health & Safety Code Sections 114960-114985) is a regulatory program designed to provide for compatibility with the standards and regulatory programs of the federal government and integrate an effective system of regulation within the state. These laws and regulations govern the receipt, storage, use, transportation and disposal of sources of ionizing radiation (radioactive material), and protect the users of these materials and the public from radiation hazards.	
Hazards 3: Although some Project area facilities are included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, implementation of the Project would not create a significant hazard to the public or the environment due to the presence of these listed facilities.	**Regulatory Requirement Hazards 3, DTSC Deed Restrictions and Enforcement Plan**: The O'Brien site is still subject to deed restrictions and the Agreement for Operations and Maintenance (which includes a requirement to comply with the Land Use Covenant Implementation Enforcement Plan). As a result, the following regulatory controls remain applicable to this site: 1. Activities that may disturb existing groundwater monitoring wells shall not be permitted without prior review and approval by DTSC.	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	2. The capped portion of the site may be variously occupied by buildings, paved with either concrete or asphalt or covered with landscaping or other vegetative cover, clean soil imported from an off-site location, or with other suitable cover to mitigate direct exposure. 3. Engineering controls such as wind erosion control and dust suppression must be implemented during construction activities to minimize or mitigate potential exposure of contaminated soil. 4. Any contaminated soils that may be brought to the surface by future grading, excavation, trenching, backfilling or other activity shall be managed in accordance with all applicable provisions of state and federal laws and regulations, including the DTSC-approved Site Management Plan and Health and Safety Plan. 5. The Site Management Plan includes administrative controls for construction workers (including designation of regulated areas, employee training and personal hygiene practices). Controls include personal protective respiratory equipment for construction workers, air monitoring to verify the effectiveness of hazard controls and to document emissions, training of construction employees or persons who may handle or come in contact with potentially hazardous materials and collection and analysis of surface soil samples from areas not covered with structures or a paved surface to verify the integrity of a clean soil cap.	
Hazards 4: New construction activities pursuant to the Project could expose construction workers or Genentech employees to a significant hazard through the renovation or demolition of buildings, or relocation of underground utilities that contain hazardous materials.	**Regulatory Requirement Hazards 4A, Discovery of Underground Storage Tanks**: All known on-site storage tanks are above ground and conform to applicable federal, state and local regulations and are registered and permitted by the South San Francisco Fire Department. In the event that previously unknown USTs are uncovered or disturbed, they will be properly closed in place or removed. While removal could pose health and safety risks, such as the exposure of workers and the public to tank contents or vapors, these potential risks will be reduced by managing the tank closure process according to established regulatory guidelines for investigation and closure of USTs, and for cleanup of sites contaminated by leaking USTs. These regulatory guidelines are established pursuant to the California EPA's adopted Unified Hazardous Waste and Hazardous Materials Management Regulatory Program, as implemented at the local level by the San Mateo County Department of Environmental Health. **Regulatory Requirement Hazards 4B, Asbestos**: Asbestos-containing materials are regulated both as a hazardous air pollutant under the Clean Air Act and as a potential worker safety hazard under the authority of Cal-OSHA. Any asbestos-containing materials in structures slated for demolition must be abated in accordance with State	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	and federal regulations, prior to the start of demolition or renovation activities. 1. Section 19827.5 of the California Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos. 2. The BAAQMD is vested by the California legislature with authority to regulate airborne pollutants, including asbestos, through both inspection and law enforcement, and is to be notified 10 days in advance of any proposed demolition or abatement work. 3. State regulations contained in 8 CCR 1529 and 8 CCR 341.6 through 341.14 must be followed where there is asbestos-related work involving 100 square feet or more of asbestos-containing material. Asbestos removal contractors must be certified as such by the Contractors Licensing Board of the State of California. 4. The owner of the property where abatement is to occur must have a hazardous waste generator number assigned by and registered with the DTSC. The site owner or responsible party and the transporter of the waste are required to file a hazardous waste manifest that details the transportation of the material from the site and its disposal. **Regulatory Requirement Hazards 4C, Lead-Based Paint**: Both the federal OSHA and Cal-OSHA regulate worker exposure during construction activities that may disturb lead-based paint. The Interim Final Rule found in 29 CFR 1926.62 covers construction work in which employees may be exposed to lead during such activities as demolition, removal, surface preparation for repainting, renovation, cleanup and routine maintenance. The OSHA-specified compliance includes respiratory protection, protective clothing, housekeeping, special high-efficiency filtered vacuums, hygiene facilities, medical surveillance and training. No minimum level of lead is specified to activate the provisions of this regulation. **Regulatory Requirement Hazards 4D, PCBs**: Fluorescent lighting ballasts manufactured prior to 1978, and electrical transformers, capacitors and generators manufactured prior to 1977 may contain PCBs. In accordance with the Toxic Substances Control Act and other federal and state regulations, construction or demolition activities that may involve such materials must properly handle and dispose of electrical equipment and lighting ballasts that contain PCBs. **Regulatory Requirement Hazards 4E, Construction Dewatering**: Pursuant to Section 13263 of the California Water Code, the Regional Water Quality Control Board issues Waste Discharge Requirements to control discharges (including dewatering during	

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	construction) to land or water. Pursuant to these requirements, permits require contractors to implement best management practices during construction dewatering to avoid exposure of employees or construction workers to potentially contaminated groundwater. These BMPs may include, but are not limited to groundwater testing, containment of contaminated groundwater in storage tanks for subsequent treatment and/or disposal, and the provision of release response information. In the unlikely event that contaminated groundwater is discovered during construction activities, Genentech's contractors will follow specific procedures to reduce the risk of exposure. **Regulatory Requirement Hazards 4F, Building Demolition**: Buildings demolished during construction activities could have contained biohazardous materials, including medical wastes, prior to demolition. Genentech's programs, practices and procedures, and current state testing, monitoring and disposal regulations pertaining to the management of biohazardous materials (including medical waste) will eliminate or reduce the potential for biohazardous substances to be present in fixtures or building materials removed during demolition. Genentech's radioactive materials license requires testing and implementation of decontamination and waste handling activities in accordance with applicable regulations when facilities using radioactive materials are decommissioned for purposes of renovation or demolition. **Mitigation Measure Hazards 4, Site Assessment**: If previously unknown contamination, underground tanks, containers or stained or odorous soils are discovered during construction activities, the construction contractor(s) shall stop work and appropriate investigation, sampling and comparison of data collected with health-based screening levels and/or consultation with a regulatory oversight agency shall be conducted to determine if the discovered materials pose a significant risk to the public or construction workers. a) If any such materials are discovered that exceed human health screening levels as noted in DTSC's HERO HHRA Note 3 criteria for California Human Health Screening Levels (CHHSLs) and/or Environmental Screening Levels (ESLs), a remediation plan shall be prepared and submitted to the appropriate regulatory agency in compliance with all applicable legal requirements, and to ensure the proper handling and management. b) Soil remediation methods may include, but are not limited to excavation and on-site treatment, excavation and off-site treatment, or disposal and/or treatment without excavation. c) Remediation alternatives for cleanup of contaminated groundwater could include, but are not limited to on-site treatment, extraction and off-site treatment, and/or disposal.	

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	d) Construction schedules may need to be modified or delayed to ensure that construction will not inhibit remediation activities and will not expose the public or construction workers to significant risks associated with hazardous conditions.	
Hazards 5: The Project will not emit hazardous emissions nor handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school, but may handle such substances within one-quarter mile of a childcare facility.	See all regulatory requirements and mitigation measures listed pursuant to the routine transport, use, disposal or storage of hazardous materials (Hazards 1), reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment (Hazards 2), known hazardous materials sites (Hazards 3), and construction activities (Hazards 4), above	Less than Significant
Hazards 6: The Project is located within the Airport Land Use Plan boundaries of San Francisco International Airport (SFO), but the Project would not result in a safety hazard for people residing or working in the Project area. The Project is not located near a private airstrip.	**Regulatory Requirement Hazards 6, FAA Building Height Criteria**: Pursuant to the Project, the maximum heights of new buildings within the Project Area shall comply with the height regulations and restrictions as established by FAA criteria. 1) Pursuant to these height regulations, new buildings exceeding the FAA Part 77 "imaginary surface" height limits will be subject to FAA review and may be required to provide marking and/or lighting, or may not be found acceptable to the FAA if determined to have impacts to the safety or efficiency of operations at SFO. 2) No new structures will exceed heights that penetrate "critical aeronautical surfaces".	Less than Significant
Hazards 7: Implementation of the Project could impair implementation of, or physically interfere with an adopted emergency response or emergency evacuation plan. Implementation of mitigation measures will ensure this impact remains less than significant.	M**itigation Measure Hazards 7A, Adequate Roadway Access**: To the extent feasible, the Project applicant shall maintain at least one unobstructed lane in both directions on the site's roadways. At any time only a single lane is available, Genentech shall provide a temporary flag-person or other appropriate traffic control to allow travel in both directions. If construction activities require the complete closure of a roadway segment, Genentech shall provide appropriate signage indicating alternative routes. **Mitigation Measure Hazards 7B, Lane Closure Request**: To ensure adequate access for emergency vehicles when construction projects may result in temporary lane or roadway closures, Genentech shall consult with the South San Francisco Police and Fire Departments to disclose any such temporary lane or roadway closures and to identify appropriate alternative travel routes.	Less than Significant
Hazard-8: The Project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires.	None needed	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
Hydrology and Water Quality		
Hydro 1: Future development pursuant to the Project could result in a violation of water quality standards or waste discharge requirements or otherwise substantially degrade water quality.	**Regulatory Requirement Hydro 1A, Construction General Permit and Stormwater Pollution Prevention Plan**: All new qualifying construction projects pursuant to the Master Plan Update shall comply with Provision C.6 of the Municipal Regional Permit (MRP) including filing a Notice of Intent for permit coverage under the Construction General Permit: 1) To obtain Construction General Permit coverage, construction projects must include a Stormwater Pollution Prevention Plan (SWPPP) that demonstrates compliance with the City's Grading Ordinances and other local requirements. 2) The SWPPP must demonstrate implementation of seasonally appropriate and effective best management practices (BMPs) to prevent construction site discharges of pollutants into the storm drains, before approval and issuance of local grading permits. 3) Such construction projects are required to implement the stormwater BMPs identified by the San Mateo Countywide Stormwater Pollution Prevention Program, including plans to address materials and waste management, equipment management and spill control, grading and earthmoving to prevent erosion, paving and asphalt work, concrete and mortar applications, painting and paint removal, landscaping and dewatering. **Regulatory Requirement Hydrology 1B, Permitting Requirements for Dewatering Discharges:** Depending on volume and pollutants of non-stormwater discharges associated with an individual construction dewatering activity, and the dewatering methodology to be applied, different regulatory requirements apply. For non-stormwater dewatering discharges, each individual construction project shall obtain coverage either under the Construction General Permit, Statewide Low-Threat Discharge Waste Discharge Requirements (WDR) or a site-specific NPDES permit. Typical dewatering methods permitted pursuant to these regulatory requirements include: 1) Discharge to a Stormdrain: Authorized non-stormwater may be discharged to a storm drain under the Construction General Permit. A permit from the local sewer agency must be obtained prior to such discharge. This approach is generally appropriate for water that contains some sediment and/or pollutants, but sediment may require pre-treatment and acceptable pollutants and pollutant levels are defined by the sewerage agency. Such permits typically include provisions for fees, requirements for pre-discharge testing and reporting, and establishment of	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	acceptable discharge limitations/prohibitions typically pertaining to the chemical quality of the water, discharge flow rates and quantities. 2) Managing Water within the Project Site: Accumulated non-stormwater may be retained and managed on the construction site, general pursuant to statewide low-threat discharge Waste Discharge Requirements (WDRs). Retained water is evaporated, infiltrated into the soil, or is used onsite for dust control, irrigation or other construction-related purposes. This approach is generally appropriate for water that is free of pollutants, other than sediment. 3) Off-Site Treatment: This option is typically appropriate for water with toxic pollutants that cannot be discharged elsewhere. Under this approach, water is hauled off-site for treatment, typically involving a licensed commercial contractor who can remove, transport and dispose (or treat and recycle) polluted water. General requirements of this approach include acceptance of a NOI for coverage under the Construction General Permit, plus chemical testing of water quality and management of the water as hazardous waste, with applicable regulatory agency (typically RWQCB) oversight (see also Mitigation Measure Hazards-4: Site Assessment in the Hazards and Hazardous Waste chapter of this EIR). 4) Site-Specific NPDES Dewatering Permits: For those dewatering activities that cannot obtain permission to discharge to the local sanitary sewer and where the discharge cannot be regulated under the Construction General Permit or the statewide low-threat discharge WDRs, site-specific NPDES Dewatering Permits may be sought. General requirements for site-specific NPDES dewatering permits include monitoring and reporting as required by the Regional Board, and discharge and receiving water requirements (including water quality objectives, discharge prohibitions and TMDLs) as defined in the Basin Plan and specific NPDES permit obligations. **Regulatory Requirement Hydro 1C, Provision C.3 Requirements/Stormwater Management Plan**: All new Regulated Projects pursuant to the Master Plan Update will be required to comply with Provision C.3 of the MRP, including requirements to incorporate post-construction stormwater control and low-impact development (LID) measures. Each individual development project must meet Provision C.3 requirements capable of reducing long-term impacts of development on stormwater quality. Some combination of the following post-construction stormwater controls will be required to demonstrate compliance with the hydraulic design criteria of the MRP: 1) Site design may include minimizing impervious surfaces that are directly connected to the storm drain system, or using landscaping as a drainage feature. 2) Source control measures may include roofed trash enclosures, berms that control	

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	runoff from a pollutant source, use of indoor mats/equipment wash racks that are connected to the sanitary sewer (where allowed under separate sewer discharge permits), and regular inspection and cleaning of storm drain inlets. 3) Stormwater treatments may be met by a combination of measures that may include, but are not limited to bioretention areas, flow-through planter boxes, infiltration trenches, extended detention basins, green roofs, pervious paving and grid pavements, rainwater harvesting and subsurface infiltration systems.	
Hydro 2: Future development pursuant to the Project will not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impeded sustainable groundwater management of the basin.	None needed	Less than Significant
Hydro 3: Future development pursuant to the Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner that would result in substantial erosion or siltation on- or off-site, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site, or create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	Regulatory Requirement Hydro 1A - Construction General Permit/Stormwater Pollution Prevention Plan (see above) Regulatory Requirement Hydro 1B - Provision C.3 Requirements/Stormwater Management Plan (see above)	Less than Significant
Hydro 4: Future development pursuant to the Project would not risk release of pollutants due to project inundation as a result of a flood hazard, tsunami or seiche.	**Regulatory Requirement Hydro 4A, National Flood Insurance Program**: Executive Order 11988 is a federal regulation that requires the prevention of uneconomic, hazardous or incompatible use of floodplains; protection and preservation of the natural and beneficial floodplain values; and consistency with the standards and criteria of the National Flood Insurance Program. **Regulatory Requirement Hydro 4B, South San Francisco Municipal Code**: Chapter 15.56, Section 15.56.140 of the South San Francisco Municipal Code identifies standards specific to construction in coastal high hazard areas. Developments shall be elevated above the flood level, anchored and constructed of materials resistant to flood damage.	Less than Significant
Sea Level Rise: Most of adverse effects of mid-century	None required. The effects that potential future sea level rise may have on the Project	Not a CEQA Impact

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
sea level rise at the Genentech Campus will likely be confined to the 100-foot shoreline setback along the Bay. This setback restricts Campus development adjacent to sensitive natural areas such as tidal wetlands, which also provide for storm surge and wave dissipation. In the longer term (or under accelerated and/or more severe weather conditions) adaptation to sea level rise at the Campus may prove to be more critical.	is not a CEQA matter. Therefore, analysis of potential sea level rise effects is provided for informational purposes only, but may also provide context for future City consideration of appropriate sea level rise adaptation strategies.	
Land Use		
Land Use 1: The Project would not physically divide an established community	None needed	No Impact
Land Use 2: Implementation of the Project would modify or change certain land use regulations applicable to the Project Area, but would not cause a significant environmental impacts due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	None required. However, to clarify the City's position regarding consistency with ALUCP criteria, the following mitigation measure is recommended: **MM Land Use 2, Building Height Limits**: Any proposed building within the Project Area that would exceed FAA notification heights shall file a Notice of Proposed Construction or Alteration with the FAA. a) Any structure that exceeds the Horizontal Surface Plane of 163.2 feet above mean sea level, that otherwise exceeds applicable FAA Part 77 criteria, or which exceed 200 feet above the ground level of its site shall be required to comply with the findings of an FAA aeronautical study. Structures subject to such FAA review shall comply with any FAA-recommended alterations in the building design and/or height, and any recommended marking and lighting of the structure as may be necessary to be found by the FAA as not posing a hazard to air navigation. b) The maximum height of new buildings within the Project area shall be the lower of the height shown on the SFO Critical Aeronautical Surfaces Map, or the maximum height determined by the FAA as being "not a hazard to air navigation" based on an aeronautical study. c) The Project proponent shall provide documentation to the City Planning Division demonstrating that the FAA has issued a 'Determination of No Hazard to Air Navigation" when such determination is applicable. **Mitigation Measure Geology 2 - Geotechnical Requirements for Hillside Opportunity Sites** (see above): This MM specifically requires site-specific geotechnical studies to be conducted for each new development at hillside Opportunity Sites, with	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	implementation of site-specific recommendations as part of detailed plans for subsequent development.	
Land Use 3: The Project would not conflict with any applicable habitat conservation plan or natural community conservation plan.	None needed	No Impact
Noise		
Noise 1: Construction activities pursuant to the Project could generate a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of noise levels that exceed the noise standards established in SSFMC Section 8.32.030.	**Mitigation Measure Noise 1A, Construction Period BMPs:** The following mitigation measures are recommended for construction activity within the Project Area that is within 50 feet of an adjacent off-site property (i.e., where construction noise may exceed the 90dBA limit of the SSF Municipal Code). The Project applicant shall require, by contract specifications, that best management practices (BMPs) for construction activity be implemented by contractors to reduce construction noise levels: a) Two weeks prior to the commencement of construction, notification must be provided to surrounding land uses disclosing the construction schedule, including the various types of activities that would be occurring throughout the duration of the construction period. b) Maintain all construction equipment to minimize noise emissions. All construction equipment shall be equipped with mufflers and sound control devices (e.g., intake silencers and noise shrouds) that are in good condition and appropriate for the equipment. c) Place stationary noise- and vibration-generating construction equipment away from sensitive uses where feasible. d) Construction staging areas and operation of earthmoving and or other noise-generating or vibration-generating equipment should be located as far away from noise sensitive sites as possible. e) Unnecessary idling of internal combustion engines should be strictly prohibited. f) Schedule high noise-producing activities during times when they would be least likely to interfere with the noise-sensitive activities of the adjacent land uses, when possible. g) For any new development pursuant to the Project that may require deep foundations, consider the use of augured-cast-in-place piles or drilled shafts, rather than use of impact or vibratory pile drivers. h) Implement noise attenuation measures to the extent feasible, which many include,	Significant and Unavoidable Construction noise is typically not considered significant if its duration is for a period of less than one year, construction noise is temporary and episodic in nature, and mitigation measures presented include all reasonable and feasible methods to reduce construction noise effects. However, since the details of construction activity cannot be known in advance, this impact is conservatively considered significant and unavoidable

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	but are not limited to, noise barriers or noise blankets i) The construction contractor shall provide the name and telephone number of an on-site construction liaison. If construction noise is found to be intrusive to surrounding properties (i.e., if complaints are received), the construction liaison shall investigate the source of the noise and require that reasonable measures be implemented to correct the problem. **Mitigation Measure Noise 1B, Truck Routes**: The Project applicant shall require, by contract specifications, that heavily loaded trucks used during construction be routed away from noise-sensitive and vibration-sensitive uses to the extent possible. Genentech will also continue to prepare and implement a Noise Attenuation and Logistics Plan for any new development that is within 50 feet of an existing Genentech building, demonstrating consistency with all applicable OSHA requirements for safe workspaces, and any other private Genentech-based noise standards for a healthy workplace.	
Noise 2: Operational activities associated with the Project would not generate a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	**Mitigation Measure Noise 2, Mechanical and Industrial Equipment Noise Reduction Requirements:** The project applicant shall analyze or provide documentation of future exterior mechanical or industrial equipment to determine if the equipment would exceed applicable operational noise standards. If so, noise control measures must be provided to meet the City's requirements. Typical noise control measures include barriers, enclosures, silencers and acoustical louvers at vent openings. Prior to issuance of any building permits, the project applicant shall submit a report verifying that noise levels generated by project mechanical equipment are no greater than applicable noise standards at receiving properties.	Less than Significant
Noise 3: C Construction activities pursuant to the Project would not generate excessive ground-borne vibration, but could adversely affect vibration-sensitive equipment and persons within the Project Area.	**Mitigation Measure Noise 3A, Pre-Construction Survey**: Prior to the commencement of ground clearing activities, the project applicant shall verify that: a) no heavy construction activity that may generate a PPV of more than 0.10 inches/second at 25 feet would occur within 10 feet of an adjacent, non-Genentech building, and that b) no heavy construction activity that may generate a PPV of more than 0.20 inches/second at 25 feet would occur within 20 feet of an adjacent, non-Genentech building c) If no such construction activity would occur within these specified distances from an adjacent, off-site building, then construction activities would not exceed the building damage threshold, and construction may begin with no further action required for vibration effects.	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	Mitigation Measure 3B, Changes to Construction Plans: If heavy construction activity is proposed at distances closer to an adjacent, non-Genentech building than those distances prescribed in Mitigation Measure Noise 3A, such that vibration impacts may result in damage to and adjacent building, the project applicant shall adjust the construction plan such that it would not generate vibration levels at the adjacent building that exceed the building damage threshold of 0.50 inches per second PPV. Genentech will also continue to prepare and implement a Noise Attenuation and Logistics Plan for any new development that is within 20 feet of an existing Genentech building, demonstrating consistency with all applicable OSHA requirements for safe workspaces, and any other private Genentech-based noise standards for a healthy workplace. **Mitigation Measure Noise 1A, Construction Period BMPs** (see above) **Mitigation Measure Noise 1B, Truck Routes** (see above)	
Noise 4: Operational activities pursuant to the Project would not generate excessive ground-borne vibration, and would not adversely affect vibration-sensitive equipment or persons within the Project Area.	None required	Less than Significant
Noise 5: Traffic generated by the Project would result in increased traffic volumes that would increase local ambient traffic noise levels by greater than 3 dBA CNEL at locations that would also meet or exceed 65 dBA CNEL, but the Project's increased traffic noise would not adversely affect existing noise-sensitive receptors.	None needed.	Less than Significant
Noise 6: The Project would not expose people working in the Project Area to excessive noise levels due to proximity to airport-related noise sources.	None needed.	Less than Significant
Population, Housing and Employment		
Pop/Emp. 1: The Project will result in a substantial increase in local South San Francisco employment, but will not result in employment growth beyond that contemplated in the City, and will not induce population growth beyond that contemplated in the	**Regulatory Requirement Pop. /Emp. 1:** Affordable Housing Commercial Linkage Fees: Each new development project within the Genentech Campus will be required to pay the City's established commercial linkage fee to mitigate impacts on affordable housing in the City.	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
county or the region.		
Pop/Emp. 2: Implementation of the Project would not displace any existing housing that would necessitate construction of replacement housing elsewhere.	None required	Less than Significant
Pop/Emp. 3: Implementation of the Project would not displace substantial numbers of people.	None required	Less than Significant
Public Services		
Public Services 1: The Project would increase the number of employees in the Project Area over time, gradually increasing the demand for police within the Project Area. However, the Project is and will continue to be adequately served with police service from existing facilities or new facilities to be constructed per citywide efforts, and impacts related to police services would be less than significant.	**Regulatory Requirement Services 1, Public Safety Impact Fees**: Genentech will be required to pay the City of South San Francisco's Public Safety Impact Fees as applicable at the time of new construction.	Less than Significant
Public Services 2: The Project would increase the number of employees in the Project Area over time, gradually increasing the demand for fire and emergency medical services within the Project Area. However, the Project is and will continue to be adequately served with fire and emergency medical service from existing facilities or new facilities to be constructed per citywide efforts, and impacts related to fire and emergency medical services would be less than significant.	**Regulatory Requirement Services 2A, Compliance with Fire Code**: Individual projects pursuant to the Master Plan Update will be required to comply with the City's Fire Code (Chapter 15.24 of the Municipal Code), and the City Fire Marshall's code requirements regarding on-site access for emergency vehicles. **Regulatory Requirement Services 1, Public Safety Impact Fees**: Genentech will be required to pay the City of South San Francisco's Public Safety Impact Fees as applicable at the time of new construction.	Less than Significant
Public Services 3: The Project would increase the number of employees in the Project Area over time, gradually increasing the demand for recreational space within or near the Project Area. However, the existing Campus contains substantial public and private open space areas, and the Project includes plans for increasing open spaces with plazas, pathways, and	**Regulatory Requirement Services 3, Parkland Acquisition and Construction Fees**: Genentech will be required to pay Parkland Acquisition and Construction fees pursuant to Chapter 8.67 of the SSF Municipal Code. Any changes or additions to the Bay Trail improvements within the Genentech Campus will be subject to BCDC consideration and approval of amended permit conditions. Through on-site provision of recreational opportunities, payment of in-lieu fees to support off-site recreational opportunities as required by SSF Municipal Code,	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
common open space to serve new employees. Impacts related to recreational open space would be less than significant.	and required BCDC jurisdictional permit approval processes, the Project will not result in significant environmental impacts related to parks or recreation facilities.	
Traffic and Circulation		
Transp 1: The Project would contribute traffic to intersections in the Project vicinity that would result in conflicts with applicable plans, ordinances or policies that establish measures of effectiveness for intersection levels of service (LOS) or queuing at twenty (20) of the 27 traffic study intersections.	**Regulatory Requirement Transportation 1A - Assumed Signal Timing Adjustments:** The Project Sponsor shall pay South San Francisco's East of 101 Transportation Impact Fees, representing their fair-share contribution toward the following traffic signal timing adjustments already included in the East of 101 Traffic Impact Fee Program: a) Airport Boulevard/Sister Cities Boulevard/Oyster Point Boulevard (#1). Adjust the signal timing at the intersection to allow the southbound right-turn movement to overlap with the eastbound left turn movement. This timing adjustment would improve intersection operations to an acceptable LOS D. (LTS) b) Dubuque Avenue/101 NB off-ramp/Oyster Pt. Boulevard (#2). Adjust the signal timing at the intersection to provide additional green time for the eastbound movement in the AM, and to provide additional green time for the westbound movement in the PM. This signal timing would reduce the queue compared to the existing conditions. The queue would still exceed available storage space, but the Project would not further extend queues beyond existing conditions. However, this intersection is under the jurisdiction of Caltrans and the City cannot ensure this mitigation is implemented. (**conservatively SU**) c) Gateway Boulevard/East Grand Avenue (#15). Adjust the signal timing at this intersection to convert the eastbound left turn phase from a lagging phase to a leading phase. This timing adjustment would reduce delay to an acceptable LOS D. (LTS) d) East Grand Avenue/Littlefield Avenue (#23): Optimize the signal timing, allowing the northbound right-turn movement to overlap with the westbound left-turn movement, and change the existing northbound through/left-turn lane to allow northbound through/left/right turn movements. These measures would improve intersection operations to an acceptable LOS D in the AM peak hour. (LTS) **Regulatory Requirement Transportation 1B - East of 101 Transportation Impact Fee Improvements:** The Project Sponsor shall pay South San Francisco's East of 101 Transportation Impact Fees, representing their fair-share contribution toward the following intersection improvements already included in the East of 101 Traffic Impact Fee Program:	**Significant and Unavoidable** Regulatory requirements and/or mitigation measures have been identified that are capable of reducing impacts at 13 of the 20 affected intersections, but no feasible or certain improvements have been identified as capable of reducing impacts to a less than significant level at 7 affected study intersections.

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	a) Oyster Point Boulevard/Eccles Avenue (#6). Add an eastbound right-turn lane and provide a northbound configuration that includes a northbound right-turn lane, a northbound left-turn lane and a 100-foot northbound left-turn pocket, in conjunction with optimized signal timing. Because the addition of an eastbound right-turn lane would lengthen pedestrian crossing distances and overlap with an existing bike lane, a pedestrian refuge in the median and expanded green bike lane (conflict zone) markings should also be included. This measure would result in an acceptable LOS B in the AM peak hour. (LTS)	
	b) Oyster Point Boulevard/Gull Drive (#7). Extend the double northbound left-turn lanes to approximately 200 feet, add an eastbound right-turn pocket, add a second northbound left-turn lane, and adjust the signal timing to allow the eastbound right and northbound left movements to overlap. This measure would improve intersection operations to an acceptable LOS D in both the AM and PM peak hours. (LTS)	
	c) Airport Boulevard/Grand Avenue (#12): Add a second southbound left-turn lane and convert the southbound right-turn lane to a through/right lane. This measure would reduce delay and improve intersection operations to an acceptable LOS D in the AM peak hour. However, the improvements would not reduce the length of the southbound left turn queue, and as such the queuing impact would be significant and unavoidable. **(SU**)	
	d) East Grand Avenue/Harbor Way/Forbes Boulevard (#16): Add a westbound through lane, an eastbound right-turn lane, an eastbound through lane, and time-of-day geometry changes for northbound and southbound approaches. Because these improvements would lengthen crosswalk distances and exacerbate conflicts with bicyclists along East Grand Avenue and Forbes Boulevard, the mitigation should incorporate pedestrian refuge islands, bicycle conflict zone markings and consider the removal of slip lanes. This measure would decrease delay to an acceptable LOS D in both AM and PM peak hours. (LTS)	
	e) East Grand Avenue/Allerton Avenue (#17): Install a traffic signal, including a protected southbound left-turn movement. This measure would improve intersection operations to acceptable LOS B in the PM peak hour. (LTS)	
	f) East Grand Avenue/DNA Way (#18): Install a traffic signal and add an additional eastbound left turn lane. This measure would improve intersection operations to an acceptable LOS B in the AM peak hour and LOS C in the PM peak hour. (LTS)	
	g) Produce Avenue/Airport Boulevard/San Mateo Avenue (#19): Widen the westbound approach to consist of three dedicated left turn lanes, one through lane, and one shared through-right lane. This measure would reduce both queuing	

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	and vehicular delay to an acceptable LOS D in both the AM and PM peak hours. (LTS) **Mitigation Measure Transportation 1: Additions to East of 101 Transportation Impact Fee Program:** The Project applicant shall pay its fair-share toward the following intersection improvements by either; 1) fully funding the following improvement subject to fee credits if the improvement is subsequently included in the City's CIP update; or 2) paying the City's Transportation Impact Fees if the City has included these improvements in its Capital Improvement Program (CIP) prior to issuance of building permits for development that triggers these mitigation improvements: a) 101 SB/Oyster Pt. Boulevard off Ramp (#4). Add an additional eastbound through lane, and change the signal phasing to implement an overlap phase for the northeast-bound right turn movement. These measures would reduce queues to levels not exceeding existing conditions. However, this intersection is under the jurisdiction of Caltrans and the City cannot ensure this mitigation is implemented. **(conservatively SU)** b) Forbes Boulevard/Allerton Avenue (#8): Install a traffic signal with optimized signal timing. This measure would improve intersection operations to an acceptable LOS A in the AM and PM peak hours. (LTS with MM) c) Gull Drive/Forbes Boulevard (#9): Adjust the existing signal timing and extend the southbound left turn pocket to 500 feet. This measure would partially mitigate the impact by decreasing delay, but the intersection would continue to operate at an unacceptable LOS F during the AM peak hour. **(SU)** d) Airport Boulevard/Miller Avenue/ US-101 SB Off-Ramp (#10). Adjusting the signal timing to lengthen northbound through and eastbound right phases. This timing adjustment would improve intersection operations to an acceptable LOS C in the PM peak hour. However, this signal is operated by Caltrans and requests to modify signal timing may not be approved. As such, this impact is conservatively assumed to be significant and unavoidable. **(conservatively SU)** e) South Airport Boulevard/Gateway Boulevard/Mitchell Avenue (#20). Separate the existing shared northbound through/right lane into one northbound through lane and a northbound right turn lane, add one westbound through lanes, one eastbound right turn lane, one eastbound left turn lane and one southbound right turn lane. These improvements would lengthen crosswalk distances and exacerbate conflicts with bicyclists along Airport Boulevard and Gateway Boulevard; consequently, median pedestrian refuges and green bicycle conflict zone markings should be added. This measure decreases delay to an acceptable LOS C during the AM peak hour and acceptable LOS D during the PM peak hour,	

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	and reduces queuing to an acceptable level. These improvements are only partially included the East of 101 Transportation Impact Fee Program. (LTS with MM) f) Mitchell Road/Harbor Way (#24): Install a traffic signal at this intersection, add a 250-foot eastbound left turn lane and a 100-foot northbound left turn lane and optimize the signal timing. This measure would improve intersection operations to LOS B in the AM peak hour and LOS A in the PM peak hour. (LTS with MM) g) Utah Avenue/Harbor Way (#25): Add a traffic signal at this intersection and optimize signal timing. This measure would improve intersection operations to LOS A in both the AM and PM peak hours. (LTS with MM)	
Transp 2: Although the Project would generate more than 100 peak hour trips onto the Congestion Management Program roadway network, it would not resulting in conflicts with applicable plans, ordinances or policies that establish measures for effective levels of service at freeway ramp locations.	None needed Consistent with C/CAG guidelines, the Project will implement a TDM program that is consistent with, and exceeds City requirements. That TDM program will further reduce its contribution of trips on the CMP network, including its contributions of traffic to freeway ramps.	Less than Significant
Transp 3: The Project would generate more than 100 peak hour trips onto the Congestion Management Program roadway network, resulting in conflicts with applicable plans, ordinances or policies that establish measures for effective levels of service along two freeway segments (southbound US-101 north of Oyster Point Boulevard and northbound US-101 south of Produce Avenue).	There are no feasible mitigation measures for these impacts to freeway segments due to constrained right-of-way and a corresponding inability to add traffic capacity or reduce vehicular delay. Consistent with C/CAG guidelines, the Project will implement a TDM program that is consistent with and exceeds City requirements. That TDM program will serve to reduce its otherwise greater contribution of trips on the CMP network, including increased traffic on US-101 freeway segments.	**Significant and Unavoidable**
Transp 4: The Project's on-site vehicle circulation system would not present a design hazard.	None required	Less than Significant
Transp 5: The Project would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, bicycle and pedestrian facilities.	None needed.	Less than Significant
Transp 6: The Project would contribute to cumulative traffic levels that would result in conflicts with applicable plans, ordinances or policies that establish measures of effectiveness for intersection levels of service (LOS) at 22 intersections.	**Mitigation Measure Transportation 6A: Implement Existing plus Project Measures**. Pursuant to regulatory requirements and mitigation measures identified under Existing plus Project conditions, the Project applicant shall pay its fair-share toward the following intersection improvements by either; 1) fully funding the following improvement subject to fee credits if the improvement is subsequently included in the	**Significant and Unavoidable** Mitigation measures identify improvements that

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
Mitigation measures identify improvements that could be made at 7 of the 22 affected intersections, but 4 of these improvements do not currently have an identified funding source. No feasible improvements have been identified as being capable of reducing impacts to less than significant levels under the Cumulative plus Project scenario at 15 affected study intersections.	City's CIP update; or 2) paying the City's Transportation Impact Fees if the City has included these improvements in its Capital Improvement Program (CIP) prior to issuance of building permits for development that triggers these mitigation improvements. These Existing plus Project improvements also improve traffic conditions under the Cumulative plus Project condition, as indicated below: a) Forbes Boulevard/Allerton Avenue (#8): Implement Regulatory Requirement Transportation 1(d), which provides for installation of a traffic signal with optimized signal timing. This measure would improve Cumulative intersection operations to an acceptable LOS B in the AM and LOS C in the PM peak hour. (LTS) b) Grand Avenue/Littlefield Avenue (#23): Implement Mitigation Measure Transportation 1(b), which provides for an adjustment to the signal timing to allow the northbound right turn phase to overlap with the westbound left turn phase. This measure would reduce Cumulative delay to LOS D in the AM peak hour. (LTS with MM) c) Mitchell Road/Harbor Way (#24): Implement Mitigation Measure Transportation 1(f), which provides for installation of a traffic signal at this intersection, and adding an additional 250-foot eastbound left turn pocket as well as a 100-foot northbound left turn pocket. These improvements would improve Cumulative intersection operations to LOS D in the AM peak hour and LOS B in the PM peak hour. (LTS with MM) **Mitigation Measure Transportation 6B: Additions to East of 101 Transportation Impact Fee Program**: If the City includes the following improvements in its East of 101 Transportation Impact Fee Program and Capital Improvement Program (CIP), the Project applicant shall pay its fair-share toward these intersection improvements by paying the City's Transportation Impact Fees: a) Airport Boulevard/Oyster Point Boulevard (#1): Add overlap phases for the southbound right and northbound right movements, and optimizing signal timing. This measure would improve intersection operations to an acceptable LOS D. However, this mitigation measure would not reduce the length of the southbound left turn vehicle queue to an acceptable level. There are no other feasible mitigations at this location. (**SU**) b) Dubuque Avenue/US-101 Ramps (#3): Change the eastbound through-right lane to a left-through-right lane, introduce an overlap phase for the southbound right turn movement and optimize the signal timing. This measure would reduce delay to achieve LOS D during the AM and PM peak hour, and would reduce eastbound left/through queue length to an acceptable level in the PM peak hour. (LTS with	could be made at 7 of the 22 affected intersections, but 4 of these improvements do not currently have an identified funding source. No feasible improvements have been identified as being capable of reducing impacts to less than significant levels under the Cumulative plus Project scenario at 15 affected study intersections.

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	MM, **conservatively SU**) c) Oyster Point Boulevard/Gateway Boulevard (#4): Increase cycle length to 160 seconds, providing an overlap phase for the northeast-bound right turn movement, and optimizing timing splits. These changes would decrease delay and improve operations to an acceptable level of service in the AM peak hour, but would not improve cumulative operations to an acceptable level of service in the PM peak hour. This measure would also not reduce queuing to acceptable lengths. (**SU**) d) Airport Boulevard/Miller Avenue/US-101 SB Off-Ramp (#10): Adjust the signal timing to lengthen the westbound green time. This measure would improve cumulative intersection operations to an acceptable LOS D in the PM peak hour. However, this intersection is under the jurisdiction of Caltrans and the City cannot ensure this mitigation is implemented. (**SU**) e) Dubuque Avenue/Grand Avenue (#11): Adjust the signal timing to lengthen the westbound green time. This measure would improve cumulative intersection operations to an acceptable LOS D in the PM peak hour. (LTS with MM, **conservatively SU**) f) Produce Avenue/Airport Boulevard/San Mateo Avenue (#19). Modify the signal timing. This measure would decrease delay but would not improve cumulative operations to an acceptable level of service. There are no additional feasible mitigations at this intersection. (**SU**) g) South Airport Boulevard/Gateway Boulevard (#20). Update the signal timing. This measure would decrease delay but would not improve cumulative operations to an acceptable level of service. There are no additional feasible mitigations at this intersection. (**SU**) h) South Airport Boulevard/Utah Avenue (#22): Separate the westbound left turn lane into one westbound left and one westbound through lane, and adjust the signal timing to allow the northbound right and westbound left movements to overlap in the AM peak hour. This improvement would reduce cumulative delay, but would not achieve an acceptable level of service in the AM peak hour. In the PM peak hour, changing configuration of the westbound approach would reduce delay to LOS D. There are no additional feasible mitigations at this intersection. (**SU**) i) Utah Avenue/Harbor Way (#25): Add a traffic signal at this intersection, and reconfigure the approaches to add one eastbound left turn pocket and one westbound left-turn pocket, and convert the existing shared westbound through-right lane to a right turn lane. This measure would improve intersection operations to LOS B in the AM and PM peak hours.(LTS with MM, **conservatively SU**)	

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	j) Westbound Ramp/South Airport Boulevard (#26). Extending cycle length and optimizing the signal timing at this location would improve cumulative intersection operations to an acceptable LOS D in the PM peak hour, but would not result in decreased queue lengths on the southbound right turn movement. (**SU**) k) I-380 Eastbound Ramp/South Airport Boulevard (#27): Extend the cycle length and optimize the signal timing at this location. This measure would improve intersection operations to an acceptable LOS D in the PM peak hour. (LTS with MM, **conservatively SU**)	
Transp 7: The Project would generate more than 100 peak hour trips onto the Congestion Management Program roadway network, contributing to cumulative traffic levels that would conflict with applicable plans, ordinances or policies that establish measures for effective levels of service at two nearby freeway interchanges (US-101/Oyster Point Boulevard and US-101/Produce Avenue).	There are no feasible mitigation measures for these impacts to freeway interchanges. The northbound freeway on-ramp at Oyster Point Boulevard has a constrained right-of-way, and the Produce Avenue northbound off-ramp also has constrained right-of-way and a lack of capacity on surface roadways to accommodate more exiting vehicles Consistent with C/CAG guidelines, the Project will implement a TDM program that is consistent with and exceeds City requirements. That TDM program will serve to reduce its otherwise greater contribution of trips on the CMP network, including its contributions of traffic to freeway ramps.	**Significant and Unavoidable**
Transp 10: The Project would generate more than 100 peak hour trips onto the Congestion Management Program roadway network, contributing to cumulative traffic levels that would conflict with applicable plans, ordinances or policies that establish measures for effective levels of service on the freeway at 7 freeway segments (northbound US-101 north of Oyster Point Boulevard; southbound US-101 north of Oyster Point Boulevard; northbound US-101 between Oyster Point Boulevard and Grand Avenue; southbound US-101 between Oyster Point Boulevard and Grand Avenue; northbound US-101 between Grand Avenue and Produce Avenue; southbound US-101 between Grand Avenue and Produce Avenue; and northbound US-101, south of Produce Avenue).	As there are no feasible mitigation measures for these impacts to freeway segment due to constrained right of way on US-101. Consistent with C/CAG guidelines, the Project will implement a TDM program that is consistent with and exceeds City requirements. That TDM program will serve to reduce its otherwise greater contribution of trips on the CMP network, including increased traffic on US-101 freeway segments.	**Significant and Unavoidable**
Utilities and Service Systems		
Utilities 1: The Project's water demands would not	**Regulatory Requirement Utilities 1, CalGreen Water Conservation Standards**: All	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
exceed water supplies available to serve the Project, and there is sufficient water supplies to serve the project and reasonably foreseeable future development during normal, dray and multiple dry years.	new development pursuant to the Master Plan (the Project) are subject to the water conservation requirements of the 2016 California Green Building Standards Code, Nonresidential (CalGreen, 2016), or as may be amended. These requirements, as pertaining to water conservation, include: 1) Installation of separate sub-meters or metering devices for each individual leased, rented, or other tenant space within the building projected to consume more than 100 gal/day, including, but not limited to spaces used for laboratories, and for water supplied to sub-systems used for make-up water for cooling towers, evaporative coolers, and steam and hot-water boilers. The intent of this code requirement is to reduce potable water use in new or altered buildings by making building owners and/or tenants aware of their daily potable water consumption to encourage voluntary reduction. 2) Install water conserving plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) that meet maximum allowable flow rates. The intent of this code regulation is to reduce the overall use of potable water within the building. 3) Compliance with mandatory Model Water Efficiency Landscape Ordinance (MWELO) measures for outdoor water use in landscape areas, or a local water efficient landscape ordinance that is at least as effective in conserving water. The intent of this code requirement is to reduce the overall outdoor water used for irrigation for both new landscaping areas and rehabilitated landscape projects.	
Utilities 2: The Project would not require or result in the relocation or construction of new or expanded water conveyance facilities, the construction or relocation of which could cause significant environmental effects	**Regulatory Requirement Utilities 2, Water Service Connections**: Genentech will be responsible for connecting new buildings pursuant to the Project to existing or new Cal Water service connections. All such water service connections will be required to adhere to applicable Code requirements, and these requirements will be incorporated into individual development project designs and construction.	Less than Significant
Utilities 3: The Project will not require or result in the relocation or construction of new or expanded wastewater treatment facilities, the construction or relocation of which could cause significant environmental effects.	**Regulatory Requirement Utilities 3, Wastewater Discharge Permit**: New development pursuant to the Project will be required to obtain a wastewater discharge permit from the Environmental Compliance Supervisor of the City of South San Francisco. Each new project shall comply with all requirements or limitations of that permit as cited in the City's Wastewater Discharge Ordinance, Municipal Code, Environmental Compliance Program or any applicable State and federal laws. New development projects pursuant to the Project will be classified as institutional, commercial or industrial users, depending on the types of discharge from the facility. New industrial uses will be further classified as either Categorical Industrial User (an	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	industrial user subject to categorical pretreatment standards or categorical standards), or as a Significant Industrial User (designated as such because the industrial use has a reasonable potential for adversely affecting operation of the treatment plant or to violate pretreatment standard or requirements). 1) New uses designated by the City of South San Francisco as Categorical Industrial Users will be required to develop and implement a plan designed to reduce the amount of pollutants of concern (copper, cyanide, selenium, mercury, perchloroethylene and tributyltin) discharged into the sanitary and the storm water sewer systems. Certain industrial uses within the Project Area may also require a pH neutralization system for pretreatment of industrial process wastewater discharge. 2) New uses designated by the City of South San Francisco as Significant Industrial Users will be subject to additional requirements or limitations as may be cited in the City's Wastewater Discharge Ordinance, Municipal Code, Environmental Compliance Program or any applicable State and federal Laws. Effluent sampling and monitoring is required to verify compliance with applicable regulations and limitations.	
Utilities 4: The Project will not result in a determination by the wastewater treatment provider (the City of South San Francisco) that it does not have adequate capacity to serve the Project's wastewater treatment and disposal demands, in addition to its existing commitments.	**Regulatory Requirement Utilities 4, East of 101 Sewer Fees**: New development within the Project Area will contribute to East of 101 sewer improvements in accordance with existing requirements of the East of 101 Sewer Fee contribution formula, established by Resolution 97-2002 (or as that resolution may be amended). These fees represent "fair-share" payments towards the availability of sewer collection, treatment and disposal capacity for the Project, and apply to all discretionary land use approvals, including Administrative Review, Minor Use Permits and Conditional Use Permits.	Less than Significant
Utilities 5: The Project would not require or result in the relocation or construction of new or expanded wastewater collection facilities, the construction or relocation of which could cause significant environmental effects.	**Regulatory Requirement Utilities 5, Sewer Lateral Construction:** Pursuant to South San Francisco Municipal Code, Chapter 14.14 Sewer Lateral Construction, Maintenance and Inspection, as new development occurs within the Project Area, Genentech will be responsible for constructing, operating and maintaining all individual building sanitary sewer laterals from the building to the City sanitary sewer main. **Mitigation Measure Utilities 5, Detailed Hydraulic Analysis and System Upgrades:** Subsequent detailed hydraulic analysis will ultimately be needed pursuant to individual development projects that rely on the segment of sewer line contributing to Pump Station #8. The results of this detailed analysis will determine whether and when the capacity of these wastewater collection facilities may need to be increased to meet demand. The wastewater collection system will be upgraded as necessary to	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
	accommodate future growth. **Regulatory Requirement Utilities 4, East of 101 Sewer Fees** (see above)	
Util-6: The Project will not require or result in the relocation or construction of new or expanded storm water drainage facilities, the construction or relocation of which could cause significant environmental effects.	**Regulatory Requirement Hydro 1A, Construction General Permit/Stormwater Pollution Prevention Plan:** (see further detail in the Hydrology chapter of this EIR). **Regulatory Requirement Hydro 1B, Provision C.3 Requirements/Stormwater Management Plan:** (see further detail in the Hydrology chapter of this EIR).	Less than Significant
Utilities 7: Future development pursuant to the Project will not generate solid waste in excess of State or local standards or in excess of the capacity of the local infrastructure, or otherwise impair the attainment of solid waste reduction goals. The Project will comply with federal, state and local management and reduction statutes and regulations related to solid waste.	**Regulatory Requirement Utilities 7A, Construction Waste Management Plan:** Individual development projects pursuant to the Project will be required to develop and implement a Construction Waste Management Plan, pursuant to City Ordinance Chapter 15.60 Recycling and Diversion of Debris from Construction and Demolition. Pursuant to these requirements, each new construction project must: 1) Direct one hundred percent of inert solids to reuse or recycling facilities approved by the city, and either: 2) Take all mixed construction and demolition debris to a recycling facility and take all sorted or crushed construction and demolition debris to approved facilities, or 3) Separate by source all non-inert materials such as cardboard and paper, wood, metals, green waste, new gypsum wallboard, tile, porcelain fixtures, and other easily recycled materials, and direct them to recycling facilities approved by the city, and taking the remainder to a facility for disposal. In this option, calculations must be provided to show that the minimum amount of debris as specified by Section 4.408 of Chapter 4 of CALGreen has been diverted. **Regulatory Requirement Utilities 7B, Recyclable Materials:** Pursuant to South San Francisco Municipal Code, section 8.28.070, persons desiring to participate in the recycling materials collection service program shall prepare and separate recyclable materials from other solid waste as required by the collection contract, so as to constitute source separated recyclable materials, and thereafter place the source separated recyclable materials within receptacles. 1) Each type of source separated recyclable material shall be placed in the receptacle designated for such purpose, and shall not be mixed with any other solid waste, including any other type of recyclable material. 2) Receptacles containing recyclable materials for multiple unit residential properties, commercial and industrial and/or institutional properties shall be of a size and serviceability agreed to by the authorized recycling agent and placed at the designated collection location.	Less than Significant

Table 2-1: Summary of Project Impacts and Mitigation Measures

Potentially Significant Impacts	Regulatory Requirements / Mitigation Measures	Resulting Level of Significance
Utilities 8: The Project would result in an incremental increase in the demand for gas and electrical power. However, the Project will not result in potentially significant environmental impacts due to a wasteful, inefficient or unnecessary consumption of energy resources during project construction or operation, or conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	**Regulatory Requirement Utilities 8, Energy Conservation**: All new development pursuant to the Project will be required to comply with all applicable regulatory requirements related to energy, including but not limited to the standards of Title 24 of the California Code of Regulations and the newest California Green Building Standards Code, as applicable, which incorporate energy-conserving design and construction requirements.	Less than Significant
Agriculture and Forest Resources		
Agriculture 1: The Project would not convert designated farmland under the Farmland Mapping and Monitoring Program, nor would it conflict with any existing agricultural zoning or a Williamson Act contract, nor would it involve any changes to the environment that would result in the conversion of designated farmland.	None needed	No Impact
Agriculture 2: The Project would not conflict with existing zoning for, or cause rezoning of, forestland or timberland, nor would it result in the loss of or conversion of forestland to non-forest uses.	None needed	No Impact
Mineral Resources		
Minerals 1: The Project would not have a significant adverse impact on the availability of a known mineral resource or a locally important mineral resource recovery site.	None needed	No Impact

3
Project Description

Introduction

In 1976, Genentech's founders invented recombinant DNA technology, or the joining of DNA molecules from two different species (gene splicing) to produce new genetic combinations. This technological breakthrough has enabled Genentech to discover new medicines that address significant unmet medical needs. Today, Genentech is one of the largest biotechnology-based pharmaceutical companies in the world, discovering, manufacturing and delivering to the market multiple types of medicines used to treat serious or life-threatening medical conditions in the areas of oncology, immunology, neuroscience, metabolism and infectious disease. Genentech research and development efforts continue to drive new discoveries in medicines and scientific applications, and these discoveries continue to increase demand for building space.

The purpose of the Genentech Campus Master Plan Update is to anticipate Genentech's future spatial needs by planning for new buildings, Campus place-making opportunities, transportation and mobility systems and infrastructure to support increased growth. The proposed Genentech Campus Master Plan Update (i.e., the Master Plan Update or Project) provides an overall vision for future growth and development of the Genentech Campus (Campus). The proposed Master Plan Update establishes a conceptual land use and development framework to accommodate an eventual buildout potential of up to 9 million square feet of building space at the Campus (an increase of approximately 4.3 million net square feet over existing conditions), which would be consistent with the existing allowable floor-to-area ratio (FAR) of 1.0. The Master Plan Update also provides flexibility in implementation of this buildout potential to enable Genentech to adapt as needed to changing conditions and new medical and scientific discoveries. For purposes of this EIR analysis, the EIR Project Description presents one realistic and potential vision for how the Master Plan Update's flexible framework might ultimately be developed, while also recognizing that other potential land use outcomes may arise.

This chapter of the EIR describes the Master Plan Update as the Project, presented in sufficient detail to enable evaluation of potential environmental effects. In accordance with Section 15124 of the CEQA Guidelines, this chapter describes:

- the location, characteristics and boundaries of the Project Area
- basic purpose and objectives of the Project
- development assumptions and timeframe used throughout this EIR
- an overview of the anticipated physical characteristics of the Project, and
- intended uses of this EIR, including a list of those agencies that are expected to use this EIR in their decision-making approvals required to adopt the Master Plan Update, and subsequent related environmental review and consultation requirements

Context and Setting

Project Location

The Genentech Campus (or Project Area) is approximately 207 acres in size, located in the City of South San Francisco and along the shoreline of central San Francisco Bay. It is approximately 1.5 miles north of San Francisco International Airport (SFO) and 10 miles south of downtown San Francisco. The regional location of the Project area is shown in **Figure 3-1**.

The Genentech Campus is located on a prominent hillside and hilltop location at the easterly point of the East of 101 Area of South San Francisco (East of 101), and immediately adjacent to the San Francisco Bay. It is bounded by San Francisco Bay to the northeast, east and south and is connected to US 101 to the west by East Grand Avenue and Oyster Point /Forbes Boulevard.

Important transportation facilities (see **Figure 3-2**) in the vicinity include the US Highway 101 corridor and the San Francisco International Airport (SFO), which has a major influence on land use in the East of 101 Area. SFO is approximately 1.5 miles south of the Genentech Campus. Parallel to Highway 101 is the rail corridor, which carries Caltrain rail cars. The current Caltrain Station is located on that corridor, just north of East Grand Avenue. The Peninsula Corridor Joint Powers Board has initiated relocation and improvements to this station, including moving the station to a more accessible location south of East Grand Avenue. The nearest Bay Area Rapid Transit (BART) stations are the San Bruno Station (2.2 miles to the southwest) and the South San Francisco Station (approximately 3.4 miles to the west). Shuttle buses link the East of 101 Area to the South San Francisco BART Station and to the South San Francisco Caltrain Station.

East of 101

The Campus is located in an area known as South San Francisco's East of 101 Area. Highway 101 forms the westerly boundary between East of 101 and downtown South San Francisco. Historically, the East of 101 Area has been the industrial center of South San Francisco. It was once the location of a Bethlehem Steel plant and other steel industries, and transitioned to accommodate a substantial meat packing industry, lighter industrial uses, warehouses and distribution centers.

In the mid-1970s, Genentech began operations in this industrial area. With its technological discoveries, Genentech realized the need for growth and initiated a campus development program. Today, the Genentech Campus occupies over 200 acres of land, and the surrounding City has grown to become a major hub for the biotechnology industry. South San Francisco is now home to the largest biotech cluster in the world, with over 200 biotech companies and 11.5-million square feet of biotech space.[1] The Genentech Campus is the largest of these biotechnology campuses.

Adjacent Land Uses

As the easterly point in the East of 101 Area, the Campus is located immediately adjacent to the Bay, with Bay shoreline along its entire eastern boundary. Portions of the San Francisco Bay Trail, a mostly contiguous trail around the San Francisco Bay, outline the coast around the Genentech Campus. The Bay Trail provides recreational uses as well as pedestrian and bicycle access. The San Francisco Bay Conservation and Development Commission (BCDC) has jurisdiction and permitting authority along this 100-foot shoreline band.

[1] http://www.ssf.net/our-city/biotech/biotech-in-ssf

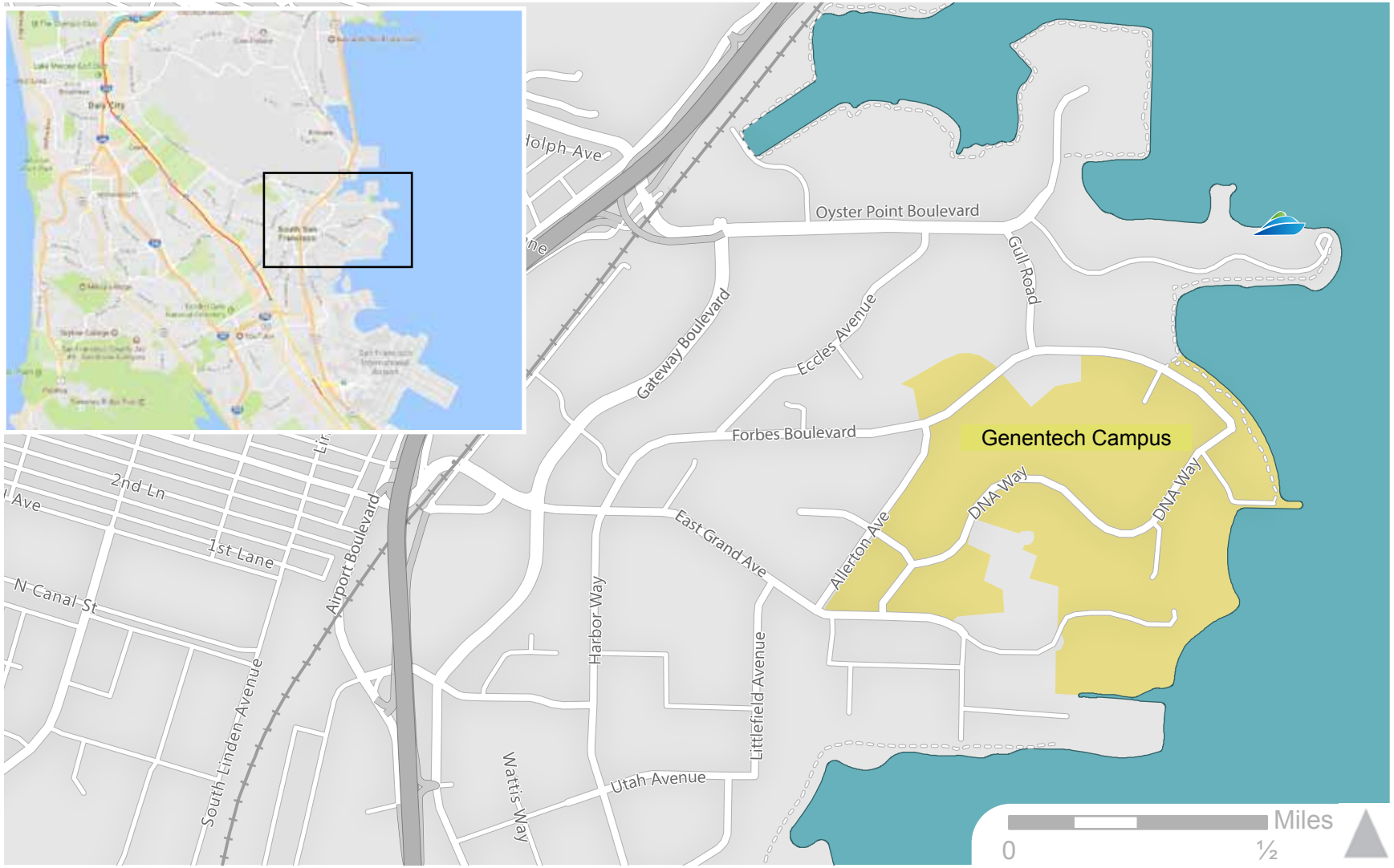


Figure 3-1
Regional Location of the Project Area

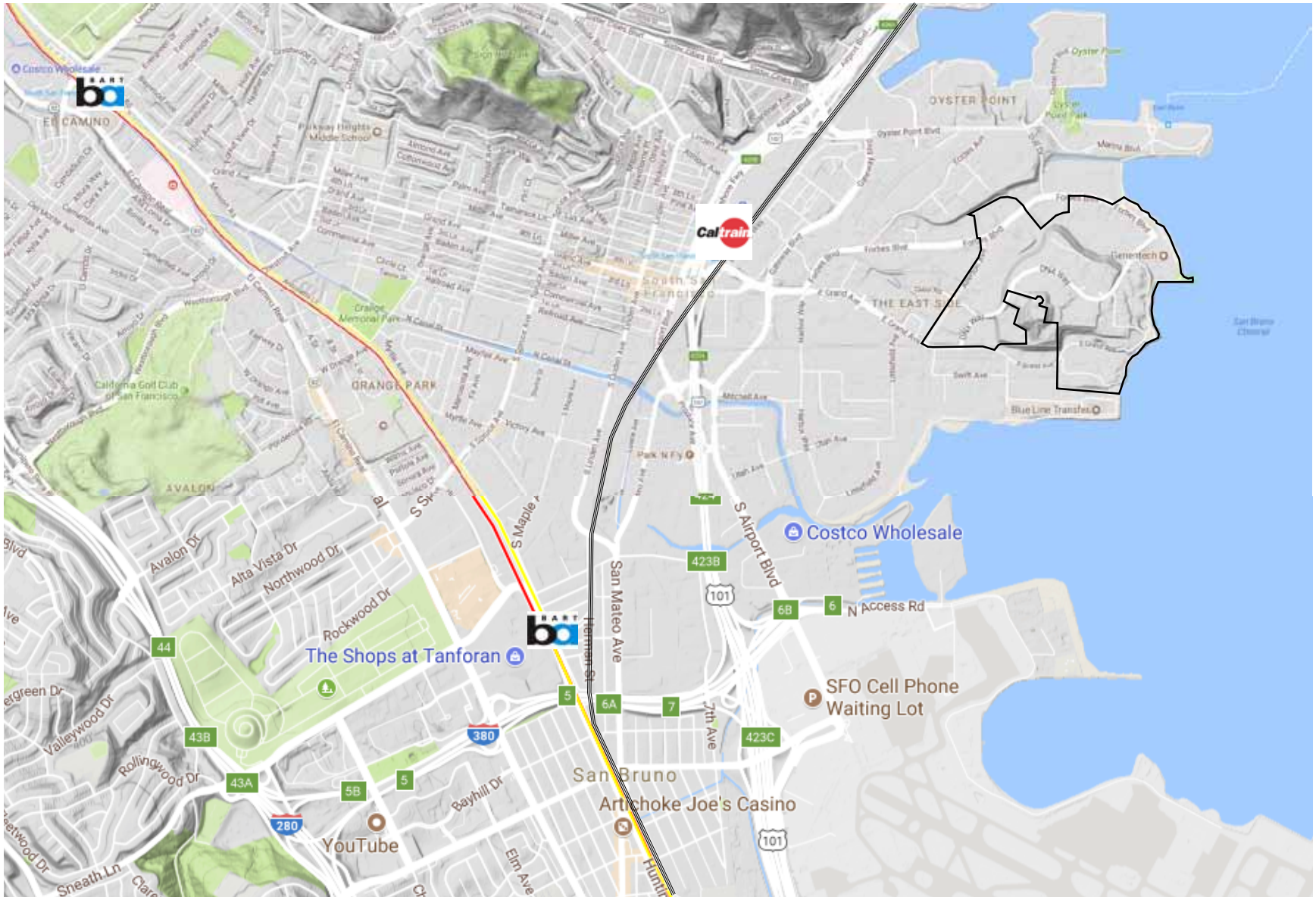


Figure 3-2
Major Transportation Infrastructure Systems

- To the south, the Campus is separated from the Bay by a distance of between 600 feet and 1,300 feet by a band of industrial land uses, including a waste transfer station.
- To the west, the Campus abuts a mixture of industrial, logistics and distribution, manufacturing and R&D land uses that occupy the remaining approximately 1½-mile long by ¾-mile wide East of 101 Area.
- To the north, the Campus' immediate neighbor is a large UPS distribution center. Further to the north is the Oyster Point area, which contains a combination of coastal commercial and park uses including the South San Francisco ferry terminal. A separate planning effort completed in 2011 established Oyster Point as a combination of public lands and new private office/R&D space.

Figure 3-3 illustrates these existing adjacent land uses.

Project Area Boundaries

Within the Genentech Campus, approximately 162.2 acres of land were previously defined as the Genentech Campus in the prior *2007 Master Plan Master EIR* and *2012 Supplemental MEIR*. The Campus also now includes approximately 44.7 acres of additional properties that Genentech has acquired or occupied by lease since publication of the prior *2012 Supplemental MEIR*. These additional properties are now incorporated into its formal Campus boundaries. These additional properties specifically include the South Campus, a number of parcels along Forbes Avenue in the westerly portion of the Campus, as well as several infill properties that had previously not been under Genentech's ownership or leasing control. In 2013, the City took action to amend the zoning of these properties to the Genentech Master Plan zoning district and to add these properties to the Master Plan boundaries.[2] With addition of these properties in 2013, the Project Area comprises approximately 207 acres (see **Table 3-1**).

Table 3-1: Genentech Campus and Neighborhood Areas (acres)

	2007 Master Plan	2013 Additions[1]	Total, as of 2013	Master Plan Update [2]
Lower Campus	55.1		55.1	42.3
Mid Campus	23.8		23.8	26.2
Upper Campus	46.4	5.4	51.8	51.7
West Campus	36.9	12.3	49.2	59.7
South Campus		27.0	27.0	27.0
Subtotal	**162.2**	**44.7**	**206.9**	**206.9**

Notes:

1. City of South San Francisco, Zoning Text and Map Amendments, May 16, 2013
2. Reorganization of Neighborhood Campus boundaries within the same approximately 207-acre Project Area

As shown on **Figure 3-4**, the Genentech Campus boundaries are generally East Grand Avenue to the south, Allerton Avenue to the west, Forbes Boulevard to the north, and the San Francisco Bay to the east.

[2] City of South San Francisco, Zoning Text and Map Amendments, May 16, 2013

Bay Cove (under construction)

Biotech along East Grand Avenue

Oyster Point

Gateway Business Park

Wind Harp Open Space

Light Industrial Space, Utah Avenue

Waste Transfer Station

Figure 3-3
Surrounding Land Use Character

Figure 3-4
Project Area Boundaries

Out Parcels

Adjacent to the Campus boundaries, there are several properties not owned or leased by Genentech. These adjacent or out-parcels are owned and operated by separate owners, and include:

- An approximately 5.3-acre parcel located along Forbes Avenue owned by UCSF; [3]
- An approximately 1.4-acre parcel located at 333 Point San Bruno Boulevard, owned and operated by Lithotype Co. Inc., a plastics fabricator; and
- An approximately 2-acre parcel located at 527 DNA Way, owned and operated by TMB Baking, Inc.

These outparcels are not included in the approximately 207-acre Campus, nor are they included in the City of South San Francisco's Genentech Master Plan zoning district. The presence and ongoing operation of these outparcels does not fundamentally affect implementation of the Master Plan Update, nor do these outparcels critically affect Genentech's ongoing operations. The Campus' southerly boundary is irregular in shape, reflecting the presence of other non-Genentech properties including Wind Harp and properties and facilities owned and operated by AT&T and Cal Water. These properties are also not included in the Campus boundary nor are they included in the Genentech Master Plan zoning district.

Other Off-Campus Properties

In addition to the approximately 207-acre Campus, Genentech has owned or leased substantial additional building space in the East of 101 Area, which is not proposed for inclusion in the Master Plan Update. These off-Campus building spaces include:

- Genentech leases approximately 517,000 square feet of office space (Buildings 82, 84 and 85) at the Gateway Business Park, located between Highway 101 and Gateway Avenue.
- Through 2017, Genentech had leased a separate building (Building 23) near the Gateway Business Park for use as a childcare center. In 2016, Genentech was granted approval for a new and more centrally located childcare center within the Campus at 444 Allerton Road. The new childcare center was completed in 2018, and Genentech has now vacated the leased childcare center near the Gateway Business Park.

Existing Campus

Sub-Area Characteristics

The Campus is composed of five separate neighborhood campuses, as described below and shown on **Figure 3-5**. The neighborhood campuses provide a sense of place within the larger Campus and reflect an emphasis on scale, with each neighborhood campus generally no more than a five to ten minute walk from end to end. Each of these neighborhood campuses has played a distinct role in the function of the overall Campus over time, and these neighborhood campuses are helpful and recognizable organizing elements.

[3] An easement for a pedestrian way is located at the base of the hillside between the West and Lower Campus, at the back of the UCSF property. This is not a permanent easement, and is limited by 5-year use agreements.

Figure 3-5
Genentech Campus - Neighborhood Campuses

Lower Campus

The Lower Campus is located south of Forbes Boulevard and south of the neighboring Oyster Point area, with shoreline edge along the Campus' northerly shore. It has functioned as the primary product development and manufacturing/warehousing portion of the Campus, also containing much of the Campus' primary infrastructure elements. The Lower Campus is 42.3 acres in size. Land uses within the Lower Campus are primarily manufacturing and utilities, with a substantial component of research and laboratory space. Office space that supports certain laboratory uses is also distributed along Forbes Boulevard.

Mid Campus

The smaller 26.2-acre Mid Campus houses the original Genentech Founders' Research Center (FRC), and currently provides lab space for research and development facilities. The Mid Campus is located easterly of DNA Way and sits atop a shoreline bluff overlooking the San Francisco Bay. Currently, the Mid-Campus is almost entirely comprised of research and development lab space, with office space interspersed within the lab buildings.

Upper Campus

The 51.7-acre Upper Campus is located on the highest ground at the Campus hilltop, along both sides of DNA Way. It has been the location of nearly all new buildings constructed since 2004, and has become the Campus' main administrative and office center. With recent construction of 350 DNA Way (Building 35) and the new Employee Center or Hub (Building 34), the Upper Campus is now the heart of the Genentech Campus. The Upper Campus currently contains over 900,000 square feet of office space and most of the Campus' employee amenity space.

West Campus

The 59.7-acre West Campus was added to the Genentech Campus as part of the prior 2007 Master Plan and is located generally in the northwest quadrant of the intersection formed by East Grand Avenue and Allerton Avenue. The West Campus is separated from much of the rest of the Campus by elevation, as it flanks the base of the Upper Campus hillside. This primarily warehouse area has provided the Campus with flexible space for expansion, accommodating existing warehouse and distribution activities in the short to medium term. With the addition of new properties added to the Campus in 2013, the West Campus now includes not only warehouse buildings but also a lab building and various auxiliary functions that serve the Campus, including a bus depot, parking and a new Genentech-owned childcare center within its boundaries.

South Campus

The prior 2007 Master Plan recognized that Genentech leased a significant group of buildings at the immediately adjacent Britannia East Grand development (which was then under construction) but did not include the South Campus as part of the Master Plan. This separate, approximately 27-acre development, located at the easterly end of East Grand Avenue, has since been constructed and is now fully occupied by Genentech. In 2013, the South Campus was re-zoned to the Genentech Master Plan zoning district and was incorporated into the Genentech Campus. The South Campus is now occupied by a mix of lab and office space, supported by internal employee amenity space. Genentech is in the process of purchasing the South Campus.

Baseline Building Space within the Campus

The baseline development at the Genentech Campus comprises approximately 4.7 million square feet of building space within its 207 acres, at a Campus-wide FAR of approximately 0.52. The distribution of this

building space by neighborhood campus location and use type is shown below in **Table 3-2**.[4] The relatively low FAR, as compared to other more recent development projects in the East of 101 Area, is reflective of Genentech's acquisitions of prior older industrial buildings as well as its comparatively higher supply of surface parking lots.

Table 3-2: Baseline (end of year 2017) Building Space by Land Use Type (building square feet)

Land Use Type:	Lower Campus	Mid Campus	Upper Campus	West Campus	South Campus	Total
Office	257,000	82,000	907,000	89,000	230,000	1,566,000
Lab Space / R&D	482,000	469,000	59,000	139,000	568,000	1,718,000
Manufacturing and Distribution	487,000		34,000	764,000		1,285,000
Employee Amenity Space	10,000	2,000	108,000	3,000	23,000	145,000
EIR Baseline, Total:	**1,237,000**	**554,000**	**1,107,000**	**995,000**	**821,000**	**4,715,000**[1]
Changes During 2017 - 2018						
New Employee Center:			71,000			
Demo (B54 and T06):				-107,000		
As of beginning 2018:	1,237,000	554,000	1,179,000	888,000	821,000	4,679,000[2]

Notes:

1. EIR baseline totals consistent with 2015/2016 Genentech Annual Report
2. Beginning 2018 totals consistent with 2017 Genentech Annual Report
3. Totals do not include childcare facilities (total of 124,000 SF), which are exempt from FAR limitations per East of 101 Area Plan

Existing building space within the Campus is generally evenly split between:

- lab space (37% of total building space),
- office use (33% of total building space) and
- manufacturing/warehouse (26% of total building space)

Employee amenity spaces currently comprise approximately 3% of the total Campus building space.

Circulation and Transit

The Campus is currently served by multiple forms of transit, as well as local and regional roadways (see the Transportation Chapter of this EIR for more detailed description).

US Highway 101 parallels the Campus to the west, and includes on/off ramps at Produce Avenue, East Grand Avenue and Oyster Point Boulevard. Primary east-west arterial streets that access the Campus include East Grand Avenue, Forbes Boulevard and Oyster Point Boulevard. These arterials are connected by additional

[4] Genentech's 2018 Annual Report shows a matching level of total Campus development, but because the Master Plan Update re-organizes the boundaries of neighborhood campuses, the total by neighborhood campus shown in Table 3-2 varies slightly from that Annual Report.

north-south roadways within and adjacent to the Campus including Littlefield Avenue to the south, Allerton Avenue, DNA Way (which is the primary roadway serving most of the Campus), and Gull Road to the north.

Regional Transit Services

The following regional transit services operate within South San Francisco and are accessible from the Project Area:

- BART provides regional rail service between the East Bay, San Francisco and San Mateo County. The San Bruno BART Station is approximately 2.1 miles to the southwest of the Campus core, and the South San Francisco BART Station is located approximately 3.4 miles west of the Campus core at Mission Road and McLellan Drive.
- Caltrain provides passenger rail service on the Peninsula between San Francisco and San Jose, with limited service trains to Morgan Hill and Gilroy during weekday commute periods. The South San Francisco Caltrain Station is currently located approximately 1.2 miles west of the center of Campus, at 590 Dubuque Avenue on the east side of US 101, immediately north of East Grand Avenue. Caltrain plans to relocate the South San Francisco Caltrain Station several hundred feet to the south, near the Grand Avenue/Airport Boulevard intersection.
- Water Emergency Transportation Authority (WETA) provides commuter ferry service between Oakland/Alameda ferry terminals and the South San Francisco Ferry Terminal at Oyster Point.
- San Mateo County Transit District (SamTrans) provides bus and rail service (through Caltrain) in San Mateo County. No SamTrans routes stop east of Highway 101 in South San Francisco.
- Peninsula Traffic Congestion Relief Alliance (Commute.org) Shuttles provides first/last mile connections between BART and Caltrain stations and the WETA ferry terminal and local employers in the East of 101 Area. The Oyster Point shuttles connect Caltrain, BART and ferry riders to Oyster Point, Forbes Boulevard and Eccles Avenue during peak commute hours. The Utah-Grand shuttles connect Caltrain, BART and ferry riders to East Grand Avenue and Utah Avenue. The nearest stops are located at the East Grand Avenue turnaround within the South Campus (served by the Utah-Grand area shuttles), at Allerton Avenue/Cabot Road within the West Campus (served by the Utah-Grand area shuttles), and Forbes Boulevard/Carlton Court west of the West Campus (served by the Oyster Point area shuttles).

Genentech's Employee Transit Service

Genentech operates over 20 commuter bus routes (GenenBus) for its employees. GenenBus buses connect employees from San Mateo, Santa Clara, San Francisco, Marin, Alameda, Contra Costa and Solano counties to the Campus. GenenBus also provides first/last mile connections to the South San Francisco Ferry terminal, the Glen Park BART station, and the Millbrae BART/Caltrain station. Genentech also operates seven intra-campus DNA Shuttle routes for employees to travel between Campus buildings as well as to parking and GenenBus shuttle stops. Micro-transit options such as electric scooters and bike-share options are available as well.

Based on recent (2017) monitoring reports, between 41 and 43 percent of Genentech employees arrive to Campus using some form of transit, rather than driving a single-occupant vehicle. [5]

Utilities and Infrastructure

As a major employment center with over 4.7 million square feet of office, laboratories and manufacturing space, the Genentech Campus is dependent on many separate infrastructure systems for its water,

[5] Nelson|Nygaard, Genentech South San Francisco Campus, TDM and Parking Report, April, 2017

wastewater collection, energy and waste disposal needs. As these systems enter the Campus, much of the service is directed to a Central Utility Plant (CUP) located within the Lower Campus along Forbes Boulevard. The CUP uses natural gas and electricity to boil, chill and purify arriving water supplies to be used in various manufacturing and lab applications, particularly to meet Good Manufacturing Practice (GMP) systems for water used in the production of pharmaceutical material. The CUP also provides additional pre-treatment (primarily a neutralization system for pH adjustment, and temperature control) before wastewater re-enters the City's sewer system. All hazardous waste is disposed of separately on-site.

Water Supply

California Water Service Company (Cal Water) supplies water to the Genentech Campus. A system of looped water mains enters the Genentech Campus at Forbes Boulevard and at East Grand Avenue. This looped water supply system is fed from a Cal Water main supply line located along U.S. 101. The water system serving the Upper Campus is augmented by a 1.5-million-gallon storage reservoir located on the top of the hill, as well as a high-pressure water line that supplies adequate flow to certain upper elevations of the Campus (i.e., the B30-series of buildings northerly of DNA Way), to meet fire flow requirements.

Wastewater Collection

The City of South San Francisco provides wastewater collection and treatment for the Genentech Campus. The City owns and maintains the sewer system, which includes gravity sewer mains, pump stations and force mains, and the South San Francisco Water Quality Control Plant (WQCP). The sewer system within the Campus generally comprises three separate branches, all of which provide gravity-flow to a main line collection pipe within East Grand Avenue. All of the wastewater flows from the Genentech Campus are collected within this system, and conveyed for treatment at the WQCP. Once treated at the plant, treated effluent is pumped back through the Campus via a 54-inch force main. This force main generally follows the alignment of the main sewer line back to the Genentech Campus and ultimately discharges through an outfall located in the Bay, easterly of the intersection of Forbes Boulevard/DNA Way.

Storm Drains

The storm drainage system within the Campus consists of underground pipes that collect stormwater via inlets, and which outfall into the San Francisco Bay at various locations. This storm drainage system is based on gravity flow, and does not require pumps to transport flows to the Bay. Most of the Campus is already developed and covered with impervious surfaces (i.e., buildings, parking lots or other structures), so nearly all stormwater becomes runoff, and little infiltration into the ground and groundwater occurs.

Electricity and Natural Gas

Pacific Gas & Electric (PG&E) provides natural gas to the Genentech Campus. The high-pressure gas distribution system is configured in a loop, served from three interconnected underground pipelines located within DNA Way, Forbes Boulevard and East Grand Avenue. A dedicated high-pressure gas line on the north side of the Campus is dedicated to serving Genentech's high-pressure steam boilers.

PG&E also provides electrical power to the Campus. The 12.5 kV underground distribution system that serves the Campus is configured in a looped network, leading from a substation at East Grand Avenue. Most the electrical energy used at the Campus powers the CUP located in the Lower Campus, which runs the various on-Campus Genentech utility systems, including steam boilers, hot and chilled water system, refrigeration systems, purified water systems, liquefied and compressed gas systems, waste treatment or neutralization systems, and emergency power. For many of the non-connected buildings, especially those in the Upper and West Campus, their utility needs are housed either within the buildings themselves, or in adjacent screened utility yards. Any utilities shared between buildings are either located underground, in secure utility yards, or routed through the interior of the buildings.

Waterways, Habitat and Open Space

The vast majority of the Campus is dominated by developed and landscaped areas that include paved roads, buildings, parking lots, paved and gravel trails, ornamental and landscaped areas, and irrigated turf. The habitat suitability for rare or native vegetation in these areas is very low to absent. There are smaller areas of potential habitat within the Project Area, as briefly described below:

- Tidal aquatic habitat is located on the eastern edge of the Project Area along the Bay shoreline. These areas are in the intertidal zone and are influenced by the daily rising and falling tides within the Bay.
- A coastal brackish marsh is located at the western end of a tidally influenced drainage along the northern edge of the Project Area. Vegetation in the western portion of this drainage channel is dominated by alkali bulrush, fennel, pampas grass and non-native annual grasses.
- Coastal salt marsh is located in several small patches on the eastern edge of the Project Area along the Bay shoreline, within two tidally influenced drainage channels, and within several small channels associated with stormwater outfalls. In contrast with the intertidal areas, these coastal salt marsh areas are vegetated with a mix of native and nonnative species. Suitability for this habitat to support rare plants is low due to the fragmented nature of the small areas of marsh.
- Several concrete-lined drainage ditches are located in the inland portion of the Project Area, primarily located along the hillside and base of the hillside of the Upper Campus. These ditches have been excavated for conveying stormwater runoff from the hillslopes and developed areas to the underground stormwater system, which eventually drains to the Bay. They support little to no vegetation and are not suitable for rare or native vegetation.
- One seasonal wetland is located in the northeastern corner of the Project Area, at the north end of an undeveloped patch of ruderal grassland and shrubland.

Current Land Use Controls

South San Francisco

The Campus is governed by multiple land use policies and regulations, including those of the City of South San Francisco General Plan, the East of 101 Area Plan, the City Municipal Code and the 2007 Genentech Facilities Master Plan, as amended. These policy and regulatory documents are summarized below and described in detail in the Land Use chapter of this EIR.

General Plan

The General Plan land use designation for the majority of the Campus is Business and Technology Park (see **Figure 3-6**). The Business and Technology Park designation accommodates campus-like environments for corporate headquarters, research and development facilities and offices. The South Campus is uniquely designated as a combined designation of Business and Technology Park and Coastal Commercial. The Coastal Commercial designation accommodates research and development facilities, and offices, but also enables convenience sales, restaurants, public marketplace, personal/repair services, business/professional services, limited retail and hotel/motel with a coastal orientation, recreational facilities and marinas. A narrow strip of land that extends along the Project Area's entire coastline is designated as Park and Recreation. The Park and Recreation General Plan land use category includes the Bay Trail and coastal beach and bluff areas along the shoreline of the Campus. Uses permitted under the Park and Recreation land use category are parks, recreation complexes and greenways.

BTP - Business Technology Park
MI - Mixed Industrial
COAC - Coastal Commercial
BC - Business Commercial
PR - Park and Recreation
OS - Open Space

Figure 3-6
South San Francisco General Plan Diagram

Source: http://zoning.ssf.net/

East of 101 Area Plan

The Land Use Concept for the *East of 101 Area Plan* is essentially commercial and industrial in nature. Development policies for the northern portion of the East of 101 Area (where the Genentech Campus is located) encourage the creation of campus-like environments for corporate headquarters, research and development facilities and other high quality multi-tenant office or warehouse developments. The Campus is located within the East of 101 Area Plan's Planned Industrial land use category, where (per a 1997 City Resolution #84-97) new land uses are generally limited to industrial parks, light manufacturing, office uses, retail, hotels, and research and development.

Zoning Classification

Chapter 20.260 of the City of South San Francisco Zoning Code establishes the Genentech Master Plan zoning district, which covers the entirety of the Genentech Campus (see **Figure 3-7**).[6] The stated purposes of the City's Genentech Master Plan zoning district are to establish architectural character, open space and circulation elements in a flexible, logical and orderly manner. The regulations and requirements covered by this zoning district are also intended to provide regulatory flexibility and speed to reflect the quickly changing needs of Genentech's R&D operations, and establish facility-wide development standards and design guidelines. Pursuant to Section 20.260.003, new development within the Genentech Campus is currently limited to a maximum buildout of up to 6 million square feet of building space, designated by land use type and by sub-campus location.

2007 Genentech Facilities Master Plan[7]

The *2007 Genentech Facilities Master Plan* outlines a plan that enables the Campus to grow to a maximum of six million square feet of building space during its anticipated ten-year planning period, through 2016. The 2007 Master Plan indicated that Genentech intended to meet its building space needs by redevelopment of buildings that Genentech owned and occupied, and by redeveloping expansion property that Genentech might acquire during the Master Plan's ten-year planning period. The 2007 Master Plan's goals and strategies focus on maintaining a high level of accessibility and connectivity between neighborhood campuses and specific campus functions.

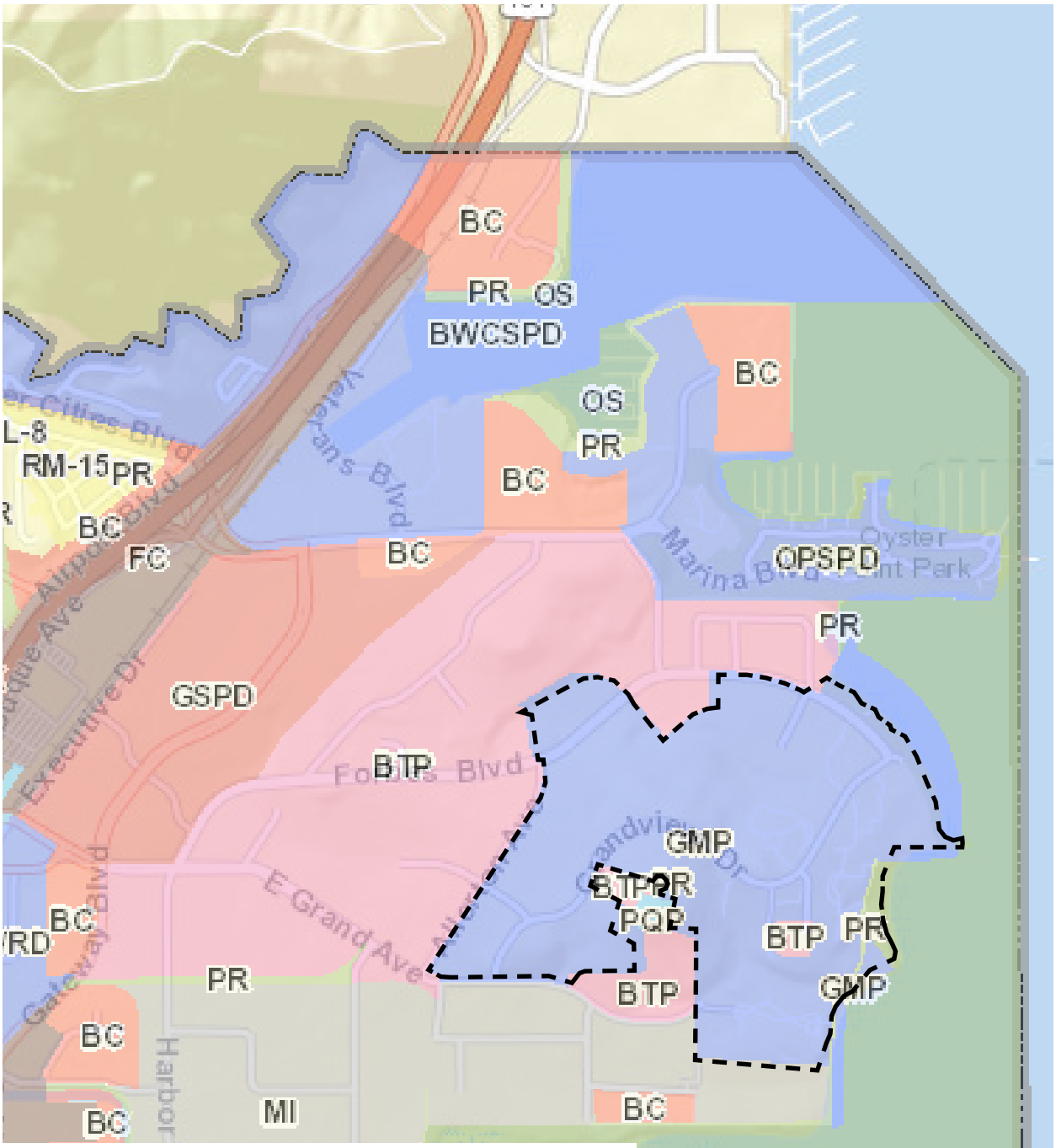
Jurisdiction of Other Agencies

In addition to the City of South San Francisco, two other agencies exert regulatory jurisdiction at the Campus:

- Along the Campus shoreline, BCDC has jurisdiction and permitting authority over a 100-foot wide shoreline band along the entire Bay (see further discussion in the Land Use chapter of this EIR).
- The entire Campus is within the Federal Aviation Administration (FAA) height limits for the San Francisco International Airport. These height limits are set forth in the San Mateo County Airport Land Use Plan (ALUCP) and established pursuant to FAA Part 77 criteria. These criteria affect the height of structures around aircraft operations and at the airport, and trigger FAA review for buildings exceeding certain height limits (see further discussion in the Land Use chapter of this EIR).

[6] In May of 2013, the SSF Planning Commission took action to include additional parcels in the Genentech Master Plan zoning district, including 1511 Grandview Drive, 530 Forbes Blvd. and 500 Forbes Blvd., and 450 - 660 East Grand Avenue (the South Campus).

[7] South San Francisco, Genentech Facilities Ten-Year Plan Master Plan, adopted April 28, 2007



GMP - Genentech Master Plan District
OPSPD - Oyster Point Specific Plan District
GSPD - Gateway Specific Plan District
BWCSPD - Bay West Cove Specific Plan District
BTP - Business Technology Park
MI - Mixed Industrial
BC - Business Commercial
FC - Freeway Commercial
PR - Park and Recreation
PQP - Public / Quasi-Public

Figure 3-7
South San Francisco Zoning Map

Source: http://zoning.ssf.net/

Genentech Campus Master Plan Update

The underlying vision of the Master Plan Update is to seek a strong "Campus-centered" environment at the Campus, within which Genentech can grow through consolidation and greater density to meet its future building space needs. The prior 2007 Master Plan included a specific allocation of future building space that had provided Genentech with flexibility to accommodate its growth needs through 2016. Over a longer term, the 2007 Master Plan will ultimately limit the development flexibility and speed that Genentech needs to meet the changing medical research and development demands of its business and of the industry. These limiting factors include the growth limitation, the precise allocation of new building space by land use type and by neighborhood campus, and the rigid design guidelines and regulations.

Project Objectives

The following primary Project Objective establishes the functional needs for anticipated future growth and flexibility at the Genentech Campus:

1. Campus Setting: Retain close physical relationships between Genentech's various business units that are critical toward meeting the long-term growth needs of the company, and that can only be made possible in a campus setting:
    - Enable scientists to work in a collaborative environment that supports research, development and production goals by clustering Genentech's scientific facilities in close proximity.
    - Maximize the efficiency and support capabilities of administrative functions by keeping these functions centralized and physically proximate to scientific facilities.
    - Retain Genentech's ability to transform scientific discoveries into new medicines quickly and efficiently by retaining close physical relationship between R&D and manufacturing facilities.
    - Provide efficient logistics support to the Campus with ready access to warehouse and distribution facilities.
    - Foster a sense of community among its employees and with the broader South San Francisco community by creating interconnectivity and ease of access.
    - Assure Genentech has continued proximity to world-class scientific and academic institutions.

This primary objective is further enhanced with an updated planning framework for the Campus focused on the following additional Project Objectives:

2. Land Use: Create a dynamic development plan for the Genentech Campus that can guide Genentech's future growth, while providing the needed flexibility to adapt and innovate.
3. Urban Design: Establish a framework for place making within the Genentech Campus that can inform individual decisions on incremental growth in a manner that fosters and stimulates increased interaction and collaboration throughout the Campus.
4. Transportation: Seek to minimize the number of vehicle trips generated by new development within the Genentech Campus, and collaborate with the City and other partners to increase opportunities for alternative modes of transportation serving the East of 101 Area. Ensure the Campus is well served by an integrated system of pedestrian, bicycle and shuttle facilities that enhance neighborhood and Campus connectivity.
5. Infrastructure and Sustainability: Identify and plan for necessary future expansion of Genentech utility needs to assure uninterrupted Campus growth and expansion, while seeking to minimize consumption of natural resources through conservation and sustainability principles.

These four planning framework objectives and their ability to support the primary functionality objectives for the Genentech Campus are further defined below.

Land Use

Consistent with the overall vision of Campus-centered development, the land use objective of the Genentech Campus Master Plan Update is:

> *"Create a dynamic development plan for the Genentech Campus that can guide Genentech's future growth, while providing the needed flexibility to adapt and innovate."*

This Master Plan Update focuses upon several key development concepts to achieve this objective:

1. Redefine the boundaries of the Genentech's Campus and its smaller "neighborhood campus" structure to accurately reflect the current 207-acre Campus, as previously established by other prior City legislative actions (see prior Figure 3-5).
2. Accommodate a responsible level of Campus growth and development that is consistent with the City's land use policies and regulations, but that secures Genentech's ability to increase density and development potential.
3. Ensure adequate building space to support future Campus needs for R&D lab, office and manufacturing space, infrastructure expansion and on-Campus amenity/employee support land uses.
4. Increase density and maximize opportunities for employee collaboration and creativity through infill development and redevelopment within each of the Campus' neighborhood campuses.
5. Anticipate needed adaptation and change in response to future innovations in science, by providing for maximum flexibility throughout Plan implementation.

Buildout Potential

The Master Plan Update establishes an overall growth limit within the Campus boundaries based on a total buildout at a maximum FAR of 1.0 times the total area of the Campus. This FAR is consistent with the City's current Genentech Master Plan zoning district provisions. Based on an FAR of 1.0 for all properties within the Campus, the overall buildout potential of the 206.9-acre Campus is just over 9 million square feet, as indicated in **Table 3-3**. This buildout potential would enable construction of approximately 4.3 million square feet of net new building space, in addition to the approximately 4.7 million square feet of existing building space within the Campus. Buildout of up to 9 million square feet would exceed the 6 million square-foot building space cap through year 2016, as provisionally established in the 2007 Master Plan.

Table 3-3: Genentech Campus Buildout Potential: 2007 Master Plan and Master Plan Update

	2007 Master Plan Buildout Potential [1]		Existing (2017) Status[2]		Master Plan Update Buildout Potential	
	Acres	Bldg. (sf)	Acres	Bldg. (sf)	Acres	Bldg. (sf) [3]
Lower Campus	55.1	1,625,000	55.1	1,237,000	42.3	
Mid Campus	23.8	910,000	23.8	554,000	26.2	
Upper Campus	46.4	1,387,000	51.8	1,107,000	51.7	
West Campus	36.9	737,000	49.2	995,000	59.7	
South Campus			27.0	821,000	27.0	
"Expansion"		1,341,000				
Total	**162.2**	**6,000,000**	**206.8**	**4,715,000**	**206.9**	**9,008,000**

1. Per Table 20.260.003(I): Genentech Growth and Development Projections, SSF Municipal Code
2. Per Genentech Master Plan, 2015/16 Annual Report, pg.8
3. Total building space per neighborhood campus is not prescribed pursuant to the Master Plan Update. See Buildout Assumptions for EIR Analysis, below for development by neighborhood campus and by land use type as assumed for this EIR.

This overall FAR approach is a flexible and adaptable policy and regulatory planning tool that provides a "development envelope" for the Campus, within which future development applications may be considered. It also provides the potential for a variety of development scenarios to unfold within the Campus, depending on Genentech's future business needs. The overall FAR approach also simplifies the land use rules pertaining to future development within the Campus, thereby increasing Genentech's flexibility to grow, densify and implement its Campus-centered vision for the future.

Opportunity Sites

The Master Plan Update identifies general locations where new development or redevelopment is most likely to occur. These locations, indicated as "Opportunity Sites", generally fall within one or more of the following types of sites:

- Surface Parking Lots - Existing surface parking lots are located throughout the Campus, generally serving adjacent buildings. These surface parking lots are a relatively inefficient use of land and provide opportunities for new development. To the extent that these surface lots are redeveloped with new buildings, new structured parking is anticipated to accommodate Campus parking needs (see further, below).
- Redevelopment of Underutilized Buildings - The Campus includes many 1- and 2-story modular and outmoded buildings that underutilize their site potential. These older and less efficient buildings represent opportunities for redevelopment within the Campus. As these types of Opportunity Sites are redeveloped, it is expected that new buildings that replace them will be larger, taller and better able to serve modern needs.
- Infill Sites - At a current actual FAR of approximately 0.52, the Campus is mostly suburban in scale and density, and there are numerous locations within the Campus where new development can occur on existing undeveloped infill sites. These infill development opportunities enable new development to occur without the need for replacement parking structures or relocation of existing uses.

- Hillsides - Existing steep topography throughout the Campus has presented a challenge to cohesive campus planning, separating certain portions of the Campus from each other by elevation. It is possible that new buildings, potentially including new parking structures, could be constructed into these hillsides such that the top portions of these new buildings could serve as a "bridge" linking the upper and lower elevations of the Campus together.

The Master Plan Update identifies these Opportunity Sites by general location (see **Figure 3-8**) but does not establish precise boundaries for these sites, nor does it allocate these Opportunity Sites with a specific land use type or precise building space capacity. Rather, the Master Plan Update identifies Opportunity Sites within each neighborhood campus where a range of building space needs can be realized and provides Genentech with the flexibility to program these Opportunity Sites over time as specific needs arise.

The aggregate buildout potential of each Opportunity Site has been calculated based on average FAR and building mass assumptions (see subsequent section of this Project Description - Buildout Assumptions for EIR Analysis, below), and aligns with the 9 million square-foot buildout potential. However, the Master Plan Update is also intentionally flexible to enable certain neighborhood campuses to build out at higher overall densities than other neighborhood campuses, provided the overall Campus-wide buildout does not exceed 9 million total square feet.

Urban Design

The Urban Design objective of the Genentech Campus Master Plan Update is to:

> *"Establish a framework for place-making within the Genentech Campus that can inform individual decisions on incremental growth in a manner that fosters and stimulates increased interaction and collaboration throughout the Campus."*

The Master Plan Update focuses upon several key development concepts to achieve this urban design objective:

1. Strengthen the Upper Campus as the "heart of the Campus" by programming active uses, establishing places that prioritize people over cars and incorporating outdoor spaces for daily and/or special-events.
2. Incorporate place-making design decisions into each new building and Campus improvement effort. Increase pedestrian connectivity, especially between the Upper Campus core and each of the surrounding neighborhood campuses.
3. Link pedestrian-based urban design strategies to an overall transportation strategy for the Campus, designed to support and facilitate modes of travel other than single-occupancy vehicles.
4. Continue to commission architecture that conveys superior design, materials and workmanship, and that distinguishes Genentech as a leader in innovative quality development.
5. Foster creative, vibrant and thoughtful architecture and landscape design, meeting or exceeding the design and sustainability standards as established by Genentech in recent years.

Similar to the flexibility introduced in the Land Use chapter, the Master Plan Update's Urban Design chapter provides a framework intended to promote flexibility and to encourage individual creative solutions over time. As such, the design strategies presented in the Urban Design chapter of the Master Plan Update are intended as illustrative examples of place-making, and are not precise designs or set parameters for future development.

Figure 3-8
Genentech Campus Master Plan - Opportunity Sites

Source: JRDV International, Genentech

Reinforce the Upper Campus as the Campus Core

The Upper Campus already contains many foundational elements of an important core area for the Campus, including the lawn and plaza in front of Building 35/the Employee Center, and the courtyard space within the center of the B30 building cluster. The Master Plan Update envisions connecting these foundational urban design elements to create an even more identifiable center of the Campus. Design strategies to achieve such an identifiable Campus center include:

- Enhance pedestrian connections in this area with seating arrangements for groups or small gatherings, stairways, terraced gardens, and/or open lawn areas. These areas can be programmed with event space, an art walk or performance stages.
- Use additional landscape elements to unify and define the boundaries of the Campus core, including prominent sculpture and artwork. Landscape elements should include trellises, tree canopy vegetation and building canopies to shade pedestrian areas, and use of landscape and building edges as wind blocks and windrows.
- Create productive outdoor working and collaboration spaces including areas for contemplation, and small and large group gathering spots.
- Provide ample space for coffee carts, Grab-N-Go quick food services, outdoor eating facilities and a centralized location for food trucks to assemble.
- Establish clear pedestrian pathways that connect the Upper Campus to other Campus locations. These pedestrian connections should include primary pedestrian paths with vertical circulation elements (such as stairs and elevators) as well as secondary pathways that internally link the outdoor spaces of the Campus core area.
- Make this portion of the Campus pedestrian-friendly by including special paving, brickwork or stonework within the road right-of-way, landscaped bulb-outs within the street at pedestrian pathway intersections, and potential closure of DNA Way to general traffic, perhaps only during specified times of the day, and opened as a pedestrian-only environment with accommodations for shuttles, buses and emergency vehicles.

Neighborhood Campus Place-Making Strategies

Each of the neighborhood campuses within the Genentech Campus have traditionally served separate roles, emphasizing research and development, or manufacturing and warehousing, or office/administration functions. These neighborhood campuses may continue to retain one major specific functionality, but it is likely that each will evolve into a more a complete “campus-within-a Campus”, with each neighborhood campus becoming an independent center of activity. The Urban Design chapter of the Master Plan Update anticipates place-making design elements incorporated into each new building and Campus improvement to enhance the sense of place in each neighborhood campus. The urban design strategies that apply to each neighborhood campus include:

- Maximize use of existing public spaces and interconnect these spaces with pedestrian paths, landscaping and increased programming. As new buildings are incrementally added to the Campus, prioritize programming, design and use of outdoor spaces surrounding these new buildings.
- Create a pedestrian pathway system that radiates outward from this Central core to each neighborhood campus, with the Upper Campus at the hub and each neighborhood campus at the end of a spoke.
- Create safe and accessible pedestrian environments by using consistent lighting design and light levels.

- Overcome the elevation changes within the Campus by incorporating elevators, stairways and ramps into new structures that are constructed into or adjacent to hillsides. Staircases should use short flights of stairways and generous landings, with benches and views.
- Improve the overall streetscape to provide for vehicle, bicycle and pedestrian movement, using generous sidewalks, medians, landscaping, site furnishings, lighting and different pavement solutions that provide a sense of enclosure and safety for pedestrians, continuity of design character, and consideration of shade, wind and light.
- Incorporate new landscape elements that are drought-resistant and responsive to the climate, but that also create a unified landscape palette for each major streetscape within the Campus.
- Integrate windrows and architectural barriers to minimize wind forces where wind tunnels occur, and provide dense shrub and ground cover plantings to reduce wind-blown soils.
- Screen surface parking lots from view using dense landscape planting.
- Design all new shuttle bus shelters to be compatible in style, size and color as the existing shelters already provided throughout the Campus, providing wind and rain protection, security and visibility , with sheltered seating, interior lighting, and widened pavement space for exterior waiting and sitting areas.
- Create new "gateways" to mark important entrances to the Genentech Campus to establish a sense of arrival and corporate identity, where such gateways are not already established.
- Maintain the current, consistent design themes for monument signs, wayfinding signs, light fixture banners and murals.

Architecture

The Campus will continue to comprise an eclectic mix of buildings with differing architectural styles suited to internal building functions. Rather than prescribing detailed building design standards in the Master Plan Update, the Urban Design chapter encourages new creative, innovative building designs that are functional, environmentally sustainable and meet or exceed the high design standards that Genentech has already established with its most recent building additions. Pursuant to the City of South San Francisco's Zoning Code (Chapter 20.480: Design Review) the City will continue to review the design of new buildings on Campus to ensure that they promote high-quality design, are well-crafted and maintained, use high-quality building materials, and are attentive to the design and execution of building details and amenities.

Transportation

The transportation objective of this Master Plan Update is to:

> *Seek to minimize the number of vehicle trips generated by new development within the Genentech Campus, collaborate with the City and other partners to increase opportunities for alternative modes of transportation serving the East of 101 Area and ensure the Campus is well served by an integrated system of pedestrian, bicycle and shuttle facilities that enhance neighborhood and Campus connectivity.*

This Master Plan Update focuses upon several key development concepts to achieve this transportation objective:

1. Contribute towards the City's planned public street system improvements in the East of 101 area through payment of applicable East of 101 Transportation Improvement Fees, and/or by constructing desired improvements in lieu of fees.

2. Collaborate with the City of South San Francisco to consider enhancements to area-wide public transit service. Such enhancements should seek to reduce vehicle traffic, minimize single-occupant vehicle trips, and reduce overall vehicle miles travelled (VMT) along major transportation corridors.
3. Build upon the success of Genentech's existing TDM program, adding improvement where needed and offering new options to increase employee travel choice and improve user experience.
4. Increase parking commensurate with new development, seeking a balance between adequate availability of on-Campus parking and the promotion of alternative transportation modes.
5. Ensure an integrated and walkable Campus, and coordinate pedestrian facilities with shuttle-bus stops to enhance neighborhood and Campus connectivity.
6. Contribute towards the City's planned bicycle system improvements in the East of 101 area as identified in the South San Francisco Bicycle Master Plan (as updated through the City's Active South San Francisco Plan currently under preparation) and South San Francisco Downtown Station Area Plan, through payment of applicable East of 101 Transportation Improvement Fees.
7. Maintain efficient service, goods and freight mobility to serve Genentech's needs, relying on existing arterial roadways serving the Campus to continue to accommodate larger-sized vehicles, and by considering the special circulation design needs of these services as part of new development.
8. Allow the mix of new land use types within the Campus to vary depending upon future needs, but hold constant a "Trip Cap", based on the number of AM peak-hour vehicle trips that the land use mix may generate.

Transportation Demand Management (TDM)

The City of South San Francisco Municipal Code, Chapter 20.400 (Transportation Demand Management) requires that all non-residential development projects expected to generate more than 100 average daily auto trips, or projects seeking an FAR bonus implement TDM measures to reduce vehicle traffic. The City of South San Francisco's current TDM requirements for projects in the Business and Technology Park land use district vary by the underlying floor-to area ratio (FAR). Development projects with an FAR of 0.51 to 0.69 (which is consistent with the baseline Campus development) are required to provide a minimum alternative mode use of 30 percent of total trips. The minimum alternative mode use increases to 35 percent for projects with an FAR of 0.81 to 1.00 (which would be consistent with buildout assumptions of the Master Plan Update).

Genentech currently implements a highly successful TDM program, entitled gRide. The gRide program includes GenenBus commuter services, a DNA shuttle bus system, a private ferry system, transit incentives, a comprehensive marketing and communications program, and numerous additional TDM programs. The existing gRide program has reduced the number of single occupancy vehicles traveling to and parking at the Genentech Campus, thereby also reducing the pressure on employee parking demand. Based on 2017 TDM monitoring, Genentech's gRide TDM program is achieving a very high trip reduction rates for single-occupant vehicles, varying between 41 and 43 percent between 2015 and 2017 (i.e., between 41 and 43 out of 100 Genentech employees arrive to work at the Campus using any number of available alternative transportation modes other than driving alone).[8] In addition, Genentech offers an initiative program that allows employees the flexibility to choose work-from-home and other flexible workday options. These initiatives further reduce Genentech's daily contribution to traffic congestion during peak hours. The combined TDM trip reductions and flexible workday options currently achieve an approximately 51% reduction in AM peak hour vehicle trips that would otherwise arrive at the Campus.

[8] Nelson/Nygaard, *Fall of 2017 Campus Mode Share and Parking Report*

Genentech now proposes as part of the Master Plan Update a goal of achieving a 50 percent alternative mode share for Campus arrivals by buildout. The updated Genentech TDM program continues those existing TDM strategies that Genentech provides, and includes a menu of additional strategies that Genentech may use to refine or add to the existing gRide program as may be needed to meet future demands and TDM commitments (see further discussion of Trip Cap, below). The existing and potential new strategies that comprise the known "menu" of the TDM program include:

- Transit subsidies/reimbursements for employees' out of pocket costs for riding public transit to work
- Continued operation of the GenenBus fleet of commuter buses for employees who live throughout the San Francisco Bay Area, and the DNA Shuttle Service of intra-campus routes for employees to travel between Campus buildings, parking facilities and GenenBus stops
- Implementation of a stand-alone ferry service to markets unserved by other ferry operators and where capacity constraints on GenenBus service exist
- Programs and incentives for carpools, car-sharing, ride matching, vanpool, and motorcycles
- Off-peak travel incentives, including a Guaranteed Ride Home program, flexible work arrangements, and Parental Commuter programs, and
- Biking and walking incentives and programs, including financial incentives, bike-oriented programs and events, purchasing Bay Area Bike Share memberships, an on-site bike share program, bicycle user facilities, and bicycle network improvements.

In addition to the 50% TDM-based mode share goal for Campus arrivals, Genentech expects to continue its flexible work arrangement initiatives. Assuming that these initiatives maintain the current average of approximately 13% of the Genentech workforce choosing a flexible work option, as many as 3,250 workers per day may choose a non-commute option at buildout. This would further reduce the number of AM peak hour Campus arrivals by as much as 1,558 trips, resulting in a total trip reduction rate of approximately 57%.

East of 101 Transportation Improvements

The City of South San Francisco's East of 101 Study and Transportation Improvement Fee Program was last prepared and adopted by the City in 2011. It identifies future roadway improvements needed to accommodate future cumulative traffic levels, and establishes a fee program as a source of funding for capital improvements to the transportation system. The East of 101 Study calls for several intersection improvements in the immediate vicinity of the Campus, as well as enhancements to bicycle and pedestrian infrastructure consistent with the City's Bicycle Master Plan and Pedestrian Master Plan. The Master Plan Update supports the identified East of 101 Study transportation system improvements through payment of applicable East of 101 Area Traffic Impact Fees,[9] Oyster Point Interchange Impact Fees,[10] other applicable fees and contributions, in addition to operation of Genentech's own private transit system and TDM program.

Parking

The Master Plan Update parking strategy for the Campus calls for balancing the availability of on-Campus parking with promotion of alternative transportation modes.

A TDM-based approach for calculating parking demand was reflected in the prior 2007 Master Plan and incorporated into the parking requirements of the South San Francisco Municipal Code (Section

[9] City of South San Francisco, Resolution No. 84- 2007, Adopting the East of 101 Traffic Impact Fee Study Update and revising the City's Traffic Development Impact Fee within the East of 101 Area

[10] City of South San Francisco, Resolution No. 71-84, Setting Policy for the Oyster Point Grade Separation Funding

20.260.003[D]). However, because the 2007 Master Plan did not predict TDM ratios exceeding 32% reductions in drive-alone travel, lower parking space requirements for higher TDM participation (as assumed under this EIR) are now as indicated below in **Table 3-4.**

Table 3-4: Parking Ratios (Spaces per 1,000 SF)

	Office	Lab, R&D	Manufacturing	Warehouse
Parking Rates, from the Prior (2007) Master Plan				
At 24% TDM	2.75	1.40	0.90	0.50
At 30% TDM	2.59	1.32	0.85	0.47
At 32% TDM	2.53	1.29	0.83	0.46
Updated Parking Rates, Based on Improved TDM Performance				
	Office	**Lab, R&D**	**Manufacturing**	**Amenity**
At 28% TDM	2.64	1.34	0.86	1.34
At 35% TDM	2.45	1.25	0.80	1.25
At 38% TDM	2.37	1.20	0.77	1.20
At 42% TDM	2.26	1.15	0.74	1.15
At 46% TDM	2.15	1.09	0.70	1.09
At 50% TDM	2.03	1.04	0.67	1.04

These parking rates are the minimum parking requirements for future Campus development, but should be reviewed periodically to assess whether they adequately reflect actual parking needs, or should be adjusted. These parking rates do not represent a maximum parking limit at the Campus. The Master Plan Update enables Genentech to choose to provide more parking than these rates require, provided the assumed TDM trip reduction rates continue to be achieved. The parking ratios above are to be applied to the total amount of existing and new land uses to determine the total amount of parking that must be provided whenever additional space is added to the Campus. The actual number of new parking spaces required to meet the incremental increase in parking demand will be a function of several factors, including:

- the increased parking demand for each new building (based on the number of new employees per building and the currently effective TDM trip reduction rate)
- less any excess parking supply that may be available on Campus; and
- replacement of any existing parking (e.g., surface parking lots) that may be lost due to the new development

There are also parking spaces provided along the Bay shoreline reserved for public use and that provide public access to the Bay Trail. These existing parking spaces will be retained in accordance with agreements reached between Genentech, the City of South San Francisco and the Bay Conservation and Development Commission, although their exact locations may be moved as long as new locations provide equal public access to the Bay Trail.

Trip Cap

The Genentech Campus has undergone prior CEQA review pursuant to two separate EIR processes: the 2007 Master EIR and subsequent 2012 Supplemental Master EIR for the Campus Master Plan, and the 2002 Britannia East Grand EIR for the area now known as the South Campus. Both of these prior EIRs estimated the number of AM peak hour drive-alone vehicle trips that would be generated at buildout of each project – the approximately 6 million square feet of building space within the former Campus boundaries, and approximately 804,500 square feet of building space at Britannia East Grand /South Campus. The projected drive-alone trips generated from buildout of these previously approved projects during the AM peak hour (the worst-case traffic condition, as presented in the two prior CEQA documents) is summarized in **Table 3.5**.

Table 3-5: AM Peak Hour Trip Calculations, Prior EIRs

Land Use	Buildout (SF)	AM Peak Trip Rate	AM Peak Hour Trips at Buildout	Total AM Peak Hour Trips (per Approved Projects)
Genentech Campus Master Plan (per 2007 MEIR) [1]				
Office	2,629,395	0.95	2,498	
Lab	2,002,482	0.59	1,181	
Manufacturing	1,041,668	0.48	500	
Amenity	322,000	0	0	
Total	5,995,545		4,179	**4,179**
Britannia East Grand (per 2002 EIR) [2]				
Total Buildout	804,530		1,037	**1,037**
Total Approved Building Space and AM Peak Hour Trips				
	6,800,075			**5,216**

Source: 1: 2007 Genentech Corporate Facilities Master Plan MEIR, buildout per Table 3-1, assumed AM trip rate per Table 4.7-11
2. 2002 Britannia East Grand Project EIR, Table 6.9

As indicated in Table 3.5, the prior EIRs for the Genentech Campus and the Britannia East Grand projects estimated approximately 5,216 total AM peak-hour drive-alone trips would be generated at buildout.

As part of the current Master Plan Update and in tandem with its goal of achieving a 50 percent TDM-based trip reduction at buildout, Genentech is also proposing to establish a “Trip Cap”. This Trip Cap is equivalent to this same number of drive-alone vehicle trips (5,216 total drive-alone trips at buildout), while increasing the underlying entitlement from approximately 6.8 million square feet, up to 9 million square feet of building space. To achieve this Trip Cap, Genentech proposes to implement TDM programs for all of its employees at levels that can reduce drive-alone trips such that the Trip Cap is not exceeded. It is estimated that the effectiveness of this TDM program will need to increase commensurate with new development, and will need to expand to at least an approximately 47% drive-alone trip reduction rate for Campus arrivals by the 9 million square foot buildout (as buildout is specifically defined under this EIR Project Description).

This Trip Cap will also provide Genentech and the City of South San Francisco with flexibility to adapt the land use mix within the Campus over time depending upon future needs, while holding a constant “cap” on the number of net new AM peak-hour vehicle trips that the ultimate land use mix can generate. The Trip Cap is used as a proxy, or means by which the maximum land use development under the Master Plan Update is measured. By holding the Trip Cap constant, a variety of land use scenarios can be accommodated at the

Campus without exceeding the off-Campus traffic effects as analyzed in this EIR. The maximum development capacity of the Master Plan Update as analyzed in this EIR is achieved when the Trip Cap is reached and additional TDM reductions cannot be implemented. This approach serves as incentive for Genentech to maintain a high TDM rate (or a low rate of drive-alone trips), because each TDM-reduced trip counts as a "credit" against the Trip Cap.

Infrastructure and Sustainability

The Infrastructure and Sustainability objective of the Genentech Campus Master Plan Update is to:

> *"Identify and plan for necessary future expansion of Genentech utility needs to assure uninterrupted Campus growth and expansion, while seeking to minimize consumption of natural resources through conservation and sustainability principles."*

The Infrastructure and Sustainability chapter of the Master Plan Update provides a framework intended to recognize and plan for needed infrastructure capacity to support future Campus growth, while at the same time recognizing Genentech's efforts to conserve and minimize the Campus' environmental footprint over time. The Master Plan Update focuses upon several key strategies to achieve this infrastructure and sustainability objective:

1. Ensure adequate water supply and water system delivery capacity to serve the industrial processes and domestic water needs of the Campus, while seeking to minimize water consumption through ongoing water efficiency, conservation and recycling initiatives.
2. Ensure adequate wastewater collection system, treatment and disposal capacity to serve the industrial processes and domestic wastewater disposal needs of the Campus, while seeking to reduce demands on these systems through ongoing water efficiency and conservation initiatives and reclaimed wastewater initiatives.
3. Ensure adequate energy supplies (electricity and natural gas) are available to serve the industrial processes and building needs of the Campus, while seeking to minimize energy consumption through ongoing efficiencies, conservation practices and renewable energy initiatives.
4. Ensure adequate and efficient waste disposal capacity for the industrial and office needs of the Campus, while seeking to minimize waste generation through effective life cycle management of materials.
5. Design and construct new Campus buildings that demonstrate a commitment to a sustainable Campus environment that enhances health, comfort and energy performance, while minimizing resource consumption.
6. Preserve opportunities to implement sea level rise adaptation strategies for the Campus that may prove to become critical in the future.

The Master Plan Update includes a projection of increased demand for major utilities and indicates the types of infrastructure capacity improvements needed to supply this future demand. Generally, the Campus is well served with water, wastewater, waste disposal and energy infrastructure systems, and only limited and localized capacity improvements are indicated as necessary to serve future demands. These types of improvements include local pressurized water pipelines, increases to the size of certain wastewater disposal mains, new building connections, and potentially a dedicated PG&E electrical substation to increase energy reliability.

However, the demands for natural resource consumption can be substantially reduced and the need for utility system improvements can be delayed or potentially avoided through ongoing and potential future sustainability initiatives that are internally driven by Genentech's own Sustainability Strategic Plan. Examples of current, ongoing sustainability initiatives include:

- Achieving reductions in irrigation water use, including planting of more drought- resistant landscaping
- Using of “grey water” from showers and sinks for use in irrigation and toilets, and installation of recycled water distribution lines (i.e., “purple pipes”) throughout the Campus in anticipation of a future reclaimed water supply becoming available
- Piloting program solutions for internal reuse and recycling of industrial water (for example, as make up water in cooling towers)
- Implementing Best Management Practices (BMPs) capable of removing or otherwise neutralizing pollutants from stormwater runoff
- Implementing numerous energy efficiency projects throughout the Campus, focusing on HVAC, lighting, air balance and steam systems, and designing new buildings to meet high performance measures for energy efficiency
- Purchasing substantial portions of the Campus’ electrical energy needs from renewable and carbon-free energy sources
- Embarking on an on-Campus solar energy project, which is projected to ultimately consist of 16,000 solar panels spread across Campus, expected to generate as much as 25% of the Campus’ energy needs on a typical workday
- Optimizing the latest available engineering technologies to install a Campus-wide system for refrigerated water distribution, installation of new industrial chillers, and replacement of air conditioning equipment that may ultimately result in a 50% reduction in energy used to produce refrigeration components of process cooling and air conditioning
- Participating in innovative FLEXLAB programs to model energy use for new buildings to help make sustainable construction decisions
- Developing a Sustainability Design Checklist based on LEED4 for New Construction to guide sustainable building design,
- Achieving WELL Certification standards focused on health, productivity, and wellness of the people inside new buildings, and
- Achieving LEED Silver and Gold certifications and striving for LEED Platinum certification on its newest buildings that recognizes best-in-class green building practices.

Many of the additional initiatives that Genentech may consider towards meeting its own sustainability aspirations are still early in the planning and development stages. Many of these initiatives have high likelihood of implementation, but others may not prove to be technically, economically or practically feasible. These future projects and programs demonstrate the level of effort that Genentech commits towards their own internal sustainability objectives. However, these ongoing initiatives and potential future projects and programs are not obligations, regulatory requirements or otherwise mandated for future Campus growth.

Buildout Assumptions for EIR Analysis

As described above, the Master Plan Update defines an overall development program intended to result in a cohesive and integrated Campus accommodating Genentech's needs for future growth. The Master Plan Update focuses on organizing themes for incremental Campus development in the future, but does not define precise building locations, shapes or forms. Rather, the Master Plan Update is intentionally flexible to enable Genentech to adapt its Campus to accommodate the building space needs of future scientific innovation and discovery, and to enable new and creative urban design to influence future building plans. To maximize flexibility, the Master Plan Update allows the land use mix within the Campus to evolve over time, depending upon Genentech's future needs.

To provide detail and specificity for this EIR, the following section provides one potential detailed buildout scenario that meets the goals of the Master Plan Update, and is used for qualitative and quantitative analytical purposes. This Project Description is intended to be specific enough to allow for detailed analysis in the EIR, representing the maximum development potential that could occur within the Campus (i.e. Project Area) pursuant to the Master Plan Update. This Project Description is based on an estimate of projected employment growth and future building space needs by land use type and/or function, ultimately increasing building space from approximately 4.7 million square feet today, to a maximum of 9 million square feet at buildout (or approximately 4.3 million square feet of net new building space). This estimate includes a forecast growth of approximately:

- 1.6 million square feet of new lab space,
- approximately 2.4 million square feet of net new office space, and
- approximately 0.3 million square feet of various types of employee amenity spaces

The Master Plan Update also assumes a net retention of the current nearly 1.3 million square feet of manufacturing, warehouse and distribution building space that is currently within the Project Area.

This EIR Project Description also identifies the most likely locations where new development or redevelopment will occur. These locations are identified in the Master Plan Update as Opportunity Sites. Opportunity Sites generally include development of new building space on existing surface parking lots (combined with a new structured parking strategy). They also include redevelopment of older, less efficient buildings with new buildings that are larger, taller and more architecturally and functionally complex, infill development at locations within the Project Area where vacant or under-used infill sites exist, and new buildings and/or parking structures constructed into existing hillsides.

Additionally, the EIR Project Description includes a proposed Genentech-sponsored TDM program that exceeds City-required alternative trip reduction requirements, and provides transit linkages between the Campus and other transit locations such as Caltrain and BART.

Buildout Assumptions by Location

Each neighborhood campus has its own mix of Opportunity Sites that provide likely locations where the anticipated needs for Project Area growth can be accommodated. The development potential of each Opportunity Site is dependent on future building design and future building needs. The Master Plan Update does not allocate or assign any particular land use type to any individually identified Opportunity Site, nor does it assign an allocation of building space to any individual Opportunity Site or to neighborhood campuses. Rather, the Master Plan Update identifies Opportunity Sites where a range of building space needs can be realized, and provides Genentech with the flexibility to program these Opportunity Sites over time as individual needs occur.

For analysis purposes, this Project Description provides one scenario of how the Master Plan Update's flexible development potential might be physically realized at the Project Area over time. As shown on **Figure**

3-9, each Opportunity Site is programmed with new or redeveloped buildings that demonstrate where new development of approximately 4.3 million square feet of net new building space is likely to be realized. This development plan "vision" provides a development program for each neighborhood campus that, when aggregated for all Opportunity Sites, achieves a buildout condition of 9 million square feet of space.

Total Buildout by Neighborhood Campus Location

Table 3-6 presents the development potential of the Project Area as aggregated by neighborhood campus, based on this Project Description. These development potentials are based on conservative assumptions that Opportunity Sites will be developed or redeveloped with new buildings that are generally of a height, massing and scale as described above, and as illustrated in Figure 3-9. This table demonstrates that under relatively conservative assumptions about the future development potential of identified Opportunity Sites, there is sufficient capacity to accommodate a projected net new development of up to approximately 4.3 million square feet of new building space.

Table 3-6: EIR Project Description - Buildout Potential, by Neighborhood Campus

	Baseline - 2017 (SF)	Growth (SF)	Buildout (SF)
Lower Campus	1,236,000	726,000	1,963,000
Mid Campus	554,000	555,000	1,109,000
Upper Campus	1,07,000	1,313,000	2,492,000
West Campus	995,000	1,475,000	2,363,000
South Campus	821,000	260,000	1,081,000
Total	**4,715,000** [1]	**4,329,000**	**9,008,000**

Note:

1. See Table 3-2, which indicates minor changes in building space by neighborhood campus during year 2017, since establishment of EIR baseline

This development program is described by neighborhood campus, below.

Lower Campus

Future redevelopment opportunities within the Lower Campus include the following Opportunity Sites:

- The Bayview parcel (or existing Building 4) occupies a prominent, relatively flat location near the Bay shoreline. This site provides an opportunity for redevelopment as new, more substantial and taller building.
- The Lower Campus' two moderately sized surface parking lots immediately adjacent to Forbes Boulevard are envisioned for redevelopment as new building sites and/or parking structures.
- Spaces between and adjacent to existing buildings have potential for infill opportunities or additions.

With the large redevelopment opportunity at the Building 4 site and smaller infill sites, this Project Description estimates the Lower Campus to accommodate approximately 726,000 square feet of net new building space, generally at building heights of between 3 to 5-stories.

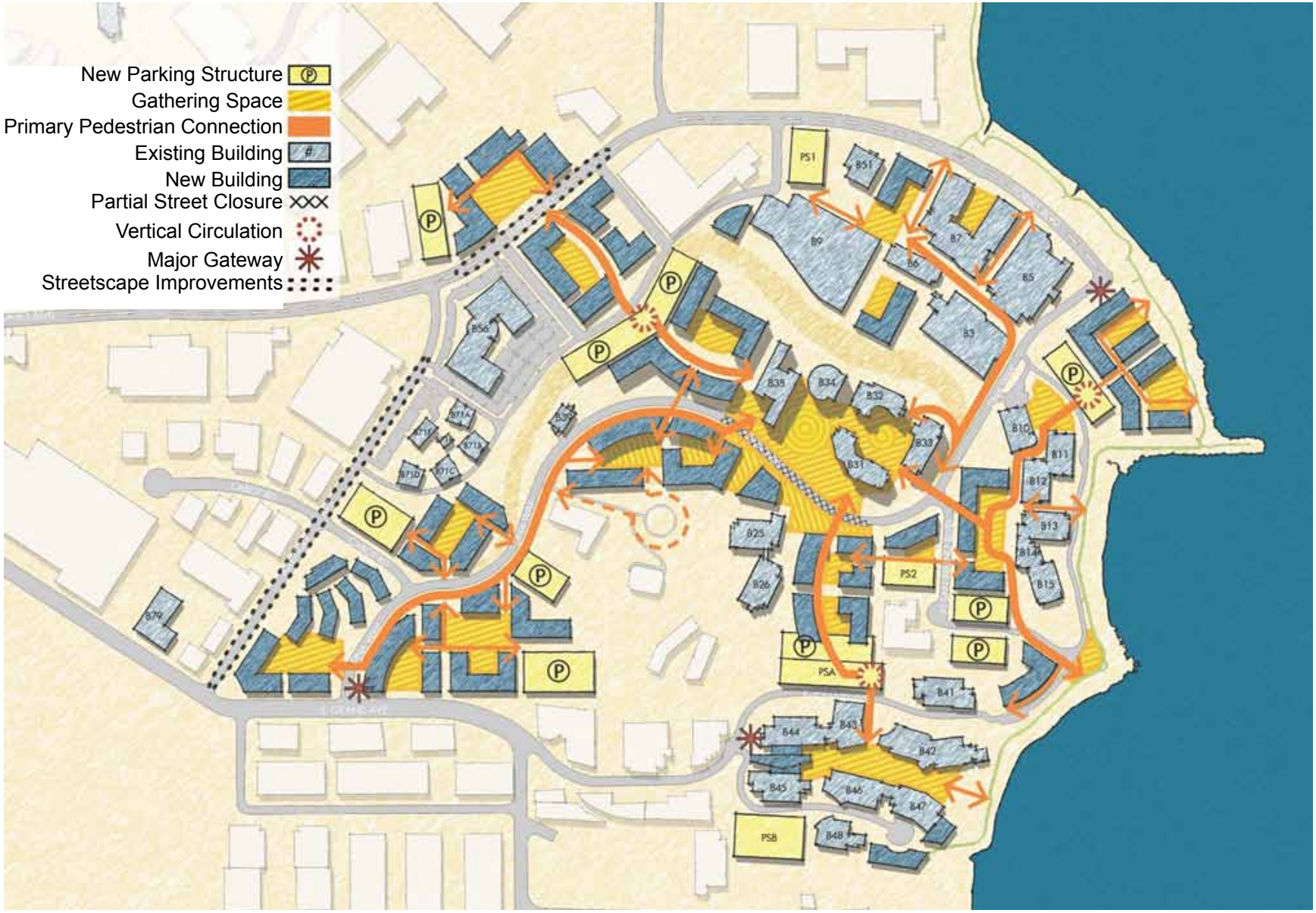


Figure 3-9
EIR Project Description, Illustration of Assumed Buildout - Genentech Campus Master Plan

Source: JRDV International, Genentech

Mid Campus

Within the Mid Campus, several large surface-parking areas can be converted into new building sites with consolidated parking structures to replace and increase parking supply. Existing Building 36 (at the corner of DNA Way and San Bruno Avenue) can be redeveloped from a small 1-story structure to a new building at a substantially greater FAR. This Project Description estimates that the Mid Campus can accommodate approximately 555,000 square feet of net new building space within these identified Opportunity Sites, assuming new building heights that average 2 to 4 stories, generally consistent in height with the existing Founder's Research Center.

Upper Campus

The Master Plan Update calls for the Upper Campus to continue to serve as the center of the Campus, with new development focused at the hilltop to capture views and to strengthen Genentech's Campus identity with a prominent skyline. Further establishing this area as the center of the Campus, this Project Description programs substantial new office and amenity spaces at the following locations:

- Substantial redevelopment for new building sites can occur at the large surface parking area on the hilltop, with consolidated parking structures at the periphery of the Campus to replace and increase parking supply.
- The existing Building 24 site (on the south side of DNA Way) can be redeveloped into a larger and more modern office and administrative space. This building can be designed to foster pedestrian connections between the Upper Campus and South Campus.
- New infill development can occur at available places along DNA Way.
- Complimentary amenity space can be created within the Upper Campus courtyard, better activating this space and creating a Campus destination, or "quad".

The Upper Campus has substantial land available for development at the hilltop parking lots, as well as other redevelopment and smaller infill sites. This Project Description envisions the Upper Campus accommodating approximately 1.3 million square feet of net new building space, with a portion of these new buildings of a scale similar to Genentech's newest Building 35 (i.e., as tall as 9 to 12 stories).

West Campus

The West Campus has a suburban character and scale of development, with buildings that are low and spaced broadly apart, and with generous intervening surface parking lots. This campus has strong potential for growth and change to a more densely developed area accommodating new office, lab and R&D building space, while retaining and/or replacing existing manufacturing and distribution space as part of redevelopment. Prominent Opportunity Sites for new development and/or redevelopment within the West Campus include:

- The existing "T"- designated warehouse building sites can be redeveloped and consolidated to create sites for substantially larger replacement buildings and/or parking structures.
- The large surface parking lot on the north side of Forbes Boulevard and Building 54 is envisioned as redeveloped with new building sites, potentially inclusive of an integrated parking structure to replace and increase overall parking supply.
- Much of the West Campus backs up against the steep hillside, where new building (including new parking structures) could be constructed. The top of these buildings could provide a "bridge" linking the lower West and Upper Campus.

It is estimated that the West Campus could accommodate as much as 1.47 million square feet of net new building space within these identified Opportunity Sites, by adding new buildings of 3 to 5 stories in height.

South Campus

The South Campus was essentially built-out at the time Genentech occupied the space, and opportunities for additional growth and development are limited. Future development opportunities in this area include the recently approved (2017) and currently under construction Connector Building (Building 40), and potential expansion at or near the existing PSA parking garage. Expected future growth and development within the South Campus is anticipated to be limited to just over 250,000 square feet of net new space.

Buildout Assumptions by Land Use Type

Total Buildout

The total buildout of up to approximately 9 million square feet of building space (or an increase of approximately 4.3 million square feet) as provided in the Master Plan Update is intended to provide Genentech with the flexibility to expand its functional operations to meet evolving demands. How this total space will ultimately be used is dependent upon a number of currently unknown variables. However, for planning and analysis purposes only, this Project Description attempts to predict how that total of 9 million square feet may be used to meet functional needs.

The estimate of building space needs by land use type and employment projections summarized in **Table 3-7** is not intended to limit future development by type within the Project Area. Rather, this estimate provides one reasonable scenario as to how the Project Area may develop over time to meet functional needs, new scientific innovations and creative building designs as they evolve over the long term, and provides for quantitative assessment over time.

Table 3-7: Projection of Total Building Space and Employment at Buildout

	Baseline (2017)	Net New Growth	Buildout
Lab Space	1,719,000	1,564,000	**3,284,000**
Seated Lab Workers	2,830	2,640	5,470
Office Space, Campus	1,567,000	2,423,000	**3,990,000**
Office Space, Gateway [3]	517,000	-517,000	
Seated Office Workers	8,300	9,430	17,730
Amenity Space	145,000	305,000	**450,000**
Seated Amenity Workers	190	410	600
Manufacturing Space	1,285,000	0	**1,285,000**
Seated Mfg. Workers	1,100	70	1,170
Total Building Space	**4,715,000**	**4,239,000**	**9,008,000**
Total Seated Workers	**12,420** [1]	**12,550**	**24,970** [2]

Notes: All building space numbers rounded up to nearest 1,000 square feet

1. Total existing employment = 12,550 (seated workers, or headcount), + 2,470 consultants, service workers and visitors, = approximately 15,000
2. Total employment at Buildout = 24,970 (seated workers, or headcount) + 4,990 consultants, service workers and visitors = approximately 30,000
3. Assumes Genentech may at some point elect to exit existing leased building space at the Gateway Business Park, and relocate those workers to the Campus. This would require replacement of 517,000 sf of building space on Campus, but individually would not increase overall employment.

Each of the following projections for potential new land use types, and assumptions for their locational distribution throughout the Project Area, represent current-day reasonable estimates of how the total buildout of 9 million square feet of building space within the Project Area may be used to meet Genentech's functional needs. The assumptions for new building space represent "net new" space (e.g., certain existing buildings will be removed to accommodate new structures, and the result will be the net of the new building spaces added, and existing buildings removed).

Net New Lab and R&D Space

Genentech's primary business function is basic and applied research focused on drug discovery efforts for medicines. Genentech has multiple products on the market and a research and development (R&D) pipeline of new medicines that continues to grow. The working assumption of this Project Description is that existing lab space within the Project Area may need to nearly double in size to accommodate future R&D needs. This will result in increasing the current approximately 1.7 million square feet of lab space by a net of an additional nearly 1.6 million square feet, for a total of approximately 3.3 million square feet of lab space at buildout, as shown in **Table 3-8**.

Table 3-8: Campus Lab Space - Growth Projections

	Building Square Feet	Seated Workers
Existing	1,719,000	2,830
Net New Development	1,564,000	2,640
Buildout	3,284,000	5,470
Percent Increase	91%	94%

Notes: All building space numbers rounded up to nearest 1,000 square feet

The design of technical lab space used to facilitate discovery of new medicines is an evolving science, with trends in modern lab design emphasizing flexibility, sustainability and collaborative space. The projection of future demand for laboratory and R&D building space will need to be continually reevaluated over time, based on the influences of evolving medical discoveries and new trends in lab space design.

Commensurate with the increase in R&D/lab space, this Project Description also assumes a corresponding increase in the number of Genentech's researchers, scientists and post-doctoral scholars and other support staff involved in basic and applied research. With an assumed nearly doubling of R&D lab space, there is an assumed nearly doubling of researchers using this space (at an average of approximately 600 square feet of building space per researcher), increasing employment growth within lab space by more than 2,600 people, to a buildout total of nearly 5,500 research-based employees.

Although the Master Plan Update does not define precise building locations by use type, for purposes of CEQA analysis this Project Description makes several assumptions about future new lab space within the Project Area:

- The projected growth in lab space is estimated at approximately 1.5 million square feet
- The approximately 1.5 million square feet of projected lab space is assumed divided among 15 separate new lab buildings, of approximately 100,000 square feet each
- These 15 new lab buildings are located across the Project Area, but focused primarily within the Mid Campus and portions of the Upper Campus south of DNA Way, in areas where existing lab buildings are currently concentrated. It is also assumed that several potential new lab locations will be developed over the longer-term within the West Campus (see **Figure 3-10**).

These assumptions about the locations of future lab space and size enable analysis, especially modeling of air quality emissions from likely emergency generator and laboratory emission stacks, based on a conservative set of parameters. These assumptions also provide an opportunity for sensitivity analysis of potential health-risk impacts, assuming that these locations are used for lab purposes.

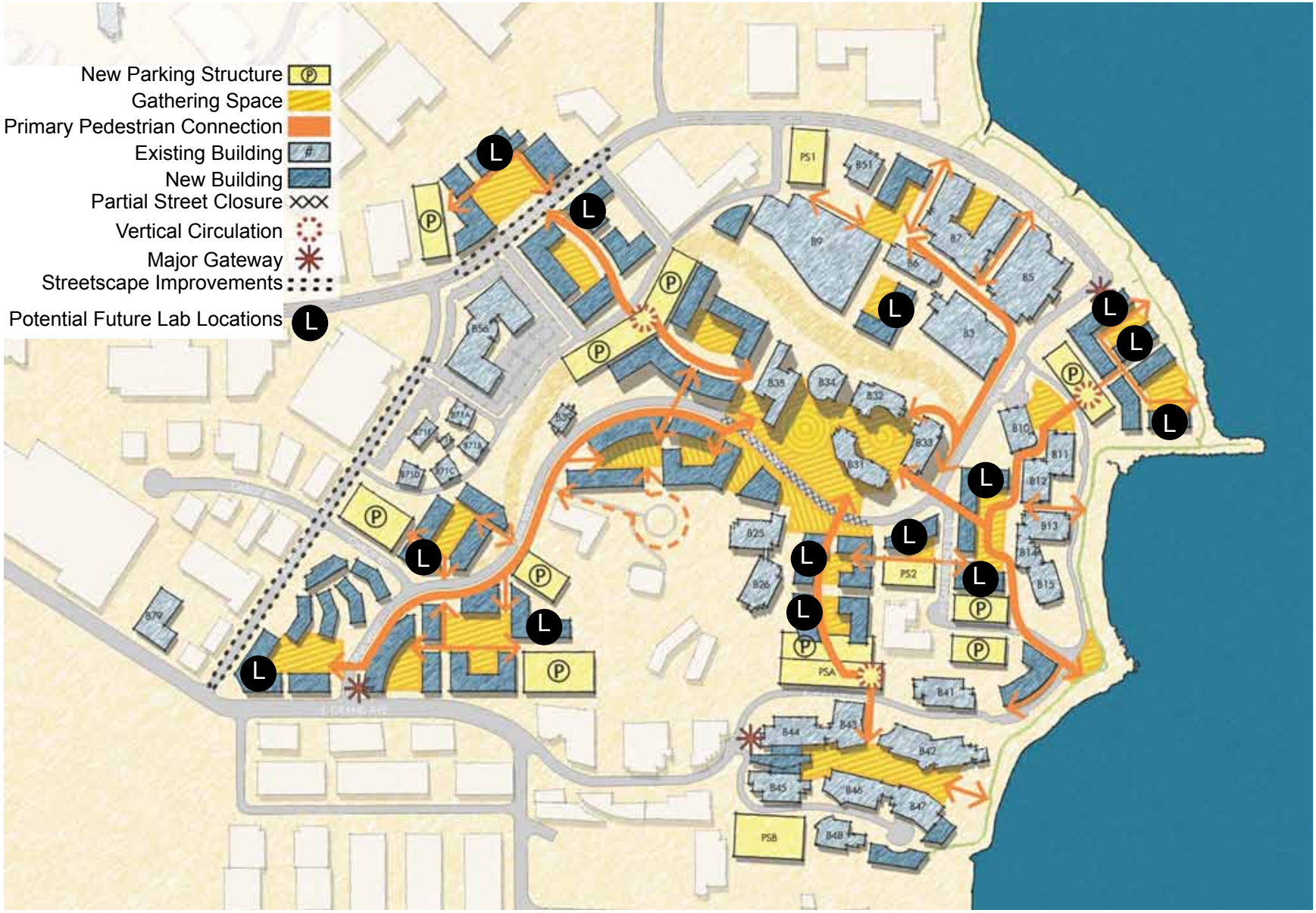


Figure 3-10
Master Plan Buildout Assumption - Potential Future Lab Locations

Source: Genentech

Net New Office Space

Currently, Genentech has slightly over 2 million square feet of office space owned or leased within the SSF East of 101 Area, including over 1.5 million square feet of office space in the Project Area, and over 500,000 square feet of leased space at the Gateway Business Park. This office space houses the headquarters for all Roche Pharmaceutical sales operations in the United States, as well as Genentech corporate executives, legal, finance, procurement, medical affairs, managed care, corporate relations, marketing and business communication, human resources, site services and other important administrative functions. The working assumption for this Project Description is that Genentech's demands for office space will nearly double the amount of existing office space, commensurate with the projected increase in total growth of the Project Area. As shown on **Table 3-9**, an increase of approximately 1.9 million square feet of office space over the current approximately 2 million square feet of office space results in a total of approximately 3.9 million square feet of on-Campus office space at buildout. Also included in this office space estimate is the potential that Genentech may elect to exit its currently leased spaces at the Gateway Business Park and construct an equivalent amount of replacement office space within the Campus.

Table 3-9: Campus Office Space - Growth Projections

	Building Square Feet		Seated Workers	
	Campus	Gateway	Campus	Gateway
Existing				
Campus	1,567,000		6,547	
Gateway		517,000		1,750
Net New Development				
Campus	1,906,000		9,436	
Gateway Replace	517,000		1,750	
Gateway Exit		-517,000		-1,750
	2,423,000		11,186	
Buildout	**3,990,000**	**0**	**17,733**	**0**
Percent Increase, Campus	155%		171%	
Percent Increase, Total Genentech	91%		114%	

Notes: All building space numbers rounded up to nearest 1,000 square feet

The actual demand for future office space in the Project Area will be a function of a number of different factors including future medicines and products, business functions, geographic strategies, trends in office space design, and changes in the work environment. Pursuant to Genentech's new Neighborhood Work Environment (NWE) program, office spaces are now being designed and built specifically to facilitate collaboration, communication and productivity. One of the outcomes of this NWE is the realization of less total building space needs per employee (or a change from an average of approximately 250 square feet per office worker, to 225 square feet per worker, or less). Assuming that future office space built within the Project Area will continue to rely on these NWE design principles, a future buildout of approximately 4 million square feet of office space will equate to a total headcount of approximately 17,700 office-based workers at buildout. This increase in office-based workers represents an aggressive 6 percent per year increase in office workers if achieved by year 2030, or a more conservative 4 percent per year increase if achieved between the

years 2035 to 2037. These annual growth rates are within the range of Genentech's recent office-based growth.

Manufacturing and Distribution Space

A critically important and relatively unique aspect of Genentech's SSF Campus is the immediate proximity of manufacturing facilities to its R&D facilities. This close relationship between R&D and manufacturing enables Genentech to transform scientific discoveries into new medicines quickly and efficiently. Manufacturing of much of Genentech's new medicines occurs in the Lower Campus, located adjacent to lab spaces in the Lower and Mid Campus, and with direct access to warehouse and distribution facilities along Forbes Boulevard and Allerton Avenue. In total, the Project Area contains nearly 1.3 million square feet of manufacturing and warehouse/distribution space. The Master Plan Update and this EIR Project Description assume that Genentech will continue to rely on the Project Area to provide critical manufacturing services, in particular those closely related to R&D functions, and that the current approximately 1.3 million square feet of building space accommodating medicine manufacturing uses will be retained. However, individual manufacturing buildings may be redesigned or reconfigured within the Project Area as part of other future redevelopment efforts.

Net New Amenity Space

Amenity spaces (or employee services) within the Project Area are those places that provide a range of personal or non-work services designed to help make life easier at the workplace. These types of services include food service and cafeterias, on-site children's day care, gym/fitness center, haircuts, dentistry, car washes and even concierge and travel arrangements. As of 2017, the Project Area held about 145,000 square feet of space dedicated for these types of services. With anticipated expansion of these types of services to accommodate future additional workers, this Master Plan Update assumes that at buildout, the Project Area may contain as much as 450,000 square feet of space used for employee amenity services. This represents a substantial proportional increase in amenity and employee service space as compared to current conditions.

Transportation System Improvements

Local Streets

The local City street system serving the Project Area includes East Grand Avenue, Forbes Boulevard, Allerton Avenue, DNA Way (connecting East Grand Avenue with Forbes Boulevard and passing through the center of the Project Area), and Gull Road. Each of these City streets has dedicated bicycle lanes. Internal to the Project Area there are only a few additional local roadways. Cabot Road is a short City street segment that connects Allerton and DNA Way, and Point San Bruno Park and Point San Bruno Boulevard are private, Genentech-owned streets that provide internal circulation. These city streets and private roadways provide sufficient vehicular circulation to serve the Project Area's needs, and no additional streets are expected to be necessary to serve additional growth.

East of 101 Transportation Improvements

The City of South San Francisco's *East of 101 Study and Transportation Improvement Fee Program* was prepared and adopted by the City in 2011 and an update is currently underway. This *Program* identifies future roadway improvements needed to accommodate future cumulative traffic levels, and establishes a fee program as a source of funding for needed capital improvements. The *East of 101 Study* calls for several intersection improvements in the immediate vicinity of the Campus, as well as enhancements to bicycle and pedestrian infrastructure consistent with the City's *Bicycle Master Plan and Pedestrian Master Plan*. Future development within the Genentech Campus will support *East of 101 Study* transportation system improvements through payment of applicable traffic impact fees.

Potential DNA Way Closure

DNA Way is the main public street through the Project Area and provides public circulation from East Grand Avenue to Forbes Boulevard. Genentech-related vehicles are the primary users of this road. This EIR Project Description assumes implementation of a partial road closure of DNA Way where it passes through the central portion of the Upper Campus (see prior Figure 3-9). The purpose of this road closure is to create a more pedestrian-friendly place within the Upper Campus, where people are prioritized over vehicles. The public road closure is expected to occur only during off-peak hours (e.g., between 10:00 AM and 3:30 PM) so that public circulation would continue during non-closure hours (including at night). During the morning and afternoon peak hours, DNA Way would be fully open to public traffic, and would provide non-peak commuters with convenient access to all parking facilities. The road closure would only affect private vehicles. All emergency vehicle, public transit and Genentech transit services would continue to use DNA Way all of the time, in dedicated and clearly identified lanes. The design treatment of the right-of-way would include special pavers rather than asphalt, dedicated bike lanes, rolled curbs, and adjacent pedestrian amenities intended to allow this street segment to function as a designated pedestrian environment.

Transportation Demand Management (TDM)/Trip Cap

To achieve Genentech's Trip Cap commitments for this Master Plan Update, the TDM Program will continue those existing TDM strategies that Genentech provides through its current gRide program, and may implement strategies from a menu of additional programs to refine or add to the existing gRide program. The TDM program will be operated to maintain the drive-alone trip reductions necessary to remain below the Trip Cap of 5,216 AM peak hour drive-alone trips, on a continuous basis throughout buildout. The Genentech gRide program uses a variety of strategies including but not limited to Genentech-provided Genenbuses, the on-Campus DNA Shuttle system, private Genentech ferry service and reimbursements for carpooling and public transit use by employees. Genentech proposes to expand the capacity of its gRide program commensurate with new development, and to increase program capacity and use incrementally over time, achieving the 50 percent trip reduction goal for Campus arrivals prior to buildout. Given the scale of the existing gRide TDM program, there is existing available capacity to assume at least a portion of the new ridership requirements of new development before requiring new programs or physical improvements.

Parking

The parking strategy calls for balancing the availability of on-Campus parking with promotion of alternative transportation modes. Based on the TDM-based parking ratios (from Table 3-4 of this EIR) as applied to buildout as assumed in this EIR, the total parking demand at the Campus at buildout is projected to be between approximately 12,850 and 13,550 parking spaces, as indicated in **Table 3-10**.

Table 3-10: Predicted Parking Demand at Buildout, Based on TDM Range

	Total Building Space (SF)	Parking Ratio, at 46% TDM	Parking Required.	Parking Ratio, at 50% TDM	Parking Required
Buildout					
Office	3,991,000	2.15	8,580	2.03	8,100
Lab	3,282,000	1.09	3,580	1.04	3,415
Manufacturing	1,285,000	0.70	900	0.67	865
Amenity	450,000	1.09	490	1.04	470
Total	**9,008,000**		**13,550**		**12,850**
Less existing structured parking to remain:			-3,600		-3,600
Net New Parking Required:			**9,950**		**9,250**

This EIR Project Description assumes that all of the existing 3,600 structured parking spaces within the Project Area will remain, but that the majority of existing surface parking spaces will be redeveloped for new buildings. Therefore, to accommodate the predicted demand for parking at buildout, approximately 9,250 to 9,950 net new parking spaces will likely need to be provided. Assuming the net new parking demand were to be accommodated in parking structures and assuming approximately 1,000 to 1,250 parking spaces per structure, buildout of the Master Plan Update would result in between 7 and 9 new parking garage structures throughout the Project Area, as illustrated in prior Figure 3-10.

Pedestrian Network Improvements

Sidewalks are complete and convenient throughout the Project Area. There are a few limited locations (e.g., along the south side of Cabot Road between Allerton Avenue and DNA Way, and along the west side of DNA Way between East Grand Avenue and the Upper Campus) where sidewalks are not provided. As new adjacent development occurs, the need for filling in these missing sidewalk segments will be assessed. Other on-Campus pedestrian improvements assumed in this Project Description include:

- A strong pedestrian system that connects the Upper Campus to each neighborhood campus will be created.
- Pedestrian safety and accessibility enhancements will occur, including pedestrian safety enhancements such as bulb outs, high-visibility crosswalks, Rapid-Rectangular Flashing Beacons (RRFBs) and median refuges at pedestrian crosswalks.
- Additional secondary-level walkways will be provided that are recreational in nature, connecting to the Bay Trail, the Wind Harp open space and other natural assets via less-direct pathways along hillsides and bluffs.

Bicycle Facilities

The bicycle network within the Project Area is well established, including Class II bike lanes on all major streets (DNA Way, Forbes Boulevard and Allerton Avenue). No substantial on-street bicycle facility improvements are identified as necessary.

Infrastructure Improvements

Water System Improvements

A system of looped water mains enters the Campus at Forbes Boulevard and at East Grand Avenue. This looped water supply system is fed from a main water supply line located along Highway 101. The water system serving the Upper Campus is also augmented by a 1.5-million-gallon storage reservoir located on the top of the hill and a high-pressure line within DNA Way near the top of the Upper Campus. The water supply mains that serve the Project Area, and their respective flow capacities, meet current domestic water flow requirements.

Based on a preliminary assessment of the water delivery system (Wilsey Ham, 2017), the existing water system is capable of accommodating the projected increase in demand attributed to the Project. The looped water system within the Project Area is designed to convey fire flow requirements, which are substantially higher than average domestic demands. Fire flow requirements necessary to supply sprinkler systems within each building (existing and new) can be achieved within acceptable ranges using the existing delivery system. Water pressure deficiencies that may occur for taller new buildings can be overcome with individual pressure boosters or an augmented high-pressure line extension along DNA Way.

Wastewater System Improvements

The City of South San Francisco provides wastewater collection and treatment for the East of 101 Area, including the Genentech Campus. The City owns and maintains the sewer system, which includes gravity sewer mains, pump stations and force mains within the Campus. Based on a preliminary assessment (Wilsey Ham, 2017), the existing wastewater system may have certain capacity constraints, particularly within the 10-inch mains to and from Pump Station #8 along Forbes Avenue and Allerton Avenue. This portion of the on-site wastewater collection system will be upgraded when necessary to accommodate future growth.

Certain Genentech manufacturing, processing and research activities generate wastewater that contains pollutants not authorized for discharge into the City sanitary sewer. These discharges are subject to specific terms of individual wastewater discharge permits that require on-site pre-treatment to remove pollutants prior to discharge into the wastewater discharge system. New manufacturing, processing and research activities that generate similar waste characteristics will need to be individually assessed for subsequent waste discharge permits, and may also be required to construct and implement pollutant reduction plans. Genentech also operates on-site pre-treatment pH neutralization systems in accordance with appropriate permits and regulations, and this system may require expansion for pre-treatment of additional post-process wastewater.

Potential Recycled Water System Improvements

Genentech has embarked on an independent program to install recycled water distribution lines throughout the Project Area, in anticipation of a future reclaimed water supply becoming available. This Project Description assumes that Genentech will continue to extend the purple pipes to all new development projects and landscaping throughout the Project Area, and will work with SSF and CalWater to develop a source of recycled water.

Additionally, Genentech has been in coordination with SSF and CalWater to explore the potential of tapping into the regional wastewater outfall main line that delivers treated wastewater from the City's wastewater treatment plant to its ultimate disposal outfall in the Bay. This high-pressure outfall main line runs through the center of the Project Area, and carries all the treated wastewater exiting from the City's treatment plant. Pursuant to this potential project, Genentech would withdraw a portion of this treated effluent prior to its disposal in the Bay, provide additional on-site treatment (or "polishing") of this wastewater flow, and use this treated effluent in its industrial applications. Studies have not yet been completed to assess whether this project is ultimately feasible and cost-efficient, and its implementation remains uncertain. However, this EIR

conservatively assumes the energy demands and associated GHG emissions attributable to such a system, but also conservatively does not assume (or take credit for) the reduction in potable water demand or reductions in effluent disposal into the Bay.

Stormwater/Drainage System Improvements

The storm drain system in the Project Area is generally designed and constructed for industrial-scale development and associated areas of large impervious services. New development projects pursuant to the Project will connect to existing drainage lines that drain directly to San Francisco Bay. In accordance with National Pollution Discharge Elimination System (NPDES) regulations, new development within the Project Area must reduce pollutants from entering the stormwater system to the maximum extent practicable. These regulations specify several control measures that will be individually implemented to prevent non-storm water discharges into the storm system, and minimize the discharge of pollutants in storm water runoff. New development will be required to comply with Provision C.3 of the MRP, including requirements to incorporate post-construction low-impact development (LID) measures and Best Management Practices (BMPs) capable of removing or otherwise neutralizing pollutants. Examples of BMPs include routing runoff through lawn areas or other pervious surfaces (i.e., bio-filters or vegetated swales) where infiltration can occur.

Electrical Energy - Delivery System Improvements

Pacific Gas & Electric (PG&E) distributes electrical power to the Project Area via a 12.5 kV underground distribution system configured in a looped network leading from a substation at East Grand Avenue. The substation enables flexibility for PG&E to provide continuous service by switching circuits if problems are encountered. Most of the electrical energy delivered to the Project Area is used at the Central Utility Plant (CUP) located in the Lower Campus. The CUP runs the various utility systems, including steam boilers and related systems, hot and chilled water systems, refrigeration systems, purified water systems, a liquefied and compressed gas system, waste neutralization systems, and emergency power. The CUP also provides chilled water, steam and compressed air to other buildings via a combination of underground and aboveground pipe rack systems. Centralization of these utilities provides greater energy efficiency, reduces the number of installed systems while achieving certain peak load sharing between interconnected buildings, and accounts for the more industrial nature of Genentech's operations within the Lower Campus.

PG&E has indicated in private conversations with Genentech that additional electrical system reliability could be achieved with an additional Genentech-dedicated substation built in the Project Area. Plans for such a new substation have not been finalized or confirmed, but this Project Description assumes eventual construction of such a substation, likely within a West Campus location.

Genentech has initiated an on-Campus solar energy project, with new solar panels currently being installed on several building rooftops. Ultimately, this program assumes installation of 16,000 solar panels spread across the Project Area. These solar arrays are expected to generate 6 megawatts of power on the sunniest days, translating to about 25% of Genentech's energy needs on a typical workday.

Genentech has also initiated construction of a Site Utility Project for high-efficiency industrial cooling and building air conditioning systems. This Site Utility Project will ultimately include installation of a looped pipe system for refrigerated water distribution, installation of new industrial chillers, and replacement of air conditioning equipment in all buildings on Campus. The environmental performance goal of the project targets a 50% reduction in energy used to produce refrigeration components of process cooling and air conditioning.

Since 2017, Genentech procures 75% of its on-Campus electricity needs from Peninsula Clean Energy (PCE), delivered by PG&E through the PG&E power distribution system. PCE provides 50% of its electricity from renewable energy sources, 80% of which is carbon-free. Genentech expects to procure the remaining 25% of

its electrical energy needs from a Direct Access power vendor, which is expected to be 35% renewable sourced and 100% carbon-free.

Natural Gas - Delivery System Improvements

PG&E also provides natural gas to the Project Area, via a high-pressure gas distribution system configured in a loop, and served from three interconnected underground pipelines located within DNA Way, Forbes Boulevard and East Grand Avenue, and an additional high-pressure gas line on the north side of the Project Area dedicated to serving Genentech's high-pressure steam boilers. Genentech continues to coordinate with PG&E to consider options that would transfer less-efficient electrical operations over to natural gas-served operations. This would have the effect of increasing natural gas demands but offset by further reduced electrical demands.

Genentech is also exploring an option of installing a new combined heat and power (CHP) plant. This CHP would be a cogeneration plant that would use a natural gas power station to generate electricity. Rather than releasing by-product heat from this facility into the environment, the CHP would use the residual process to heat water needed for industrial manufacturing and lab operations. Studies have not yet been completed to assess whether this project is ultimately feasible and cost-efficient, and its implementation remains uncertain. However, this EIR conservatively assumes construction of this cogeneration plant in the Lower Campus, marginally increasing use of natural gas but substantially reducing direct electrical consumption.

Approvals Required to Implement the Project

City of South San Francisco Approvals

This EIR is intended to provide the environmental review necessary for the following City of South San Francisco approvals:

- Approval of the proposed Campus Master Plan Update;
- Approval of a zoning text amendment to the Genentech Master Plan zoning district (Chapter 20.260 of the City of South San Francisco Zoning Code)
- Approval of a Development Agreement

Subsequent Development Projects

Until the new Genentech Campus Master Plan Update is approved, the policies and guidelines of the 2007 Genentech Facilities Master Plan will continue to apply, as will the underlying development standards and regulations of the Genentech Master Plan zoning district and other applicable laws. After the Master Plan Update is approved, this EIR is intended to provide sufficient detail to enable the City of South San Francisco and other relevant responsible governmental agencies to make informed site-specific decisions on future individual development projects within the Campus. The City intends to use the streamlining and tiering provisions of CEQA to the maximum feasible extent so that future environmental review of individual development projects within the Genentech Campus and public improvement projects carried out in furtherance of the Campus Master Plan Update are expeditiously undertaken, without the need for repetitive and redundant environmental review.

A number of City permits and approvals would be required before future individual development pursuant to this Master Plan Update could proceed. As Lead Agency for the proposed Project, the City of South San Francisco would be responsible for the majority of approvals required for these future individual development projects. A list of required permits and approvals that may be required of the City, beyond those necessary for approval of this Master Plan Update and zoning text amendments, includes:

- Conditional Use Permits (pursuant to Chapter 20.260.006(C), Minor Use Permits (pursuant to Chapter 20.260.006(B), and/or Administrative Review (pursuant to Chapter 20.260.006(A)
- Design Review approvals for individual development projects within the Campus, pursuant to Chapter 20.480 ("Design Review") of the City of South San Francisco Zoning Code
- Approval of subdivision maps or lot line adjustments as may be necessary to create individual development sites;
- Encroachment permits for work within and close to public rights-of-way (pursuant to SSF Zoning Code, Chapter 13.04: Excavation And Construction on Public Property - Regulated)
- Demolition permits, grading permits, and building permits – including compliance with City of South San Francisco Municipal Code Chapter 15.08, California Building Code and California Seismic Hazards Mapping Act
- Tree Removal Permit pursuant to South San Francisco Municipal Code 13.30, to be approved before building permits are issued
- Waste Discharge permits from the Environmental Compliance Officer of the City of SSF
- Submittal of accepted General Construction Activity Storm Water Permit, Notice of Intent and Storm Water Pollution Prevention Plan (SWPPP), to be submitted prior to receiving a grading or building permit

To the extent possible, the City of South San Francisco will rely on this EIR to provide environmental review for subsequent projects or their sites that are analyzed as part of this EIR. When individual projects contemplated under the Master Plan Update are proposed, the City will consider whether those projects' environmental effects were fully disclosed, analyzed, and as needed, mitigated within this EIR. That consideration will determine whether the subsequent project is exempt from CEQA, whether the subsequent project warrants preparation of a subsequent or supplemental environmental document, or whether the subsequent project warrants preparation of focused environmental review limited to certain site-specific issues.

Other Agencies Whose Approval May Also be Required

In addition to the City of South San Francisco, approvals and/or authorizations from a number of other responsible agencies will or may be required to implement individual development plans pursuant to the Campus Master Plan Update. These other agencies and their possible approvals pursuant to subsequent, individual development projects within the Campus may include, but are not limited to the following:

Bay Area Air Quality Management District (BAAQMD)

- Permits for new stationary source of NOx and/or ROG emissions and for modifications to existing stationary emission sources that result in increased NOx and/or ROG emissions, including the purchase of offset credits pursuant to BAAQMD Regulation 2-2: New Source Review, Section 302
- Permits for stationary source air emissions and compliance with Regulation 2, Rule 1 for all portable construction equipment subject to that rule

Bay Conservation and Development Commission

- Bay Plan Permits for any development activities that may occur within the 100-ft shoreline band, also requiring compliance with biological resource protection policies of the Bay Plan as may be incorporated into such permits

CalWater

- Granting new water service connections and meters

California Air Resources Board

- Permits for increased cap or trade of stationary source GHG emissions

SF Regional Water Quality Control Board (RWQCB) / State Water Resources Control Board (SWRCB)

- Permit for coverage under the General Construction Activity Storm Water Permit, including approval of a Stormwater Pollution Prevention Plan (SWPPP)
- National Pollutant Discharge Elimination System (NPDES) permits for post-construction stormwater controls and low-impact development (LID) measures, including individual Stormwater Management Plans meeting Provision C.3 of the MRP
- Section 401 permit for discharge of dredged or fill material pursuant to Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act. Although drainage channels within the site lack many of the habitat features usually present in jurisdictional waters of the State, there is some possibility these drainage ditches may be claimed as jurisdictional by the RWQCB. If the RWQCB claims jurisdiction of these features, any alteration of the drainage ditches would require a permit.

California Department of Toxic Substances

- Review and approval of any activities that may disturb existing groundwater monitoring wells or the capped portion of the O'Brien site (in South Campus), including applicable deed restrictions and DTSC-approved Site Management Plan and Health and Safety Plan

US Army Corp of Engineers

- Acceptance of Wetlands Delineation prior to any proposed fill or material alteration of on-site drainage ditches
- Section 404 permit prior to the discharge of dredged or fill material into the waters of the United States, including wetlands. Presuming subsequent Wetland Delineations)see above) find the on-site drainage ditches are not "waters of the US", no such federal wetlands permitting would be required

Federal Aviation Administration

- Approvals for any proposed building exceeding FAA Part 77 height criteria

4
Approach to the Analysis

New Program EIR

Master Plans for the Genentech Campus have been the subject to two prior environmental documents: the 2007 Master EIR for the Genentech Corporate Facilities Research & Development Overlay District Expansion and Master Plan Update Project, and the 2012 Supplemental Master EIR. Additional environmental review was completed in 2002 for the Britannia East Grand Project EIR, addressing a separate development project that has since been incorporated into the Genentech Campus. However, the City of South San Francisco has determined that this environmental document is to be a new Program EIR, rather than an updated Master EIR or a second Supplemental Master EIR. As such, each of the following environmental topics is fully addressed in this document, beginning at Chapter 5:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural and Historic Resources
- Geology and Soils
- Greenhouse Gas Emissions and Climate Change
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Population, Housing and Employment
- Public Services and Recreation
- Transportation, Circulation and Parking
- Utilities

This new Program EIR is necessary to address changes that are part of the current Master Plan Update (e.g., increasing the maximum development potential on the Campus to 9 million square feet). This EIR also addresses changes in baseline conditions, changes regulations, and other new information that has occurred since certification of the prior 2007 MEIR and 2012 SMEIR.

The following chapters of this EIR provide information on the Project site's existing conditions, the type and magnitude of the Project's potential environmental impacts, the applicable regulatory requirements that will reduce or avoid environmental impacts, and feasible mitigation measures (as may be needed) to further reduce or avoid such impacts.

The existing settings for each chapter define the environmental conditions as exist on and near the Project site. For certain environmental topics, the existing conditions and analyses addresses a larger area than is defined by the boundaries of the Project Area, where appropriate to address resource topics not confined to the site. In most chapters of this EIR, these existing conditions are as existed at the time of issuance of the Notice of Preparation of this EIR (May 2017). For select chapters (e.g., the Project Description and the Land Use chapter), these existing conditions reflect Campus development as existed at the end of 2017, to appropriately capture the most recent development projects on the Campus.

Project impacts are defined as the Project's effect on the existing physical environment. The purpose of these sections of the document is to inform readers of the type and magnitude of the Project's impacts on the existing environment. A significant effect is defined by CEQA Guidelines Section 15382 as, "*a substantial, or potentially substantial adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant*." Additional information (not pursuant to CEQA thresholds) is provided pertaining to certain conditions of the surrounding environment that may adversely affect the Project.

EIR Baseline

The Notice of Preparation (NOP) for this Draft EIR was issued in May of 2017. CEQA Guidelines Section 15125 provides the following guidance for establishing the EIR baseline, "*An EIR must include a description of the physical environmental conditions in the vicinity of the project. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. Generally, the lead agency should describe physical environmental conditions as they exist at the time the Notice of Preparation is published. Where existing conditions change or fluctuate over time, and where necessary to provide the most accurate picture . . . of the project's impacts, a lead agency may define existing conditions by referencing historic conditions or conditions expected when the project becomes operational, or both, as supported with substantial evidence.*"

In May of 2017, the Genentech Campus contained approximately 4,715,000 square feet of completed and occupied building space. Consistent with CEQA Guidelines, this amount of building space represents the EIR baseline of development in the Project site. This EIR baseline also corresponds with detailed data about buildings on the Campus that was available from Genentech's end of year 2016 Annual Report. However, as an active and ongoing facility, new development within the Campus has occurred during the time between issuance of the NOP and the publication date of this Draft EIR, including:

- The new Employee Center in the Upper Campus has completed construction (which was underway at the time of the NOP) and is now open and operational.
- The building known as TO6 (formerly located between DNA Way and Allerton Avenue) has been demolished, and Genentech's new Cabot 2nd Generation childcare center at 342 Allerton has been constructed on that site and is now operational.
- The building known as B54 (formerly located on the east side of Allerton Avenue near Forbes Boulevard) has been demolished and replaced by a Genenbus Shuttle & Bus Depot Area with an associated Operations Center (B59).
- A new building known as B40 (or the Connector Building) has been approved and is currently under construction on the South Campus.

Each of these new developments was approved by the City pursuant to the still-effective 2007 Master Plan. Although not part of the EIR baseline conditions, these new buildings are components of the Master Plan

Update's buildout assumptions, and (except for the childcare facility, which is exempt) count toward the 9 million square-foot buildout potential as proposed under the Master Plan Update.[1] The current (as of publication of this Draft EIR) amount of completed and occupied building space on the Campus is approximately 4.80 million square feet (inclusive of 124,000 square feet of childcare facility space that does not count against FAR limitations), plus 166,000 square feet of building space under construction (B40).

Types of Environmental Impact Analyses

As of the baseline for this analysis, Genentech has approximately 4.7 million square feet of building space within its Campus boundaries. The current Master Plan Update (the Project) proposes to increase development within the Genentech Campus to just over 9 million square feet, or approximately 4.3 million square feet of net new building space. The 9 million square-foot buildout potential of the Master Plan Update establishes an upper limit on development that Genentech considers large enough to accommodate mid- to long-term growth, but not specifically tied to buildout year.

Qualitative, Location-based Analysis

The Project Description identifies the most likely locations where new development or redevelopment will occur within the Campus. These locations are identified in the Master Plan Update/Project Description as Opportunity Sites. These Opportunity Sites generally include:

- development of new building space on existing surface parking lots (combined with a new structured parking strategy)
- redevelopment of older, less efficient buildings with new buildings that are larger, taller and more architecturally and functionally complex
- infill development at locations within the Campus where vacant or under-used infill sites exist, and
- new buildings and/or parking structures constructed into existing hillsides within the Campus, such that these new buildings can also serve as "bridges" that link together the upper and lower elevations of the Campus

These Opportunity Sites have been used to conduct analyses for a number of location-based environmental topics (e.g., aesthetics, biological resources, cultural and historic resources, geology and soils, hazards, and hydrology). These analyses are qualitative, providing an indication of whether new development (irrespective of whether the development is an office, a lab or a parking garage) that may occur at these Opportunity Sites would adversely affect any of these resources.

Quantitative, Aggregate Development Analysis

The Project Description also provides one potential detailed buildout scenario that meets the goals of the Master Plan Update, and is used for quantitative analytical purposes for this EIR. This Project Description scenario represents one scenario of the maximum development potential that could occur within the Campus (i.e. Project Area) pursuant to the Master Plan Update, based on an estimate of projected employment growth and future building space needs by land use type and/or function. This estimate includes a forecast growth 4.3 million square feet of net new development, including:

- approximately 2.4 million square feet of net new office space

[1] Pursuant to East of 101 Area Plan Policy LU-26, childcare facilities may be built as part of a commercial or industrial development and shall not be counted as part of the Floor Area Ratio (FAR) of the project.

- approximately 1.6 million square feet of new lab space, and
- approximately 0.3 million square feet of various types of employee amenity space

This scenario also assumes a net retention of the nearly 1.3 million square feet of manufacturing, warehouse and distribution building space that is on Campus today, although that existing space may be reconfigured from its current locations or building envelopes as part of new development activity.

This detailed buildout scenario has been used to generate employment estimates and land use projections that drive analyses for a number of aggregate growth-based environmental topics (e.g., air quality emissions, greenhouse gas emissions, land use and planning, noise sensitivity and noise generation, employment, public services, transportation and utilities). These analyses are quantitative, providing an indication of whether new growth within the Campus would have an adverse effect on any of these resource categories.

Mitigation Measures and Regulatory Requirements

CEQA Guidelines Section 15126.4 requires that and EIR, "shall describe feasible measures which could minimize significant adverse impacts." This section further provides that the discussion of mitigation measures shall, "distinguish between the measures which are proposed by project proponents to be included in the project, and other measures that . . . the lead agency determines could reasonably be expected to reduce adverse impacts if required as conditions of approving the project." Recent (2019) additions to CEQA Guidelines Section 15126.4(a)(1)(B), as underlined below, specifically provide that:

> "*Formulation of mitigation measures shall not be deferred until some future time. <u>The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency:</u>*
>
> *<u>(1) commits itself to the mitigation,</u>*
>
> *<u>(2) adopts specific performance standards the mitigation will achieve, and</u>*
>
> *<u>(3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will considered, analyzed, and potentially incorporated in the mitigation measure.</u>*
>
> *<u>Compliance with a regulatory permit or other similar process may be identified as mitigation if compliance would result in implementation of measures that would be reasonably expected, based on substantial evidence in the record, to reduce the significant impact to the specified performance standards</u>.*"

These recent changes to CEQA Guidelines were intended to implement a long line of case law from the past 20 years regarding, among other matters, the standards for deferred mitigation under CEQA. These case law proceedings include but are not limited to:

- *Tracy First v. City of Tracy, 177 Cal. App. 4th 912 (2009): The Court upheld energy impact mitigation measures that required compliance with the California Building Energy Efficiency Standards designed to promote energy efficiency. The court held that compliance with statutory provisions designed to mitigate the very impact addressed in the EIR provide substantial evidence that such impacts would be reduced to a less than significant level.*
- *Oakland Heritage Alliance v. City of Oakland, 195 Cal. App. 4th 884 (Cal. Ct. App. 2011): The Court rejected the argument that the City did not have substantial evidence to support findings that mitigation measures requiring compliance with state and local code requirements reduced seismic impacts to a less-than-significant level. The court, in rejecting this argument, found that "compliance with the Building Code and other regulatory provisions, in conjunction with the detailed geotechnical investigation, provided substantial evidence that the mitigation measures would reduce seismic impacts to a less than significant level."*

- Oakland Heritage Alliance v. City of Oakland, 195 Cal. App. 4th 884 (Cal. Ct. App. 2011): The Court rejected the argument that the City did not have substantial evidence to support findings that mitigation measures requiring compliance with state and local code requirements reduced seismic impacts to a less-than-significant level. The court, in rejecting this argument, found that "compliance with the Building Code and other regulatory provisions, in conjunction with the detailed geotechnical investigation, provided substantial evidence that the mitigation measures would reduce seismic impacts to a less than significant level."
- *Citizens Opposing A Dangerous Environment v. County of Kern, 228 Cal.App.4th 360* (5th Dist. July 25, 2014): As the court observed, "A condition requiring compliance with regulations is a common and reasonable mitigation measure, and may be proper where it is reasonable to expect compliance." In this case, the Court of Appeal concluded that reliance on compliance with FAA regulations as a mitigation measure to reduce impacts to air safety to less than significant levels is appropriate under CEQA.

Accordingly, this EIR identifies a range of feasible mitigation measures that will minimize significant adverse impacts of the Project. These mitigation measures include measures that are proposed by, and will be implemented by Genentech as the Project applicant (e.g., Genentech's voluntary partnership in the Climate Action Reserve and Cap-and-Trade program to offset GHG emissions). These mitigation measures also require compliance with regulatory permits or other regulatory processes, where compliance with performance standards as specified in those regulations would be reasonably expected to reduce or avoid significant impacts (e.g., compliance with FAA building height criteria to avoid flight safety hazards). Addition mitigation measures as identified by the City of South San Francisco (as lead agency for this EIR) are also included, where the City has determined that such additional mitigation measures are warranted, would be necessary to reduce or avoid adverse environmental impacts, or would provide necessary detail or performance standards as required by the City. Each of these types of mitigation measures are specifically identified throughout this EIR, and will be required as conditions of approving the Project.

Cumulative Analysis Assumptions

Each of the following topic-area chapters of this EIR conclude with an analysis of cumulative effects. Depending on the topic, the cumulative context varies with the geography of cumulative implications. For example, cumulative effects related to climate change are global in scale, and cumulative effects related to air quality emissions of criteria air pollutants affect the entire San Francisco Air Basin. Conversely, some cumulative effects are local in nature, such as cumulative water quality effects on those waters that are tributary to the Project Area. However, the majority of cumulative effects discussed in this EIR (specifically including traffic) are based on anticipated cumulative growth and development within the East of 101 Area of South San Francisco.

The East of 101 Area has, and continues to emerge as a major biotechnology hub within the region. Genentech is the largest biotechnology company in the area but, according to information presented on the City website, there are over 200 biotechnology companies and approximately 11.5-million square feet of biotechnology building space within the approximately 500-acre East of 101 Area.[2] The growth of the biotechnology industry has significantly changed land use in the East of 101 Area, which had historically been an area of heavy industry, manufacturing facilities and warehousing. New land uses in the East of 101 area are now principally modern, multi-story office and research and development (R&D) buildings, many in campus-type settings. The City's General Plan and East of 101 Area Plan, as well as on-going city economic

[2] http://www.ssf.net/our-city/biotech/biotech-in-ssf

development efforts, forecast a continuation of economic development activity in the East of 101 Area that continues this trend in growth of the biotechnology and technology industries.

In 2017, the City initiated an update to its transportation planning for the East of 101 area, including an update to the East of 101 Traffic Model. This update was intended to account for all recently approved new development in the East of 101 area, and included a projection of cumulative buildout potential. Cumulative buildout was projected to amount to approximately 33.4 million square feet of non-residential building space, or an increase of nearly 12 million square feet over the 2016 baseline. In July of 2018, the City initiated a further update to the East of 101 Traffic Model. Forecasts for year 2040 cumulative traffic demand projections were estimated based on cumulative land use and trip generation assumptions. These cumulative assumptions assumed no growth associated with the Genentech Campus. A summary of cumulative (without Genentech) land use assumptions is provided in **Table 4-1**.

Table 4-1: 2016 Existing and 2040 Cumulative Baseline Land Use, East of 101 Area

Land Use	2016 Land Use (square feet)	2040 Cumulative Land Use (square feet)	Change per Cumulative Land Use (square feet)
Commercial	609,000	1,248,000	639,000
Hotel	1,228,000	2,100,000	872,000
Industrial	7,560,000	7,591,000	31,000
Office/R&D	12,023,000	18,967,000	6,944,000
Other	40,000	487,000	447,000
Total	21,460,000	30,393,000	8,933,000

Note: Assumes 2016 baseline Genentech land use and no future Campus growth

Sources: City of South San Francisco Traffic Model, July 2018

As shown in Table 4-1, Tablethe total amount of non-residential land use within the East of 101 Area is expected to increase by approximately 9 million square feet, from 21.5 million square feet as of 2016 to approximately 30.4 million square feet by the 2040 cumulative horizon year. This cumulative growth assumption also includes land use changes associated with the City of South San Francisco's Downtown Station Area Specific Plan to the west of US-101, including new housing and commercial development. However, this cumulative growth assumption does not include any Genentech-related growth.

With the Project's proposed increase in net new development of approximately 4.3 million square feet, total cumulative growth in the East of 101 Area (also including the of Downtown Station Area Specific Plan) would amount to approximately 13.2 million square feet of building space, resulting in a total of 34.7 million square feet by the 2040 cumulative horizon year.

Project Proposal for Limits on Net New Traffic

As part of the Master Plan Update, Genentech is proposing to implement two strategies that work together to limit the amount of traffic that may be generated at the Campus, irrespective of the land use mix and ultimate buildout (in terms of total square feet or FAR). These strategies are a Trip Cap and an aggressive 50 percent TDM goal.

Trip Cap

The Trip Cap is a numeric limit on the net increase in traffic that can be generated at the Campus. The Trip Cap applies irrespective of the amount of net new development, the types of land uses that occur within the

Campus over time, or the effectiveness of TDM efforts. The definition of this Trip Cap is derived from the prior 2007 Master EIR and the prior 2002 Britannia East Grand EIR. Those prior EIRs calculated the number of total vehicle trips that would be generated during the morning commute period, concluding that buildout of 6.8 million square feet of building space would generate approximately 5,126 AM peak hour trips, as indicated on **Table 4-2**.

Table 4-2: Increase in Single-Occupant Vehicle Trips as Calculated in the Prior Campus EIRs

Land Use	2007 Existing SF	2007 MEIR Buildout SF	AM Trip Rate	AM Trips at Buildout
Campus:				
Office	1,008,801	2,629,395	0.95	2,498
Lab	970,173	2,002,482	0.59	1,181
Manufacturing	779,892	1,041,668	0.48	500
Amenity	69,500	322,000	0.0	0
Sub-Total	2,828,366	5,995,545		4,180
Britannia East Grand (South Campus)		804,530		1,037
Total:		**6,800,075**		**5,126**

Fehr & Peers, June 2018

The Trip Cap establishes the same number of total AM peak hour trips (5,216) calculated in these prior EIRs as being generated by 6.8 million square feet of building space, but now applies that number of AM peak hour trips as a limit for up to 9 million square feet of building space. This Trip Cap commitment is possible based on a continuation and expansion of Genentech's TDM program.

When the 2007 MEIR was prepared, the traffic analysis assumed (based on surveys available at that time) that approximately 92 percent of all Genentech employees would commute via automobile and that approximately 80 percent would commute via single-occupant vehicles, resulting in an assumed 20 percent non single-occupant vehicle mode split. These assumptions were incorporated into the trip generation rates used in the 2007 MEIR. However, during the past 11 years since certification of the 2007 MEIR, Genentech has implemented the gRide program that has exceeded the expectations of the 2007 MEIR. Single-occupant vehicle commuters now represent approximately 58 percent of all Genentech employees. Based on the increased availability of private transit and other alternative-mode commute choices, only approximately 2,550 daily single-occupant vehicle trips (or approximately 60% of the total number of trips expected in the 2007 MEIR) currently arrive at the Campus, even though the current Campus contains approximately 80 percent of the MEIR's assumed 6 million square foot buildout.

With approximately 2,550 daily single-occupant vehicle trips arriving at the Campus during the AM peak hour commute period today, the Trip Cap limits net new trips generated by the Project to 2,667 more AM peak hour trips. This Trip Cap would not be exceeded under any development scenario for many years, and not until a substantial portion of the 9 million square-foot buildout potential is realized. It is intended as a maximum not-to-exceed number of potential trips, and can easily be counted along the main ingress and access points to the Campus.

50 Percent Transportation Demand Management (TDM) Rate

Working in tandem with the Trip Cap is Genentech's Campus-wide TDM goal to achieve a 50 percent reduction in drive-alone vehicle trips (or a minimum 50 percent alternative mode use), to be achieved by the time of full buildout of the Master Plan Update. Pursuant to SSF Municipal Code section 20.400.003, those

projects in the Business and Technology Park district at an FAR of between 0.51 and 0.69 (the Campus has a current average FAR of 0.52) are required to achieve a 30 percent trip reduction. Those projects in the Business and Technology Park district at an FAR of 0.81 to 1.0 (buildout of the Master Plan Update would achieve an FAR of 1.0) are required to achieve a 35 percent trip reduction. Genentech's proposed TDM commitment of a 50 percent trip reduction rate substantially exceeds both of these Municipal Code trip reduction requirements.

Currently, Genentech is operating a TDM program (known as gRide) that is achieving a Campus-wide trip reduction rate of approximately 42 percent (already exceeding the City's requirement). This program uses a variety of strategies including but not limited to Genentech-provided Genenbuses, the on-Campus DNA Shuttle system, private Genentech ferry service, and reimbursements for carpooling and public transit use by employees. Genentech proposes to expand the capacity of its gRide program commensurate with new development, and to increase program capacity and use incrementally over time, achieving the 50 percent trip reduction goal prior to buildout.

As a means of tracking progress towards the 50% TDM commitment, Genentech proposes to measure TDM performance relative to this goal at intervals that correspond with net new development milestones. The proposed correspondence between TDM performance and net new development is as follows:

- Up to 5 million square feet of development on Campus: 40 percent TDM trip reductions Campus-wide
- By 5 million square feet of development on Campus: 42 percent TDM trip reductions Campus-wide
- By 6 million square feet of development on Campus: 44 percent TDM trip reductions Campus-wide
- By 7 million square feet of development on Campus: 46 percent TDM trip reductions Campus-wide
- By 8 million square feet of development on Campus: 48 percent TDM trip reductions Campus-wide, and
- By 9 million square feet of development on Campus (i.e., buildout): 50 percent TDM trip reductions Campus-wide

Pursuant to SSF Municipal Code section 20.400.008, Genentech will continue to prepare annual reports on its compliance with City-mandated TDM rates and its trip reduction plan. However, the relationship between TDM rate and building square footage of development will only be reported at the specified development intervals.

The increments of growth between monitoring and reporting periods toward the 50% goal are large enough to accommodate expected fluctuations in TDM performance over time. New, currently unimagined TDM strategies may be developed or invented over time, but it is likely that the more significant increments of increased TDM performance will continue to correspond with major investments in Genentech's transit fleet (e.g., more Genenbuses and ferries) and, to a lesser extent, employee incentive programs. These investments may not correspond with more frequent annual, or per development-project increments. Similarly, a TDM rate improvement may lag behind the opening of a large new building, as the new square footage is introduced all at once and TDM improvements occur more gradually.

The methodology for measuring TDM performance will be a series of cordon counts that count Genentech employees as they arrive on Campus, and record their mode of transportation. Transit use data will also be provided by the gRide Program for the same times and dates, used to validate the cordon count records for transit mode share. This is the same methodology that has been used to generate Genentech's prior annual reports on Commuter Mode Share.

The TDM program works as an incentive for Genentech to realize the greatest development potential permissible under the limits of the Trip Cap. The monitoring schedule is intended to provide the City and

Genentech with means for assessing how progress is being made toward the 50 percent trip reduction goal, while allowing new development to occur as dictated by Genentech's business needs, but regulated by the Trip Cap.

Trip Cap and TDM Effectiveness

The Trip Cap and the TDM program work together, allowing for flexibility in the buildout of the Campus, while also providing certainty about traffic growth. For example, if buildout of the Campus were to match precisely to the land use mix assumed in the EIR Project Description, an approximately 47 percent TDM trip reduction ratio would be required to meet the Trip Cap limit. If buildout of the Campus occurs in a different manner that assumed in the EIR Project Description, the same Trip Cap limit would apply, but a higher (or potentially lower) TDM ratio would be necessary to remain within the Trip Cap. Without the full effects of TDM, buildout under the Trip Cap could be less than the 9 million square feet assumed. Only by increasing TDM effectiveness (thereby lowering trips) can the development potential of the Campus be maximized. Working together with the Trip Cap, the TDM program goal serves as an incentive for Genentech to realize the greatest development potential for the Campus.

This EIR applies the Trip Cap limit as the metric for defining the maximum net new trips that can be generated pursuant to the Project. The Trip Cap has been used to adjust the trip generation rates of the Project that underlie calculations of intersection levels-of-service, vehicle miles travelled, mobile source of GHG and air quality emissions, and traffic noise. If buildout of the Campus occurs in a different manner than assumed in the EIR Project Description, the Trip Cap would apply and regulate (or restrict) the maximum number of net new trips to that same Trip Cap limit.

5

Aesthetics

This chapter evaluates the potential impacts of the Project related to aesthetics. This chapter describes the existing aesthetic and visual character of the Project Area and its surroundings and evaluates the extent to which aesthetics and visual resources may be affected by new development as envisioned pursuant to the Campus Master Plan Update (the Project). In particular, this chapter of the EIR considers potential Project-related impacts to aesthetic and visual resources, impacts to scenic views, and other aesthetic considerations such as increased light and glare. A regulatory framework is also provided in this chapter, describing applicable regulations related to aesthetics of the Project Area.

Setting information is derived from the following primary sources:

- the *General Plan* of the City of South San Francisco
- the City of South San Francisco *East of 101 Area Plan*
- photographs of the surrounding area, and
- relevant planning and design principles and guidelines of the *Genentech Campus Master Plan Update*

Environmental Setting

Visual Characteristics of the Surrounding Area

Built Environment

The Genentech Campus is located in South San Francisco's East of 101 Area. This area is designated under the South San Francisco General Plan as a key commercial development area, and it is considered "the Birthplace of Biotechnology". The central portion of the East of 101 Area is home to one of the largest clusters of biotechnology -related building space in the world. Genentech is the largest biotechnology company in the area, but there are over 200 biotech companies and approximately 11.5-million square feet of biotechnology building space within the approximately 500-acre East of 101 Area.[1] The growth of the biotechnology industry has significantly changed the visual character of the built environment in the East of 101 Area, which had historically been an area of heavy industry, manufacturing facilities and warehousing. Now primarily dominated by the biotechnology industry, the visual character of East of 101 is now dominated by modern, multi-story office and research and development (R&D) buildings, mostly in campus-type settings.

The south and southwest portion of the East of 101 Area has not yet undergone such significant transformation. This area still consists primarily of one and two-story industrial and light industrial buildings and airport-serving land uses, including hotels and fast food restaurants.

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[1] http://www.ssf.net/our-city/biotech/biotech-in-ssf

The northerly portion of the East of 101 Area is known as Oyster Point. Oyster Point currently contains a marina and ferry landing, coastal commercial development, business commercial areas including a hotel, and substantial areas of currently undeveloped landscape and open land. An Oyster Point Specific Plan development is currently under construction, which will substantially alter the visual character of the built environment in this area.

Along the entire bay shoreline of the East of 101 Area is a shoreline trail (the Bay Trail) and greenbelt, which extends north and south along the Bay.

Topography/Vegetation

The Project Area is located on the west shore of San Francisco Bay. This area consists of relatively flat reclaimed Bay lands and adjacent uplands at the eastern base of San Bruno Mountain. The lower lying reclaimed Bay lands are generally flat from the East of 101 Area to the San Francisco International Airport. Point San Bruno Hill, the easterly extension of the San Bruno Mountains, rises from this reclaimed Bay lands as a prominent local landform at the edge of the Bay.

The Genentech Campus (Project Area) is located at the easterly point of the East of 101 Area. The lower portions of the Campus are along the base of Point San Bruno Hill, and the Upper Campus is located at the hilltop.

The area surrounding the Project Area is characterized by hilly topography to the north and west, generally sloping from west to east towards the Bay. West of 101, the topography gradually inclines to the San Bruno Mountains. Vegetation in the area is primarily limited to ornamental trees and plants, landscaped trails with ornamental trees along the Bay, and ruderal vegetation over vacant sites.

Views and Lighting

From elevated portions of US 101, San Bruno Hill is prominently visible across the East of 101 Area. Structures at the hilltop, including a number of Genentech buildings and the adjacent Wind Harp sculpture can be seen along this hilltop. Most short- and mid-range views from US 101 are restricted to short views of the commercial uses, business parks, office buildings and industrial structures nearest US 101.

Views from the Project Area, particularly from the upper hilltop and from areas along the Bay's shore, have sweeping vistas across the Bay towards the Oakland and Hayward hills, the San Mateo Bridge, Foster City and Coyote Point State Park. Long-range vistas of the San Bruno Mountains and Sierra Point Bay are also visible to the northwest.

Ambient nighttime lighting is characteristic of office and industrial park areas. Light sources include street lighting, outdoor security lighting and occasional interior light emanating from office building windows.

Visual Characteristics of the Project Area

Built Environment

The Project Area (the Genentech Campus) is an approximately 207-acre site and contains approximately 4.3 million square feet of building space. The Project Area contains several clusters of office, laboratory, manufacturing and research facilities. As of the 2017 baseline year conditions, the Project Area had approximately 50 buildings. Recent additions to the Campus since the 2017 baseline year include the newly completed Employee Center (or Hub, or Building 34) at the Upper Campus, and the new Child Care Center in the West Campus on Allerton Avenue. The most recently approved Building 40 (or the Connector Building) is under construction as of 2018.

The Project Area is built on and around Point San Bruno Hill, the highest point in the East of 101 Area, rising 180 feet from the shoreline. The Lower Campus and South Campus are located just above Bay level (at

building floor elevations that range from 8 to 25 feet), separated from the Bay by a 100-foot shoreline open space band containing the Bay Trail, and sloping upward toward the Mid Campus and Upper Campus. The Upper Campus topography is characterized by steep terrain, dropping off west of DNA Way to the Lower and West Campuses, below. Vegetation within the Project Area consists mostly of California native and Mediterranean plants designed both formally at the edges of streets and pathways, and informally at the perimeter of the neighborhoods. Natural vegetation is found along the Bay bluffs and on steep slopes.

The Project Area is organized into five separate neighborhood campuses, more fully described below.

Lower Campus

The Lower Campus is located in the northerly portion of the Project Area along the Bay shoreline south of Oyster Point, and offers Bay views and immediate access to the Bay Trail. The Lower Campus contains a mix of manufacturing and warehouse buildings, offices and laboratories, and structures containing the Project Area's primary power and infrastructure facilities. It is the most "industrial-looking" sub-area within the Project Area. The Lower Campus is located near the intersection of Gull Road and Forbes Boulevard, and functions as a gateway into the Project Area.

Mid Campus

The Mid Campus is also located along the Bay shoreline south of the Lower Campus, and sits atop a bluff with unobstructed views across the Bay. The Bay Trail continues through this neighborhood campus to the north and south. Because of these locational advantages, the Mid Campus was originally selected as the location of the Founder's Research Center (FRC), the original Genentech campus. The Mid Campus is somewhat isolated topographically from the rest of the Campus at a mid-elevation between the Lower and Upper Campus, but is geographically centered in the Campus. The Mid Campus is composed almost exclusively of research and lab facilities, and its existing buildings are grouped into multiple building clusters.

Upper Campus

The Upper Campus is the geographic center of the Project Area and occupies the highest point on the hilltop, visible from US 101 and much of the East of 101 area. The Upper Campus' high vantage point provides expansive views to the San Francisco Bay and beyond, including San Francisco and Mt. Diablo on clear days, as well as San Bruno Mountain and Sign Hill to the west. Due to its locational advantages, the Upper Campus has evolved as the center of the Genentech Campus, and many of Genentech's newest and tallest building are located at this hilltop location, taking advantage of existing views and establishing this area as the central gathering spot of the Campus.

West Campus

The West Campus is a major point of entry to the Campus, situated at the corner of East Grand Avenue and Allerton Street and at the base of Point San Bruno Hill. Existing building space within the West Campus includes mostly warehouse and distribution space, generally only one or two stories in height. The West Campus has more of a suburban scale and character than elsewhere within the Project Area, with buildings that are low and spaced broadly apart with generous intervening surface parking lots and setbacks. The West Campus is somewhat isolated from the remainder of the Project Area because of the relatively substantial elevation gain to the Upper Campus.

South Campus

The South Campus is located on redeveloped industrial property fronting San Francisco Bay. It was initially entitled as a separate development project known as Britannia East Grand, but built to suit Genentech's needs for new office and laboratory space. The South Campus is designed as an individual campus with centralized amenities, pedestrian plazas and walking and jogging paths along the Bay Trail, and two parking

garages. A new "connector-building' (B40) in the South Campus establishes a newer, more modern and taller urban design character for this neighborhood Campus

Visual Character

Generally, buildings within each neighborhood campus are arranged in clusters, with research facilities, cafeterias and other activity centers. Buildings range between one and five stories (generally between 20 and 65 feet). However, there are several taller buildings, especially at the Upper Campus (e.g., Building 35) and the new tall B40 building in the South Campus. The majority of buildings within the Project Area are relatively new and in good condition, with older buildings having potential for redevelopment. The Project Area is well landscaped with native vegetation along the slopes and edges of buildings and roads. The streetscapes, including paving, sidewalks, landscaping and amenities, are all well maintained, and the street system and pedestrian network are designed to integrate the neighborhood campuses and establish connectivity and access.

Lighting within the Project Area is characteristic of a research and development campus. Light sources include interior lighting within each building, and nighttime security lighting at building entries, courtyards, and spaced along pathways and circulation areas. Newer buildings are designed to utilize transparent and non-reflective glass to control glare, and are oriented to maximize access to natural lighting.

Regulatory Framework

Federal

There are no federal statutes related to aesthetics that would apply to the Project.

State

McAteer-Petris Act

The Bay Conservation and Development Commission (BCDC) has regulatory authority over development within the first 100 feet inland from the Bay, pursuant to the McAteer-Petris Act. One of BCDC's primary roles is to review development proposals or changes to the shoreline for aesthetic and visual impacts. BCDC has a Design Review Board that evaluates projects and makes recommendations according to the *San Francisco Bay Plan* (Part IV, Appearance, Design and Scenic Views, Policies 1-15).[2]

The Project does not specifically propose any new development within the BCDC jurisdiction. However, the Project Area is located adjacent to the shoreline and any future changes within the first 100 feet inland from the Bay (including any changes to parking spaces provided along the Bay shoreline that are reserved for public use and that provide public access to the Bay Trail) would be subject to BCDC regulations. Some of the BCDC *Bay Plan* criteria related to aesthetics include the following:

1. To enhance the visual quality of development around the Bay and to take maximum advantage of the attractive setting it provides the shores of the Bay should be developed in accordance with the Public Access Design Guidelines.
2. All Bayfront development should be designed to enhance the pleasure of the user or viewer of the Bay. Maximum efforts should be made to provide, enhance or preserve views of the Bay and shoreline, especially from public areas, from the Bay itself, and from the opposite shore. To this end, planning of waterfront development should include participation by professionals who are knowledgeable of the

[2] BCDC, *San Francisco Bay Plan*, January 2008

Commission's concerns, such as landscape architects, urban designers or architects, working in conjunction with engineers and professionals in other fields.

3. In some areas, a small amount of fill may be allowed if the fill is necessary and is the minimum absolutely required to develop the project in accordance with the Commission's design recommendations.
4. Structures and facilities that do not take advantage of or visually complement the Bay should be located and designed so as not to affect visually on the Bay and shoreline. In particular, parking areas should be located away from the shoreline. However, some small parking areas for fishing access and Bay viewing may be allowed in exposed locations.
5. Views of the Bay from vista points and from roads should be maintained by appropriate arrangements and heights of all developments and landscaping between the view areas and the water. In this regard, particular attention should be given to all waterfront locations, areas below vista points, and areas along roads that provide good views of the Bay for travelers, particularly areas below roads coming over ridges and providing a "first view" of the Bay.
6. Vista points should be provided in the general locations indicated in the Plan maps. Access to vista points should be provided by walkways, trails or other appropriate means. Public access should connect to the nearest public thoroughfare where parking or public transportation is available. In some cases, exhibits, museums or markers would be desirable at vista points to explain the value or importance of the areas being viewed.

Local

South San Francisco General Plan (1999)

The City of South San Francisco General Plan describes goals and policies for future growth and development throughout the City. The General Plan governs the maximum amount and intensity of development within the East of 101 Area, including the Genentech facilities. Pertinent aesthetic policies are listed below:

East of US 101 Area

- **Policy 3.5-G-3**: Promote campus-style biotechnology, high technology, and research and development uses.
- **Policy 3.5-I-7**: Prepare signage and streetscape plan for the areas designated as Business Commercial and Business and Technology Park on the General Plan Diagram, treating the entire area as one large campus, with unified signage and orchestrated streetscapes that make wayfinding easy and pleasant.

East of 101 Area Plan (adopted 1994)

The Project Area is also located within the *East of 101 Area Plan* planning area, which provides a detailed implementation guide for the area. The East of 101 Area Plan is principally used to provide direction related to project design and certain other facets of development in the area not otherwise covered in the General Plan or other City plans. Some of the policies in the East of 101 Area Plan related to the protection of aesthetic resources are listed below.

- **Policy LU-2**: New land uses that are similar to or compatible with surrounding development are encouraged. New developments should visually enhance and contribute to the aesthetic character of the East of 101 Area.
- **Policy LU-23**: Maximum heights of buildings in the East of 101 Area shall not exceed the maximum heights established by the Airport Land Use Commission based on Federal Aviation Regulations Part 77 Criteria.

- **Policy DE-1**: Developments on parcels adjacent to San Francisco Bay should emphasize the Bayshore atmosphere and take advantage of the design and visual opportunities associated with the Bay.
- **Policy DE-2**: US 101 is an important regional transportation corridor that creates the East of 101 Area's western edge and affords many people their only views of the area. For this reason, it is particularly important that developments visible from US 101 be designed with a high visual quality.
- **Policy DE-4**: Developments built on sloping sites should incorporate the topography into their plans, rather than including significant grading to create flat development pads.
- **Policy DE-5**: Developments in the East of 101 Area should be designed to take advantage of views of San Francisco Bay and Point San Bruno Hill with its "Windchime". Wherever possible, open space areas should be designed to provide views of these areas, and any new roadways should be laid out to provide vistas of them as well.
- **Policy DE-38**: The form and location of structures, the use of building colors and materials and the selection of landscape materials and street furniture shall consider the overall context of the project and promote the development of a sense of identity for the East of 101 Area.
- **Policy DE-39**: All sides of buildings that are visible from a public street or area should be detailed and treated with relief elements and changes in plane. Architectural elements used to provide relief could include awning projections, trellises, built in planters, integrated plazas, colonnades or arcades, expression of structural elements, wall/window recesses and/ or projections, changes in materials and textures or elements/treatments that create patterns of shade/ shadow. Blank walls should be avoided.
- **Policy GEO-9**: Steep hillside areas in excess of 30 percent grade shall be retained in their natural state. Development of hillside sites should follow existing contours to the greatest extent possible and grading should be kept to a minimum.

In addition to the specific policies mentioned above, the East of 101 Area Plan also lists guiding policies to control the design of individual buildings, sites, and streetscape, including policies related to parking, loading, and access design; landscaping and lighting; utility lines; fencing and screening; open space; and signage.

South San Francisco Municipal Code

The South San Francisco Municipal Code, Title 20: Zoning, section 20.260.001 establishes the Genentech Master Plan zoning district, and prescribes planning and design principles for facility-wide development in accordance with the 2007 Genentech Facilities Ten-Year Master Plan. The specific purposes of the Genentech Master Plan district are as follows:

7. To establish a facility-wide architectural character, a system of open space elements and a pedestrian and vehicular circulation plan linking buildings and uses together in a flexible, logical and orderly manner for the Genentech all lots of record and their structures owned or leased by Genentech and reclassified such that the uniform regulations and requirements covered by the Genentech Master Plan district apply;
8. To increase the flexibility of the City’s land use regulations and the speed of its review procedures to reflect the quickly changing needs of a research and development focused corporation;
9. To establish facility-wide development standards and design guidelines consistent with the City’s general plan and the East of 101 Area Plan; and
10. To define a baseline of existing conditions for each lot reclassified to the Genentech Master Plan district. (Ord. 1432 § 2, 2010)

Impacts and Mitigation Measures

Analytic Method

The analysis of aesthetics impacts focuses on the nature and magnitude of changes to the visual character of the Project Area that would result from implementation and construction of the Project. This includes the visual compatibility of anticipated development with the Genentech Campus and adjacent uses, vantage points where visual changes would be evident, and the introduction of new sources of light and glare.

The proposed Master Plan Update does not establish the location, size or design of individual buildings. The emphasis of the Master Plan Update is on land use and urban design policies that will achieve numerous purposes, including protecting and capitalizing on views and ensuring access to the waterfront, and providing design guidelines that will serve as a basis for design review approval for development in the Project Area. Planned visual change that would be compatible with existing patterns of development with respect to height, massing and architecture or form would not be considered a significant impact on the environment.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines, established City of South San Francisco standards and practices, and the prior 2007 Genentech Master Plan EIR and its 2012 Supplemental EIR. For purposes of this EIR, implementation of the Project could result in potentially significant impacts to visual quality and aesthetics if the Project would result in any of the following:

1. Have a substantial adverse effect on a scenic vista
2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway
3. Substantially degrade the existing visual character or quality of the site and its surroundings
4. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area

Scenic Vistas

Aesthetics 1: New development pursuant to the Project would not result in a substantial adverse effect on a scenic vista. (**Less than Significant**)

Scenic vistas may generally be described in two ways: panoramic views (views to a large geographic area, for which the field of view can be wide and extend into the distance), and focal views (views to a particular object, scene, setting, or feature of interest). Pursuant to CEQA, panoramic views are associated with public vantage points that provide a sweeping geographic orientation not commonly available. Examples of panoramic views at or near the Project Area include views from the shoreline and from taller existing buildings across the Bay, views from elevated portions of US 101 across the East of 101 Area, and views from public locations in East of 101 westward towards San Bruno Mountain and Sign Hill. Focal views near the Project Area are limited to publically accessible views of Point San Bruno and its Wind Harp sculpture. The Project's impacts to these scenic vistas are further discussed below. The following assessment of potential effects to scenic views and vistas (see photo and image key map, **Figure 5-1**) are addressed below.

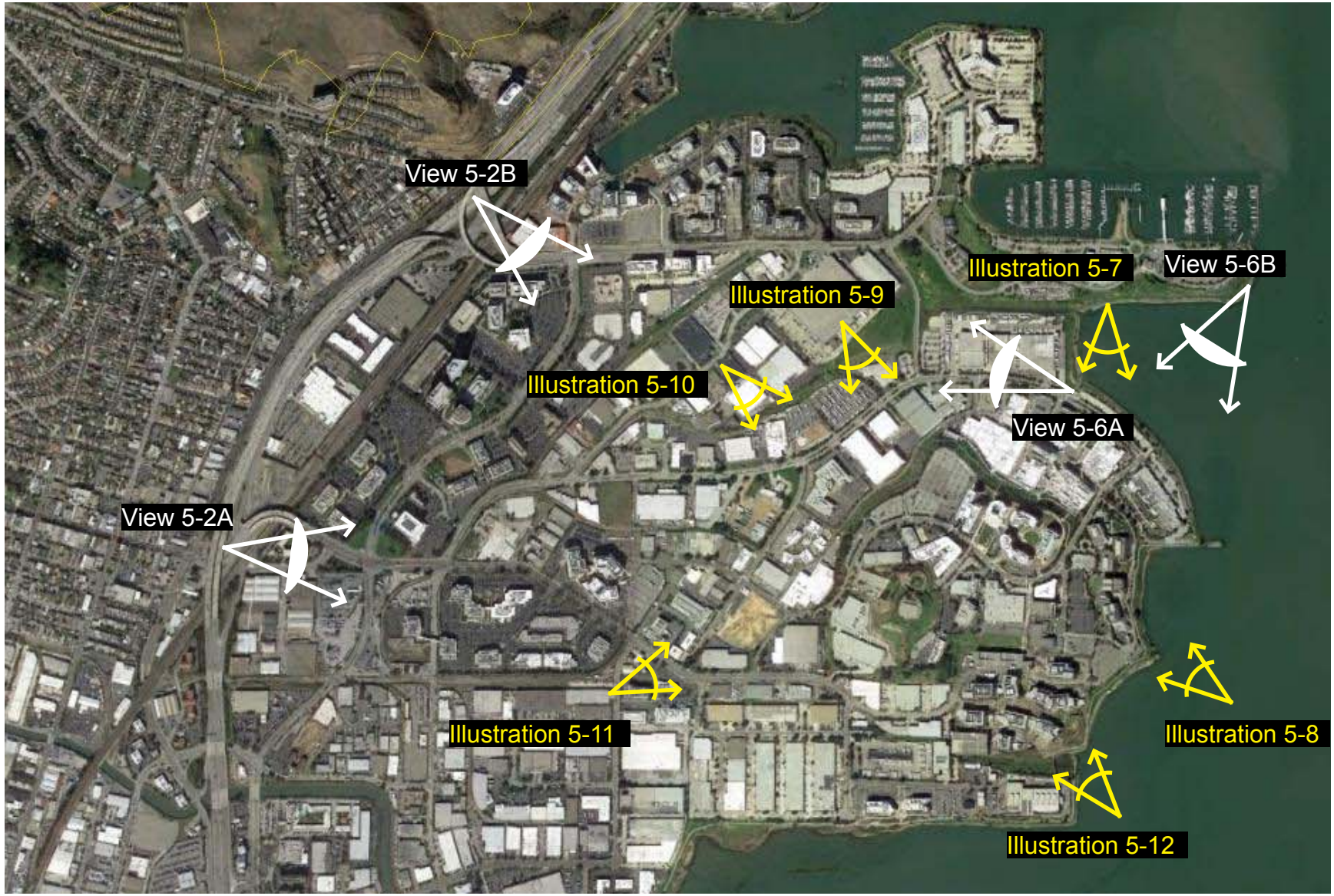

Figure 5-1
Key to View Photos and Conceptual Illustrations

Views of Point San Bruno Hill and the Wind Harp Sculpture

The Genentech Campus is located on the flanks of the hillsides that form Point San Bruno Hill, which is the highest point in the East of 101 Area, rising 180 feet from the shoreline. Genentech's existing development surrounds Point San Bruno Hill on three sides (to the west, north and east), but the steeper hillsides to the top of Point San Bruno Hill remain undeveloped. The Wind Harp sculpture is located near the peak of Point San Bruno Hill, at an elevation of approximately 145 feet above sea level, and rises an additional 92 feet tall.[3] The sculpture is a prominent focal point in the East of 101 Area, seen from local public vantage points at elevated portions of US 101 (see images in **Figure 5-2**).

The East of 101 Area Plan (Policy GEO-9 and subsequent text) states in reference to Point San Bruno Hill that,

> "*Steep hillside areas in excess of 30 percent grade shall be retained in their natural state. Development of hillside sites should follow existing contours to the greatest extent possible, and grading should be kept to a minimum." Text following this policy states that, "…the [Point San Bruno] hill is a visually prominent landmark in the East of 101 Area and should be preserved. Therefore, preservation of the natural landmark should continue, and development shall not encroach upon the slopes of the hillside*."

This policy does not require that any individual views of the Point San Bruno Hill be protected, but rather requires preservation of the hillside itself as a landmark. The Master Plan Update identifies several Opportunity Sites located in proximity to the steep slopes of Point San Bruno Hill, but does not propose grading into these hillsides for new development, as shown in **Figure 5-3**. The identified Opportunity Sites for new development to the west of Point San Bruno Hill are locations where existing buildings already occur. New development pursuant to the Master Plan Update is envisioned to redevelop these existing building sites with new, taller buildings. The redevelopment of these Opportunity Sites is not anticipated to result in substantial regrading and would not encroach into the steep sides of the Hill, would not modify the natural landform of Point San Bruno Hill, and thus would not conflict with this East of 101 Area Plan policy.

The East of 101 Area Plan (Policy DE-5) provides that:

> "*Developments in the East of 101 Area should be designed to take advantage of views of San Francisco Bay and Point San Bruno Hill with its Windchime sculpture. Wherever possible, open space areas should be designed to provide views of these areas, and any new roadways should be laid out to provide vistas of them as well*."

This policy does not require that views of the sculpture be protected, but rather that new development be designed to consider views to this feature. Although there is no City policy or requirement to protect any specific views of Point San Bruno Hill or the Wind Harp, the Project will increase the potential for views of this landmark to be obstructed due to construction of new buildings. Existing 2 to 3-story buildings within the West Campus currently obstruct certain near-range views of Point San Bruno Hill and the Wind Harp sculpture from viewers on East Grand Avenue, but these buildings are not so tall as to obstruct views from elevated portions of US 101 at East Grand Avenue or at the Oyster Point Boulevard flyover interchange. Depending on the actual height of new development on Opportunity Sites in the West Campus and Upper Campus, new buildings may result in further obstruction of views of the natural landform of Point San Bruno Hill from certain public vantage points.

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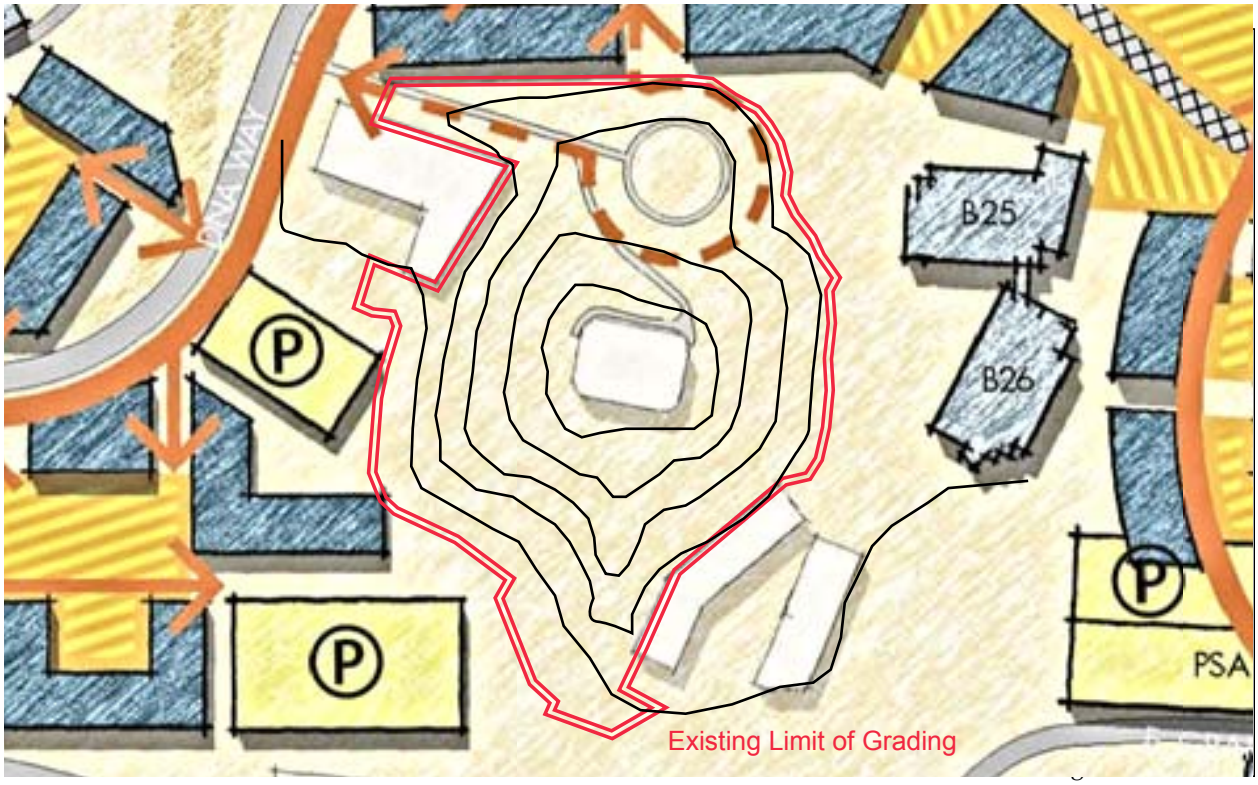
[3] The Wind Harp sculpture has been reported as being visible from as far away as the Bay Bridge, the East Bay and from the San Francisco Airport. The Wind Harp sculpture was constructed in 1967 as the centerpiece of an industrial park, and fabricated from steel manufactured at Bethlehem Steel. It was acquired by the City of South San Francisco in 1996 and rededicated in 1997 in memory of Jake Jones, who promoted the City's acquisition and refurbishing of the Wind Harp sculpture.

View 5-2A: from US 101 near East Grand Avenue

View 5-2B: from Oyster Point near US 101

Figure 5-2
Views from US 101 toward Genentech Campus

View 5-2A: Existing Point San Bruno Hill (with topo lines) and approximate limit of existing development



View 5-2A: Point San Bruno Hill post-Project (with same topo lines and approximate location of new development)

Figure 5-3
Point San Bruno Hilltop, Before and After Project

However, as is demonstrated in **Figure 5-4**, potential views of Point San Bruno Hill from US 101 are limited to portions of the elevated sections of the freeway and interchanges. Other existing and pending development projects in the East of 101 Area have already blocked, or will potentially block or partially obstruct most of these views of Point San Bruno Hill and the Wind Harp sculpture from these limited elevated public vantage points. No designated view corridors to this landform or sculpture are established as City policy. While it is possible that new buildings constructed to maximum building heights within the Project Area will further obstruct views of Point San Bruno Hill and the Wind Harp sculpture from certain elevated vantage points along US 101, this is not considered a CEQA impact of significance, and no substantial adverse effect would occur.

Panoramic Views from Oyster Point

Looking south from Oyster Point, foreground views are of the Bay and the Bay Trail, middle-ground views are of the Lower and Upper Campus in the Project Area, and distant views are of the San Mateo hills substantially further south of the Project Area (see **Figure 5-5)**. From this viewpoint, scenic vistas of the Bay in the foreground would not be affected by new development at the Project Area. Potential new development within the Upper Campus of the Project Area could potentially obstruct certain views of the hills to the south, as well as the Wind Harp at the top of Point San Bruno Hill. However, existing buildings and the existing elevation of Point San Bruno Hill largely obstructs views of the Bay and distant hills to the south, and no substantial adverse effect to this scenic vista would occur. Therefore, the impacts to views from Oyster Point would be less than significant.

Panoramic Views from the Bay Trail at Lower Campus

Along the Bay Trail at the Lower Campus (the most northerly portion of the Project Area) existing panoramic views to the east consist of sweeping views of the Bay and short-range views of natural vegetation. Mid-range views to the north look out across Oyster Point towards San Francisco, and more distant views to the west are of the San Bruno Mountains on the west side of US 101 (see also **Figure 5-5**). New development within the Project Area will not adversely affect any of these views. The Bay Trail is along the outer edge of the Project Area and vistas from the Trail generally look outward, away from the Genentech Campus. Changes in views from the Bay Trail adjacent to the Genentech Campus will be noticeable in the periphery, but new development would not have a substantial adverse effect on these scenic vistas. These vistas would be much the same as they are today, with near- and mid-range views of existing and new buildings on the Campus. Impacts to more distant views of the San Bruno Mountains from locations along the Bay Trail at the easterly and northerly portions of the Project Area would be less than significant.

Views from the Project Area

Within the Project Area, views from existing buildings provide sweeping vistas of the Bay to the east, San Bruno Mountain to the west, and framed views of Harp Park to the south. Bay views are particularly prevalent from the Upper, Lower, Mid and South Campuses. Views of the San Bruno Mountains and Harp Park are most prevalent from the Upper Campus.

As new development occurs, new structures may obstruct certain existing views from the Campus, but will also create new views from the new buildings. The Master Plan Update provides guidelines to "*ensure that building heights and massing maintain key views to the Bay and the San Bruno mountains*." Impacts to existing views from the Campus due to new development are not CEQA threshold matters (all of these views are from private, not public vantage points). Impacts to private views from locations internal to the Campus would not result in substantial adverse effects on public scenic vistas, and this impact would be less than significant.

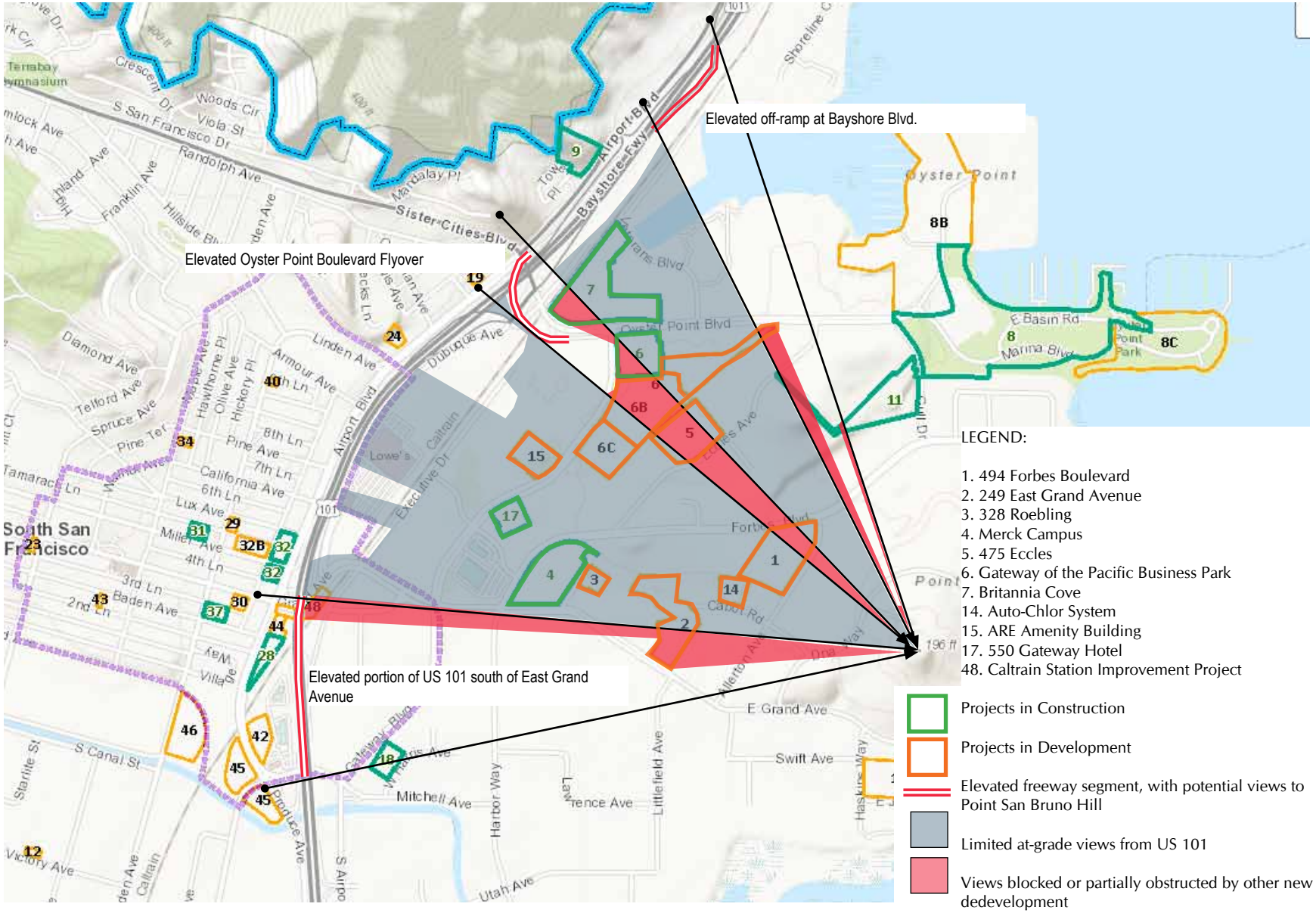


Figure 5-4
Public Views towards Point San Bruno

Source of development projects: City of SSF, at: http://construction.ssf.net/#

View from Genentech Campus at Forbes Ave. / DNA Way, near Bay Trail

View from Oyster Point / Bay Trail

Figure 5-5
Near Views of/from Genentech Campus

Mitigation Measures

No mitigation is required. The analysis presented above indicates that the Project would not exceed CEQA thresholds for defining impacts to scenic views. The City has not applied a "no obstruction" interpretation of East of 101 Area Plan policies to other recently approved development in the East of 101 Area, and the Project would not modify the natural landform of Point San Bruno Hill. The Project would include new buildings and open space areas that could take advantage of views to the Bay and to Point San Bruno Hill and the Wind Harp sculpture, in a manner similar to the views of this sculpture that can be seen from Building 35 on the Upper Campus.

Scenic Resources as seen from a State Scenic Highway

Aesthetics 2: New development pursuant to the Project would not result in a substantial adverse effect on scenic resources including, but not limited to, trees, rock outcroppings or historic buildings within a state scenic highway. (**No Impact**)

The nearest designated Scenic Highway is I-280, which runs north to south, more than five miles to the west of the Project Area. Views of the Project Area are not visible from this Scenic Highway. Those sections of other Bay Area highways that have been officially designated as scenic corridors under the State Scenic Highway program include I-580 and I-680 in the East Bay, but these designated corridors provide no scenic views of the Project Area. The Project would not have an adverse effect on scenic resources within a scenic highway.

Mitigation Measures

No mitigation is required.

Visual Character

Aesthetics 3: New development pursuant to the Project would not substantially degrade the visual character or quality of the Project Area. (**Less than Significant**)

The 2017 Campus Master Plan Update envisions Campus-centered growth and development, and increased building density and intensity across the Campus. Consistent with the underlying allowable maximum FAR of 1.0, the Master Plan Update anticipates buildout of the 206.8-acre Campus at just over 9 million square feet, enabling construction of approximately 4.3 million square feet of net new building space in addition to the approximately 4.7 million square feet of baseline building space within the Campus. This represents an approximately 90% increase in building space within the Campus, which will change the visual character of the Campus. The scale of new buildings is anticipated to increase substantially over time. New building are expected to be taller and larger than many of the existing buildings on Campus today, more similar in scale as (or even taller than) the newest Campus additions at Building 35 and the Employee Center/Hub. Although the Master Plan Update will change the visual character of the Campus, this change will not be adverse, and will not be visually inconsistent with the current Campus or surrounding areas.

As described in the Project Description (Chapter 3 of this EIR), the Master Plan Update defines an overall development program intended to result in a cohesive and integrated Campus design, accommodating Genentech's needs for future growth. The Master Plan Update focuses on organizing themes for incremental Campus development in the future, but does not define precise building locations, shapes or forms. Rather, the Master Plan Update is intentionally flexible to enable Genentech to adapt its Campus to accommodate future building space needs and to enable new and creative urban design to influence future building plans.

To provide detail and specificity for this EIR, the Project Description provides one potential detailed buildout scenario that meets the goals of the Master Plan Update, and is used for qualitative and quantitative analytical purposes for this EIR. This Project Description is intended to be specific enough to allow for

detailed analysis in the EIR, representing the maximum development potential that could occur within the Project Area. The following provides a description of the anticipated visual character of each neighborhood campus within the Project Area.

Lower Campus

The Lower Campus currently contains a mix of manufacturing and warehouse buildings, offices, and laboratories. It also contains buildings that house the Project Area's primary infrastructure, with associated exterior infrastructure elements (e.g., large distribution pipes, cooling towers, etc.). As land use demands within the Project Area evolve, the Lower Campus may include a greater mix of multi-use research, development and manufacturing centers. The Lower Campus will continue to command a strong role as a main gateway into the Project Area, and new development within the Lower Campus is expected to maintain and capitalize on Bay views and immediate access to the Bay Trail.

Future development opportunities within the Lower Campus (as conceptually illustrated in **Figure 5-6**) include redevelopment of existing Building 4 (the Bayview parcel) into a much more substantial new building, redevelopment of surface parking lots adjacent to Forbes Boulevard, and infill opportunities for building add-ons or additions. Other considerations for development in the Lower Campus include strategic design efforts to maintain and/or expand the central process and utility plant (CPUP) to support increased development, and providing buffers and setbacks capable of addressing concerns related to sea level rise. With the redevelopment of Opportunity Sites and infill within the Lower Campus, this area is estimated to have the potential to accommodate approximately 690,000 to 740,000 square feet of net new building space, with new buildings designed at heights of between 3 to 5 stories.

Mid Campus

The Mid Campus is comprised almost exclusively of research and lab facilities, and its existing buildings are grouped into multiple building clusters that include the original Founders' Research Center (FRC). New development within the Mid Campus is anticipated to reinforce existing building connections to create small, informal gathering and open spaces. This neighborhood campus can capitalize on its unique setting by siting new buildings and amenities that can connect its occupants to the surrounding open space and Bay shoreline.

Future development opportunities within the Mid Campus (as conceptually illustrated in **Figure 5-7**) include conversion of several large surface parking areas (located up-slope from the FRC) into new building sites with consolidated parking structures, and redevelopment of existing Building 36 from a small 1-story structure to a new building at substantially greater FAR. It is conservatively estimated that the Mid Campus can accommodate approximately 550,000 square feet of net new building space within these identified Opportunity Sites, assuming new building heights that average only 2 to 4 stories. With taller buildings, structured podium garage space and maximized redevelopment, these Opportunity Sites could accommodate more space, in the range of 870,000 square feet.

Lower Campus, Existing

Lower Campus, Buildout

Figure 5-6
Conceptual Illustration, Lower Campus

Source: JRDV Architects, Genentech

Mid Campus, Existing

Mid Campus, Buildout

Figure 5-7
Conceptual Illustration, Mid Campus

Source: JRDV Architects, Genentech

Upper Campus

The Upper Campus is expected to continue to serve as the center of the Campus, with the greatest amount of new development focused at the hilltop to capture views and to strengthen Genentech's prominent skyline. New development within the Upper Campus focuses on external place making to establish this area as a central gathering spot, and orienting new development to take advantage of views.

Substantial new development and redevelopment opportunities within the Upper Campus (as conceptually illustrated in **Figures 5-8 and 5-9**) include new building sites at the large surface parking area on the hilltop, redevelopment of existing Building 24 on the south side of DNA Way, and smaller infill development potential along DNA Way. Other design and development opportunities within the Upper Campus include creation of complementary amenity space to better activate the Upper Campus as a Campus "quad". It is estimated that the Upper Campus may transition into a more urban-type environment with a skyline of 9-story or taller buildings, and a potential increase of over 1.7 million square feet of new building space.

West Campus

The West Campus properties have strong potential for redevelopment, as many of the buildings in this neighborhood campus are low-rise tilt-ups that are currently underutilized. The comparatively lower elevation of the West Campus also enables taller building construction that is less constrained by FAA height limits than elsewhere on the Campus. This strong growth potential suggests that the West Campus will grow and change from its current suburban, warehouse-dominated character to a more densely developed, mixed-use R&D neighborhood with the potential to accommodate additional office and lab space, in addition to maintaining certain manufacturing spaces.

New development and redevelopment opportunities within the West Campus (as conceptually illustrated in **Figure 5-10**) include redevelopment of much of the existing warehouse spaces to create sites for substantially larger replacement buildings and/or parking structures. It also anticipates the conversion of large surface parking lots into new building sites, potentially inclusive of integrated parking structures to replace and increase overall parking supply. Whereas the Master Plan Update anticipates retention of the Campus' current level of manufacturing space, much of the existing warehouse space in the West Campus can be redesigned or reconfigured as part of future redevelopment efforts. It is estimated that the West Campus could accommodate as much as 1.47 million square feet of net new building space within identified Opportunity Sites by adding new buildings of 3 stories in height, but could also achieve substantially greater development potential of over 2.5 million square feet with taller buildings of five or more stories.

Upper Campus, Existing

Upper Campus, Buildout

Figure 5-8
Conceptual Illustration, Upper Campus

Source: JRDV Architects, Genentech

Upper West Campus, Existing

Upper West Campus, Buildout

Figure 5-9
Conceptual Illustration, Upper West Campus

Source: JRDV Architects, Genentech

Lower West Campus, Existing

Lower West Campus, Buildout

Figure 5-10
Conceptual Illustration, Lower West Campus

Source: JRDV Architects, Genentech

South Campus

The South Campus' buildings and open space were designed with centralized amenities, pedestrian plazas and walking and jogging paths along the Bay Trail. These features help establish South Campus as a "campus-within-the-Campus", complete with its own office space, labs, parking and amenities. This mixed-use character is anticipated to continue, and perhaps be expanded in the future. Because the South Campus was substantially built-out at the time Genentech occupied the space, opportunities for additional growth and development are more limited in the South Campus than elsewhere within the Project Area. However, recent construction of the B40 Connector Building as an infill office building physically connecting between existing Buildings B44 and B45 demonstrates that additional infill in the South Campus is possible. The existing parking garage on the northerly portion of the South Campus has an opportunity to be expanded into the hillside, providing greater parking supply and potentially serving as the connection to a pedestrian bridge linking the lower South Campus to the Upper Campus (see **Figure 5-11**). Expected future growth and development within the South Campus is anticipated to be just over 250,000 square feet of net new space with these two identified projects, but with more aggressive infill development and taller (6 to 8 story) buildings, the South Campus could realize an increased development potential of over 600,000 square feet of new space.

Regulatory Requirements and Proposed Changes

Chapter 20.260.001 of the City's Municipal Code establishes the Genentech Master Plan District, and prescribes planning and design principles for facility-wide development. The Project's consistency and/or proposed changes to the identified purposes, development standards and design guidelines of the Genentech Master Plan district are as follows:

Architecture

- *To establish a facility-wide architectural character . . . (Chapter 20.260.001[A])*

The Project Area has an eclectic collection of buildings and spaces that have been assembled over time, and it does not have a uniform, facility-wide architectural character. Existing buildings within the Project Area exhibit a wide variety of architectural styles, building massing and scale. This variety is due to the incremental construction of individual buildings over the 50-year lifetime of the Campus, the architectural styles that were prevalent or contemporary at the time of construction, the expansion of the Campus boundaries to include buildings built by others, and the different functionality of individual buildings.

The Master Plan Update does not propose establishment of a uniform facility-wide architectural character for the approximately 4.3 million square feet of anticipated new development within the Project Area. Rather, the Master Plan Update expects that the Project Area will continue to be composed of an eclectic mix of new buildings with differing architectural styles based on the creative and innovative designs by future architects, designing new buildings that meet and exceed Genentech's high standards. Genentech's commitment to quality architecture and urban design is reflected in its most recent buildings within the Project Area (i.e., Building 35, the Employee Center, the new Cabot childcare facility on Allerton, and Building 40).

Regulatory Requirement Aesthetics 3 – Design Review: Pursuant to the City of South San Francisco's Zoning Code (Chapter 20.480: Design Review) the City will continue to review the design of new buildings on Campus. The City's Design review criteria will be used to ensure that new buildings promote high-quality design, are well crafted and maintained, use high-quality building materials and are attentive to the design and execution of building details and amenities.

South Campus, Existing (pre-Building 40)

South Campus, Buildout

Figure 5-11
Conceptual Illustration, South Campus

Source: JRDV Architects, Genentech

Open Space and Circulation

- *. . . [to establish] a system of open space elements and a pedestrian and vehicular circulation plan linking buildings and uses together in a flexible, logical and orderly manner (Chapter 20.260.001[A])*

The Master Plan Update does include a specific focus on open space, pedestrian circulation, and vehicular circulation design elements that are intended to strengthen the sense of a campus environment within the Project Area. These design elements include establishing an important outdoor core area at the Upper Campus as an identifiable Campus center. They call for connecting the Upper Campus to other locations in the Project Area with primary pedestrian paths and vertical circulation elements (such as stairs and elevators), interconnecting public open spaces within each neighborhood campus with a system of secondary pedestrian paths, and adding new outdoor spaces that complement each new building. The proposed pedestrian network is intended to provide a more integrated and walkable campus, and coordination of pedestrian connections with shuttle-bus stop locations will enhance neighborhood and Campus connectivity. The design of new pathways is intended to increase the coherence of the Campus with common elements such as trees, paving, seating and overlooks and to offer choices for walking between and among neighborhood campuses.

Lot Coverage

- *The maximum lot coverage is established as 60 percent of the total area of the lots within the Genentech Master Plan district (Chapter 20.260.003 [A])*

The Master Plan Update proposes to modify the maximum lot coverage limit of 60%, shifting to a more flexible approach. Only some portions of the Campus have individual buildings located on individual lots, and new buildings within the Campus may cross over, combine or merge existing Genentech-owned parcels, with resulting parcel sizes of irregular shapes and sizes that could make the 60% lot coverage rule impractical for a campus-type development. The 60% lot coverage limit is a more suburban-scaled standard intended to accommodate on-site surface parking and large setbacks, whereas the Project intends to provide for an urban scale of development. The Master Plan Update proposes replacing the lot coverage standard with the following performance standards and design considerations:

- Ensure that building heights and massing maintain key views to the Bay and San Bruno Mountains.
- Maximize Genentech skyline along the Hilltop to establish a stronger visual identity for the campus from US-101 and the East of 101 Area.
- Provide access to the sun, with wind-sheltered pedestrian spaces, courtyards and entrances.
- Maximize sunlight on pedestrian pathways, open spaces and courtyards through building step backs and/or articulation.

These proposed performance standards and design considerations maintain important design and aesthetics considerations but provide flexibility as to how individual building designs respond, rather than a static 60% lot coverage standard.

Signs

The current Genentech Master Plan zoning district provisions (Chapter 20.260.003 [N) allow displays (banners and murals) that are intended for the direct benefit of Genentech employees, subject to Planning Commission approval.[4] In recognition of the unique nature and location of the Genentech campus facilities, displays that do not meet the general sign standards set forth in Chapter 20.360 may nonetheless be

[4] Displays include both light fixture banners and murals as part of the Patient Success Story program, which supports Genentech's mission to make a difference in the lives of patients

approved or conditionally approved at the discretion of the Planning Commission, in limited circumstances, provided that:

- An application for the display(s) is otherwise consistent with Chapter 20.360 ("Signs");
- The proposed display(s) are consistent with the objectives described in Section A.8-4 of the 2007 Genentech Facilities Ten-Year Master Plan, as it may be amended from time to time;
- To the extent reasonably possible under the circumstances, the proposed display(s) have been architecturally integrated with the buildings to which they are attached, based on characteristics such as scale relationships, color, materials, and graphic style, or otherwise enhance the façade of the buildings to which they are attached;
- To the extent reasonably possible under the circumstances, any separate structure or apparatus required to attach the display(s) to buildings has been disguised or hidden;
- Where feasible, the display(s) have been oriented toward the campus and not a public area, including public rights-of-way and public open space; and
- No more than one such display in each Genentech Campus neighborhood, as described in the 2007 Genentech Facilities Ten-Year Master Plan as it may be amended from time to time, may be erected pursuant to this section at any one time. (Ord. 1432 § 2, 2010)

The Master Plan Update does not propose to modify these regulations pertaining to displays, other than to request that approval of such displays be allowed based on review of Planning Staff as an administrative approval, rather than as a conditional discretionary approval of the Planning Commission. Such a change in the approval process would not alter the underlying aesthetic considerations for such displays, and would not adversely affect the aesthetics of the Project Area.

Mitigation Measures

No mitigation required. The Master Plan Update envisions Campus-centered growth with substantially increased density, with new buildings constructed at a larger scale, taller and larger than many of the existing buildings on Campus today. The Master Plan Update also defines an overall development program intended to result in a cohesive and integrated Campus design. The EIR Project Description provides one clearly articulated vision of how the Master Plan Update's development potential might be realized over time, providing a description of the anticipated visual character of each neighborhood campus within the Project Area. As indicated in the analysis above, none of the changes proposed pursuant to the Master Plan Update and/or specifically described and illustrated in the Project Description would substantially degrade the existing visual character or quality of the Project Area.

Light and Glare

Aesthetics 4: New development pursuant to the Project could result in new sources of increased daytime glare and nighttime illumination. Implementation of regulatory requirements and identified mitigation measures would reduce impacts associated with new sources of light and glare to less than significant. (**Less than Significant with Regulations and Mitigation Measures**)

Implementation of the Project will include construction of new buildings throughout the Project Area, and these new buildings could create new sources of glare from reflective building surfaces. Most of the surrounding land uses are commercial, industrial and recreational uses that are not particularly sensitive to potential daytime glare. However, the Upper Campus neighborhood occupies the highest point in the East of 101 Area, and is visible from US 101 and much of the East of 101 Area. If new buildings were to be constructed with reflective materials, glare from these new buildings could adversely affect views from

distant locations, potentially including motorists traveling along US 101. Added sources of daytime glare could adversely affect views across the Project Area and could result in potentially significant impacts.

New development within the Project Area will also create new sources of light from exterior building illumination, lighted vehicle and pedestrian circulation areas, and increased headlights of vehicular traffic. These additional light sources could potentially create light "spillage" onto sensitive land uses along the Bay shoreline.

As indicated in the Project Description, Genentech has embarked on an on-Campus solar energy project that is projected to consist of 16,000 solar panels spread across Campus, expected to generate as much as 25% of the Campus' energy needs on a typical workday. Solar panels will be installed throughout the Campus on existing rooftops and new buildings. Pursuant to the California Environmental Quality Act, Section 21080.35, CEQA does not apply to the installation of a solar energy system on the roof of an existing building or at an existing parking lot (with certain limited exceptions that generally do not apply here). Solar energy systems are generally permitted ministerially. However, as with any such ministerial project or CEQA exemption, exceptions to these exemptions may apply if the project is located in a particularly sensitive environment, or if there is a reasonable possibility that the activity will have a significant effect due to unusual circumstances. One such potential unusual circumstance or particularly sensitive concern is the possibility of glare reflected from a solar panel array to interfere with aircraft operations. The following information addresses this concern.

- Most solar panels have an irregular surface specifically designed to trap sunlight. Incident sunlight that is not absorbed or transmitted is then reflected. A typical untreated silicon solar cell absorbs two-thirds of the sunlight reaching the panel's surface, with one-third of the sunlight reaching the surface of the solar panel reflected. Improvements in technology have led to greater light absorption efficiency through application of anti-reflective materials directly to the solar cells, increasing efficiency by absorbing as much light as possible and further reducing reflection and glare. Most solar glass sheets (the glass layer that covers the PV panels) are typically tempered glass treated with an anti-reflective or diffusion coating that diffuses the intensity of glare produced. This type of diffused glare loses intensity as the distance from the reflection source increases.
- The solar panels being installed at the Genentech Campus, and those to be installed on new development pursuant to the Master Plan Update, use anti-reflective treatments to increase efficiency and thereby also reduce potential glare.
- The Genentech Campus is located approximately 1.5 miles north of SFO, and is not located within the aircraft landing/departing zones of any SFO landing strips. The Genentech Campus is not located within any of the five safety zones identified in the SFO Airport Land Use Compatibility Plan (ALUCP), and no standards that restrict development of certain types of land uses that may pose particular hazards to the public apply to the Campus.
- The ALUCP does not contain any regulations or restrictions to non-airport use of solar energy or installation of solar arrays. The ALUCP states that, "In interviews undertaken by the consultant in 2008, neither the Airport nor local jurisdictions identified any incompatible sources of glare or other visual hazards, smoke, or electromagnetic interference in the study area."
- The FAA does have established standards for measuring glint and glare, and clear thresholds for when glint and glare would adversely affect aviation safety.[5] These standards are not applicable to solar energy systems located on an airport that is not "federally obligated" or on private land located outside of a federally obligated airport, but proponents of solar energy systems located off airport

[5] FAA in partnership with the U.S. Department of Energy (DOE), Interim Policy, FAA Review of Solar Energy System Projects on Federally Obligated Airports, Oct. 23, 2013

property are strongly encouraged to consider the requirements of this policy when siting such systems. Procedures outlined in this Interim Policy demonstrate to the FAA that a proposed solar energy system will not result in an ocular impact that compromises the safety of the air transportation system.

Based on the information presented above, the potential for glare or glint reflected from on-Campus solar panels is considered less than significant. Section 21080.35 of the California Environmental Quality Act exempts the installation of a solar energy systems from CEQA review, there are no applicable CEQA thresholds, the solar panels to be used by Genentech are (and will be) state-of-the-art, anti-reflective panels, and no existing regulations apply.

Regulatory Requirements

Regulatory Requirement Aesthetics 4 – Design Review for Light and Glare: Consistent with South San Francisco Municipal Code, section 20.480.006, new development pursuant to the Master Plan Update will be required to comply with the following design considerations relative to light and glare (underline added):

1. Open space, pedestrian walks, signs, illumination, and landscaping (including irrigation) shall be designed and developed to enhance the environmental quality of the site, achieve a safe, efficient, and harmonious development, and accomplish the objectives set forth in the precise plan of design and design criteria (Municipal Code section 20.480.006.6)
2. Electrical and mechanical equipment or works, and fixtures and trash storage areas, shall be designed and constructed so as not to detract from the environmental quality of the site. Electrical and mechanical equipment or works and fixtures and trash storage areas shall be concealed by an appropriate architectural structure that uses colors and materials harmonious with the principal structure, unless a reasonable alternative is identified (Municipal Code section 20.480.006.7)
3. Components considered in design review shall include but not be limited to exterior design, materials, textures, colors, means of illumination, landscaping, irrigation, height, shadow patterns, parking, access, security, safety, and other usual on-site development elements (Municipal Code section 20.480.006.8)

Master Plan Update Guidelines

The Master Plan Update does not specifically define new building materials that address daytime glare concerns. Pursuant to the City of South San Francisco's Zoning Code (Chapter 20.480: Design Review) the City will continue to review the design of new buildings on Campus. The City Design review is intended to ensure that new buildings promote high-quality design, are well crafted and maintained, use high-quality building materials, are attentive to the design and execution of building details and amenities and adhere to City building code requirements.

The Master Plan Update proposes maintaining appropriate levels of light during nighttime hours at building entries, walkways, courtyards, parking lots and private roads at night consistent with minimum levels as detailed in Genentech's Security Plan and City building codes. New light sources are proposed as being consistent with existing fixtures throughout the Campus, as described in the following Master Plan Update guidelines:

- Create a safe and accessible pedestrian environment for these highly used pedestrian connections. Safety and accessibility can be enhanced by using consistent lighting design and light levels . . .
- At pedestrian paths, use consistently spaced light fixtures with appropriate light levels

- Maintain levels of lighting throughout parking lots that are appropriate for safety and visibility, but that do not spill light beyond the parking lot edge
- Consistent with existing bus shelter design, provide for wind and rain protection, security and visibility with covered spaces that have transparent walls and appropriate lighting
- At new shuttle and bus stops within the Campus, maximize comfort and convenience by including a sheltered seating bench and litter unit, interior lighting, and additional seating for higher ridership sites
- Maintain a unified lighting concept throughout the Campus at pedestrian walkways and within the street right-of-way
- Monument signs identify building numbers and street addresses. They are located in landscaped areas at main vehicle and pedestrian entries to each building, and include night lighting
- Enhance campus character with consistent use of light fixtures, finishes and colors

Mitigation Measures

The following mitigation measures are recommended for the Project to reduce and/or avoid potential light and glare impacts:

Mitigation Measure Aesthetics 4A - Night Lighting: Maintain appropriate levels of night lighting at building entries, walkways, courtyards, parking lots and private roads, consistent with minimum levels detailed in Genentech's Security Plan and City building codes.

Mitigation Measure Aesthetics 4B - Non-Reflective Glass and Surfaces: Design for new structures within the Project Area shall include the use of textured or other non-reflective exterior surfaces and non-reflective glass types, including double-glazed and non-reflective vision glass, while achieving the requisite performance for energy conservation, internal comfort and glare control. All exterior glass must meet the specifications of all applicable building codes

Resulting Level of Significance

Implementation of MM 4A would reduce impacts from nighttime lighting from the Project by maintaining appropriate light levels and reducing potential light spillage beyond areas where light is needed for security and safety. Implementation of MM 4B would eliminate or minimize increased glare through use of non-reflective glass and non-reflective textured surfaces. With implementation of MM Aesthetics 4A and 4B, impacts related to light and glare would be reduced to levels of less than significant.

Cumulative Aesthetics Effects

The Project, in combination with other past, present and reasonably foreseeable future development in the East of 101 Area, will not contribute to a cumulatively substantial adverse aesthetic effect.

Visual Character

The land use and appearance of the East of 101 Area has been in transition for the last 40 years, from heavy industry and manufacturing facilities, to warehousing, and more recently to research and development (R&D) and biotechnology establishments. The built environment within the center of East of 101 is new, with modern architecture and building heights ranging up to 12 stories, and is home to one of the largest biotech clusters in the world with over 200 biotech companies and 11.5 million square feet of biotech space. In addition to the proposed Project, recently approved and/or reasonably foreseeable development in the area includes:

- over 1.25 million square feet of new building space at the Pacific Gateway campus,
- 2.25 million square feet of waterfront campus at Oyster Point Marina,
- 884,000 square feet at the Britannia Cove campus, and
- over 290,000 square feet of additional office/R&D campuses by Alexandria Real Estate

Although this cumulative development will substantially change the visual character of the East of 101 Area over time, this growth in the biotechnology industry has been planned for and fully anticipated pursuant to the City's General Plan, East of 101 Area Plan and economic development strategies. The East of 101 Area Plan EIR indicates that, "development policies of the East of 101 Area Plan outline streetscape and entry-way improvements, in addition to visual and design criteria for development in the area. With these improvements and design criteria, no significant visual impacts are anticipated. The City has invested in street improvements, water quality, and sewer delivery upgrades specifically intended to stimulate and accommodate this growth. This cumulative change in the visual character of the East of 101 Area is not a previously unrealized adverse effect, but rather a planned and anticipated economic development benefit to the City.

Scenic Vistas

The East of 101 Area Plan states that, "…the [Point San Bruno] hill is a visually prominent landmark in the East of 101 Area and should be preserved. Therefore, preservation of the natural landmark should continue, and development shall not encroach upon the slopes of the hillside." As discussed above, this policy is not interpreted as requiring that any individual views of the Point San Bruno Hill be protected, but rather requires preservation of the hillside itself as a landmark. Scenic views of San Bruno Hill from US 101 are limited to only certain elevated sections of the freeway and interchanges. Other existing and pending cumulative development projects in the East of 101 Area have already blocked, or will potentially block or partially obstruct certain views of Point San Bruno Hill and the Wind Harp sculpture. Depending on the ultimate height of new development within the Project, new buildings may result in further obstruction of these views of the natural landform of Point San Bruno Hill from certain public vantage points. However, views of Point San Bruno Hill and its Wind Harp sculpture from vantage points along US 101 are not considered a CEQA impact of significance, and no cumulatively significant substantial adverse effects would occur.

6
Air Quality

This chapter of the Genentech Master Plan Update EIR evaluates the potential impacts of the Project related to air quality. This chapter describes the existing air quality conditions and evaluates the extent to which air quality conditions may be affected by development of the Master Plan Update as proposed. Setting and regulatory information for air quality has been updated from that presented in the 2012 Supplemental MEIR (SMEIR). Emissions estimates and analysis have been updated for this EIR using current data from the following sources:

- Ramboll, *Air Quality Technical Appendix*, October 2018 (**Appendix 6A**)
- Ramboll, CalEEMod Output File for Construction (**Appendix 6B**)
- Ramboll, CalEEMod Output File for Project Operations (**Appendix 6C**)
- Genentech, inputs for air quality and greenhouse gas analyses (**Appendix 6D**)
- Ramboll, *Analysis of Potential Health Impacts from Criteria Pollutants*, May 2019 (**Appendix 6E**)
- BAAQMD, *CEQA Air Quality Guidelines*, May 2017

Environmental Setting

Climate and Air Pollution

The City of South San Francisco and the Project Area are located in San Mateo County, within the nine-county San Francisco Bay Area Air Basin. Specifically, the Project Area is located within the Peninsula climatological subregion of the Air Basin that extends from northwest of San Jose to the Golden Gate. The Santa Cruz Mountains run up the center of the Peninsula, and tend to block the cool and foggy effects of the marine layer experience in summer months along the coast. Two gaps in the Santa Cruz Mountains (the San Bruno Gap extending from Fort Funston on the ocean to San Francisco International Airport, and the Crystal Springs Gap between Half Moon Bay and San Carlos) permit cooler maritime air to pass across the mountains, and its cooling effect is commonly seen in South San Francisco.

Annual average wind speeds range from five to 10 miles per hour throughout the Peninsula, with higher wind speeds often found near the San Bruno Gap and the Crystal Springs Gap. Prevailing winds on the easterly side of the Peninsula are generally from the west, although wind patterns are also influenced by local topographic features.

The hills and mountains in the Air Basin contribute to high pollution potential in some areas. Inversion layers affect air quality conditions because they influence the mixing depth for diluting air contaminants near the ground. The highest air pollutant concentrations generally occur during inversions. Air pollution potential is highest along the southeastern portion of the Peninsula, which is most protected from the high winds and fog of the marine layer. Pollutant transport from upwind sites is common. In the southeastern portion of the Peninsula climatological subregion, air pollutant emissions are relatively high due to motor vehicle traffic and stationary sources.

Stationary sources of air pollution include point and area sources. Point sources occur at an identified location and are usually associated with manufacturing and industry. Area sources generally produce smaller levels of emissions and these emissions are widely distributed. Examples of area sources include residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills and consumer products such as barbeque lighter fluid and hair spray. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. Mobile sources account for the majority of the air pollutant emissions within the Basin. Air pollutants can also be generated by the natural environment such dust particles suspended in the air during high winds.

Air Quality Conditions and Pollutants

Criteria Pollutants

Ambient air quality standards have been established by State and federal environmental agencies for specific air pollutants most pervasive in urban environments. These pollutants are referred to as criteria air pollutants because the standards established for them were developed to meet specific health and welfare criteria set forth in the enabling legislation. The criteria air pollutants include ozone, as modeled using the two major ozone precursors: oxides of nitrogen (NO_x) and reactive organic gases (ROGs), carbon monoxide (CO), nitrogen dioxide (NO_2), and suspended particulate matter (PM_{10} and $PM_{2.5}$). Other criteria pollutants, such as lead and sulfur dioxide (SO_2), are primarily industrial pollutants that are emitted only in negligible quantities by construction activities or traffic, and air quality standards for them are being met throughout the Bay Area.

The Bay Area Air Quality Management District (BAAQMD) Air District maintains an air quality monitoring networks consisting of over 30 stations distributed among the nine Bay Area counties. This network measures concentrations of pollutants for which health-based ambient air quality standards have been set by the U.S. Environmental Protection Agency and the California Air Resources Board. Pollutants measured by the monitoring network include ground-level ozone, carbon monoxide, nitrogen oxides, sulfur dioxide/oxides, particulate matter and hydrogen sulfide. **Table 6-1** presents a summary of air quality conditions at the two BAAQMD monitoring stations located closest to the Project Area – monitoring stations in San Francisco and Redwood City, - indicating the number of days that measured air quality concentrations exceeded either national or California standards for criteria pollutants. [1]

As Table 6-1 indicates, ozone and fine particle pollution (PM2.5) are the major regional air pollutants of concern in the San Francisco Bay Area. Ozone is primarily a problem in the summer, and fine particle pollution in the winter. The year 2017 monitoring results for PM2.5, especially at stations in Napa, Sonoma and Solano counties but also throughout the Bay Area, recorded the effects of smoke and ash from the wildfires that occurred primarily in October of that year.

[1] BAAQMD, Air Quality Standards and Attainment Status, available at http://www.baaqmd.gov/research-and-data/air-quality-measurement/ambient-air-monitoring-network

Table 6-1: Summary of Air Pollution Monitoring Data

Pollutant	Standard	Monitoring Site	Days Standard Exceeded 2014	2015	2016	2017
Ozone	State 1-hour	San Francisco	0	0	0	0
		Redwood City	0	0	0	2
		Total Bay Area	3	7	6	6
	Federal 8-hour	San Francisco	0	0	0	0
		Redwood City	0	1	0	2
		Total Bay Area	5	12	15	6
	State 8-hour	San Francisco	0	0	0	0
		Redwood City	0	1	0	2
		Total Bay Area	10	12	15	6
PM_{10}	Federal 24-hour	San Francisco	0	0	0	0
		Redwood City	–	–	–	-
		Total Bay Area	0	0	0	0
	State 24-hour	San Francisco	0	0	–	2
		Redwood City	–	–	–	-
		Total Bay Area	2	1	0	6
$PM_{2.5}$	Federal 24-hour	San Francisco	0	0	0	7
		Redwood City	0	0	0	6
		Total Bay Area	3	9	0	18
Carbon Monoxide	State/Federal 8-hour	San Francisco	0	0	0	0
		Redwood City	0	0	0	0
		Total Bay Area	0	0	0	0
Nitrogen Dioxide	State/Federal 1-hour	San Francisco	0	0	0	0
		Redwood City	0	0	0	0
		Total Bay Area	0	1	0	1

San Francisco and Redwood City are the two active monitoring sites near the Project Area. Total Bay Area summarizes data from all Bay Area Air Quality Management District monitoring stations.

PM_{10} and $PM_{2.5}$ are measured every sixth day in San Francisco and other Bay Area sites, so the number of days exceeding the standard is estimated.

While some stations also monitor SO_2, there were no recorded instances of exceedances throughout the Bay Area during this period.

Source: Bay Area Air Quality Management District Air Quality Summary Reports, **website accessed 9.26.18**

Ozone

Ozone is a reactive pollutant, which is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving ROG and NO_x. ROG and NO_x are known as precursor compounds of ozone. Motor vehicle exhaust and industrial emissions, gasoline vapors, and chemical solvents are some of the major sources of ROG and NO_x that help to form ozone. Ozone is a regional air pollutant because it is formed downwind of sources of ROG and NO_x

under the influence of wind and sunlight. During summertime (particularly on hot, sunny days with little or no wind), ozone levels are at their highest.

Short-term exposure to elevated concentrations of ozone is linked to such health effects as eye irritation and breathing difficulties. Repeated exposure to ozone can make people more susceptible to respiratory infections and aggravate pre-existing respiratory diseases. Long-term exposures to ozone can cause serious respiratory illnesses. Ozone also damages trees and other natural vegetation, reduces agricultural productivity, and causes deterioration of building materials, surface coatings, rubber, plastic products and textiles.

The number of days the region experiences unhealthy ozone levels has fallen overall over the past few decades. This improvement is due to the California Air Resources Board (CARB) regulations affecting motor vehicle emissions and Bay Area Air Quality Management District (BAAQMD) regulations to reduce emissions from industrial and commercial sources.

Carbon Monoxide

CO is an odorless and invisible gas. It is a non-reactive pollutant and a product of incomplete combustion of gasoline in automobile engines. CO is a localized pollutant, and the highest concentrations are found near the source. Ambient CO emissions generally follow the spatial and temporal distributions of vehicular traffic, and concentrations are influenced by wind speed and atmospheric mixing. CO concentrations are highest in flat areas on still winter nights, when temperature inversions trap the CO near the ground. When inhaled at high concentrations, CO reduces the oxygen-carrying capacity of the blood, which, in turn, results in reduced oxygen reaching parts of the body. Most of the Bay Area's CO comes from on-road motor vehicles, although a substantial amount also comes from burning wood in fireplaces.

Over the past 10 years, the Bay Area has not experienced any exceedances of either the national or the state CO standard.[2]

Nitrogen Dioxide

The major health effect from exposure to high levels of NO_2 is the risk of acute and chronic respiratory disease. NO_2 is a combustion by-product, but it can also form in the atmosphere by chemical reaction. NO_2 is a reddish-brown colored gas often observed during the same conditions that produce high levels of ozone and can affect regional visibility. NO_2 is one compound in a group of compounds consisting of NO_x. As described above, NO_x is an ozone precursor compound.

Particulate Matter

Particulate matter includes dirt, dust, soot, smoke, and liquid droplets found in the air. Coarse particulate matter, or PM_{10}, refers to particles less than or equal to 10 microns in diameter (about one-seventh the diameter of a human hair). PM_{10} is primarily composed of large particles from sources such as road dust, residential wood burning, construction/demolition activities and emissions from on- and off-road engines. Some sources of particulate matter, such as demolition and construction activities, are local in nature, while others, such as vehicular traffic, have more of a regional effect because while larger particles do not travel far, in the case of vehicle emissions, the source is moving. Fine particulate matter, or $PM_{2.5}$, refers to particles less than or equal to 2.5 microns in diameter, and contains particles formed in the air from primary gaseous emissions. Examples include sulfates formed from SO_2 emissions from power plants and industrial facilities, nitrates formed from NO_x emissions from power plants, automobiles, and other combustion sources, and carbon formed from organic gas emissions from automobiles and industrial facilities.

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[2] Bay Area Air Quality Management District, Air Quality Summary Reports

The Bay Area experiences its highest particulate matter concentrations in the winter, especially during evening and night hours, due to the cool temperatures, low-wind speeds, low inversion layers and high humidity. Specifically, $PM_{2.5}$ is viewed as a significant component of the region's total particulate matter problem because the $PM_{2.5}$ fraction of total particulate matter accounts for approximately 60 percent of the PM_{10} during the winter and approximately 45 percent during the rest of the year. On days when the particulate matter standards are exceeded, $PM_{2.5}$ can account for as much as 90 percent of PM_{10}.

Coarse and fine particulate matters are small enough to get into the lungs and can cause numerous health problems, including respiratory conditions such as asthma and bronchitis, and heart and lung disease. People with heart or lung disease, the elderly, and children are at highest risk from exposure to particulate matter.

Toxic Air Contaminants

Another group of substances found in ambient air is referred to as Hazardous Air Pollutants under the Federal Clean Air Act, and Toxic Air Contaminants (TACs) under the California Clean Air Act. These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects if exposure to low concentrations occurs for long periods. They are regulated at the local, state and federal level. TACs may cause or contribute to an increase in mortality or in serious illness, or that may pose a present or potential hazard to human health. TACs are less pervasive in the urban atmosphere than criteria air pollutants, but are linked to short-term (acute) or long-term (chronic and/or carcinogenic) adverse human health effects where they do occur.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to TACs. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. Cancer risk from carcinogens is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure. Non-carcinogens differ in that there is a safe level in which it is generally assumed that no negative health impacts would occur. These levels are determined on a pollutant-by-pollutant basis. There are many different types of TACs with varying degrees of toxicity. TACs may also exist as particulate matter or as vapors or gases. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust—particularly diesel-powered vehicles. Compared to other air toxics that CARB has identified and controlled, diesel particulate matter (DPM) emissions are estimated to be responsible for about 70 percent of the total ambient air toxics risk statewide.

CARB has control measures for motor vehicles, consumer products and industrial source programs under existing regulation, in development or under evaluation for most sources of TACs.

Diesel Particulate Matter

Diesel exhaust is the predominant TAC in urban air, and is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average), the majority of which, according to CARB, is a result of Diesel Particulate Matter (DPM). The particles emitted by diesel engines are coated with other chemicals, some of which, such as benzene and formaldehyde, have been previously identified as TACs by CARB, and are listed as carcinogens either under State Proposition 65 or under the federal Hazardous Air Pollutants programs. For this reason, CARB recommends utilizing DPM along with $PM_{2.5}$ as an indicator for overall emissions.

Health risks from DPM are highest in areas of concentrated emissions, such as near ports, rail yards, freeways, or warehouse distribution centers. According to CARB, diesel engine emissions are responsible for the majority of California's known cancer risk from outdoor air pollutants. Those most vulnerable are children whose lungs are still developing and the elderly who may have other serious health problems. Based on numerous studies, CARB has also stated that DPM is a contributing factor for premature death from heart and/or lung diseases. In addition, DPM reduces visibility and is a strong absorber of solar radiation that contributes to global warming.

According to CARB, levels of toxic air pollutants have decreased significantly with the adoption of airborne toxic control measures, stringent vehicle standards, requirements for low emission vehicles, and cleaner fuels. The risk from diesel particulate matter as determined by the CARB declined from 750 in one million in 1990, to 570 in one million in 1995. By 2000, the CARB estimated the average statewide cancer risk from DPM at 540 in one million. Based on 2012 estimates of statewide exposure, DPM was estimated to increase statewide cancer risk by 520 per million residents exposed over a lifetime. The calculated cancer risk value from ambient exposure to DPM in the Bay Area can be compared against the lifetime probability of being diagnosed with cancer in the United States from all causes. The lifetime probability of a cancer diagnosis in the US is more than 40 percent (based on a sampling of 17 regions nationwide), or greater than 400,000 in one million, according to the National Cancer Institute (National Cancer Institute, 2012).

Asbestos

Asbestos is also a TAC of concern, due primarily from demolition of older buildings and structures. Asbestos is a fibrous mineral, which is both naturally occurring in ultramafic rock (a rock type commonly found in California) and used as a processed component of building materials. Because asbestos has been proven to cause serious adverse health effects, including asbestosis and lung cancer, it is strictly regulated based on its natural widespread occurrence and its use as a building material.

Regulatory Framework

Federal Regulations

Federal Clean Air Act

The federal Clean Air Act, enacted largely in its current form in 1970 and amended in 1977 and 1990, establishes the framework for federal air pollution control. The act directed the U.S. Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS) described in Table 6-1. An area that does not meet the federal standard for a pollutant is called a “nonattainment” area for that pollutant. For federal nonattainment areas, the federal Clean Air Act requires states to develop and adopt State Implementation Plans (SIPs), which are air quality plans showing how air quality standards will be attained. The federal Clean Air Act Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution.

The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The EPA has responsibility to review all State SIPs to determine conformation to the mandates of the Clean Air Act Amendments, and to determine if implementation will achieve air quality goals. If the EPA determines a SIP to be inadequate, a Federal Implementation Plan may be prepared for the nonattainment area that imposes additional control measures. Failure to submit an approvable SIP or to implement the plan within the mandated timeframe may result in sanctions being denied to transportation funding and stationary air pollution sources in the air basin. In California, SIPs are prepared and adopted by the local or regional air districts (in the Bay Area, by the BAAQMD) and are reviewed and submitted to the EPA by CARB.

Federal Hazardous Air Pollutant

The Clean Air Act Amendments required EPA to issue vehicle or fuel standards containing reasonable requirements to control hazardous air pollutant emissions, applying at a minimum to benzene and formaldehyde. Performance criteria were established to limit mobile source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 of the Clean Air Act Amendments also required the use of reformulated gasoline in selected U.S. cities (those with the most severe ozone nonattainment conditions) to further reduce mobile-source emissions, including air toxics. To reduce

emissions from on-road, heavy-duty diesel trucks, EPA established a series of increasingly strict emission standards for new engines, starting in 1988. The EPA promulgated the final and cleanest standards with the 2001 Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements Rule, more commonly known as the 2007 Highway Rule. This rule established a particulate matter emission standard of 0.01 gram per horsepower-hour (g/hp-hr) for new vehicles beginning with model year 2007. NOx and non-methane hydrocarbon standards of 0.20 g/hp-hr and 0.14 g/hp-hr, respectively, were phased in together between 2007 and 2010.

Highway Diesel Fuel Sulfur Requirements

The 2007 Highway Rule also required refineries to begin producing highway diesel fuel that met a maximum sulfur standard of 15 parts per million (ppm), known as Ultra Low Sulfur Diesel, by June 2006. All 2007 and later model year diesel-fueled vehicles must be refueled with Ultra Low Sulfur Diesel. By integrating fuel sulfur standards and advanced pollution control technologies, the 2007 Highway Rule reduces DPM and NOx exhaust emissions of heavy-duty engines by more than 90 percent as compared to previous engine models. In addition, Ultra Low Sulfur Diesel also enables emissions reductions from other diesel-powered highway vehicles, including cars and sport utility vehicles, and light-duty trucks.

State Regulations

California Clean Air Act

The California Clean Air Act of 1988 focuses on attainment of the California Ambient Air Quality Standards (CAAQS), which are more stringent than the comparable federal standards for certain pollutants and averaging periods. Responsibility for achieving California standards is placed on the CARB and local air pollution control districts through district-level management plans for air quality. The California Clean Air Act requires designation of attainment and nonattainment areas with respect to CAAQS. The California Clean Air Act also requires that local and regional air districts expeditiously adopt and prepare an attainment plan for air quality if the district violates State air quality standards for CO, SO_2, NO_2 or ozone. No locally prepared attainment plans are in place for areas that violate the State PM_{10} standards, because attainment plans are not required for those areas. The California Clean Air Act requires that the State standards for air quality be met as expeditiously as practicable, but unlike the federal Clean Air Act, does not set precise attainment deadlines. Instead, the act established increasingly stringent requirements for areas that will require more time to achieve the standards.

CARB is primarily responsible for developing and implementing air pollution control plans to achieve and maintain the NAAQS. CARB is primarily responsible for statewide pollution sources and produces a major part of the SIP. Local air districts are still relied upon to provide additional strategies for sources under their jurisdiction. CARB combines this data and submits the completed SIP to EPA. Other CARB duties include monitoring air quality, in conjunction with air monitoring networks maintained by air pollution control and air quality management districts; establishing CAAQS, which in many cases are more stringent than the NAAQS; determining and updating area designations and maps; and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles.

Toxic Air Contaminant Regulations

TACs in California are primarily regulated through the Tanner Air Toxics Act (Assembly Bill [AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, or the Hot Spots Act). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation and scientific peer review are necessary before CARB can designate a substance as a TAC. To date, CARB has adopted EPA's list of hazardous air pollutants as TACs and identified more than 21 additional TACS. Most recently, environmental tobacco smoke was added to CARB's list of TACs in 2007.

Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure for sources that emit that particular TAC. If there is a concentration below which health effects are not likely, the control measure must reduce exposure below that threshold. If there is no safe concentration, the measure must incorporate Best Available Control Technology for Toxics requirements to minimize emissions. CARB adopted a comprehensive Risk Reduction Plan in 2000, after identifying DPM as a TAC. Pursuant to this Plan, CARB adopted diesel-exhaust control measures and stringent emission standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators). In 2001, CARB adopted the Public Transit Bus Fleet Rule and Emissions Standards for New Urban Buses, which established emissions limits for 1985, and subsequent model year heavy-duty bus engines and vehicles for NO_x, CO, non-methane hydrocarbons, particulate matter and formaldehyde. The emissions standards apply to all heavy-duty urban buses, including diesel-fueled buses. Therefore, the rule limits the emissions of two TACs identified by CARB—DPM and formaldehyde. In 2007, a low-sulfur diesel fuel requirement and tighter emission standards for heavy- duty diesel trucks was put into effect, to be followed in 2011 by the same standards being applied to off-road diesel equipment. Over time, the replacement of older vehicles will result in a fleet that produces substantially lower levels of TACs than the replaced vehicles.

Mobile-source emissions of TACs (e.g., benzene, 1,3-butadiene, DPM) decreased significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low-Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations), and control technologies. With implementation of CARB's Risk Reduction Plan, reductions in DPM concentrations of up to 85 percent from the year-2000 levels are expected by 2020. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

In 2005, CARB published the Air Quality and Land Use Handbook: A Community Health Perspective, which provides guidance concerning land-use compatibility with TAC sources. Although not a law or adopted policy, the handbook offers recommendations for the siting of sensitive receptors (e.g., proposed residential units) near uses associated with TACs to help limit the exposure of children and other sensitive populations to TACs. Specifically, the Handbook identifies freeways and high traffic roads (100,000 vehicles per day for an urban roadway or 50,000 vehicles per day for a rural roadway) as a source of TACs that could present a potentially significant health risk to nearby sensitive receptors. CARB studies show that concentrations of traffic related pollutants declined with distance from the road, primarily within the first 500 feet. Therefore, CARB recommends avoiding the siting of new sensitive land uses within 500 feet of a freeway or high traffic roadway.

Diesel buses are also subject to the CARB Statewide Truck and Bus Regulation. CARB adopted this regulation in December 2008 and amended it in December 2011. The regulation requires heavy-duty vehicles to be retrofitted with particulate matter filters beginning January 1, 2012, and requires older vehicles to be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses must have 2010 model year engines or equivalent.

2017 Clean Air Plan

The 2017 Clean Air Plan defines an integrated, multi-pollutant control strategy to reduce emissions of particulate matter, TACs, ozone precursors and greenhouse gases. The proposed control strategy is designed to complement efforts to improve air quality and protect the climate that are being implemented by partner agencies at the state, regional and local scale. The control strategy encompasses 85 individual control measures that describe specific actions to reduce emissions of air and climate pollutants from the full range of emission sources. The control measures are categorized based upon the economic sector framework used by the Air Resources Board for the AB 32 Scoping Plan Update.

In addition to fostering consistency with climate planning efforts at the state level, the economic sector framework also ensures that the control strategy addresses all facets of the economy. The proposed control strategy is based on four key priorities:

- Reduce emissions of criteria air pollutants and toxic air contaminants from all key sources.
- Reduce emissions of "super-GHGs" such as methane, black carbon and fluorinated gases.
- Decrease demand for fossil fuels (gasoline, diesel and natural gas) by increasing the efficiency of our industrial processes, energy and transportation systems, and reducing demand for vehicle travel, and high-carbon goods and services.
- Decarbonize our energy system by making the electricity supply carbon-free, and electrifying the transportation and building sectors.

Key elements of the transportation-related control strategies seek to reduce motor vehicle travel by promoting transit, bicycling, walking and ridesharing. Other strategies include implementation of pricing measures to reduce travel demand, directing new development to areas that are well served by transit and conducive to bicycling and walking, accelerating the widespread adoption of electric vehicles, and promoting use of clean fuels and low- or zero carbon technologies in trucks and heavy-duty equipment.

Regional Regulations - Bay Area Air Quality Management District

BAAQMD attains and maintains air quality conditions in the San Francisco Bay Area Air Basin (SFBAAB) through a comprehensive program of planning, regulation, enforcement, technical innovation and promotion of the understanding of air quality issues. The clean air strategy of BAAQMD includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. BAAQMD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the federal Clean Air Act and Amendments and the California Clean Air Act.

Air Quality Plan

BAAQMD prepares plans to attain ambient air quality standards in the SF Bay Area Air Basin. In coordination with the Metropolitan Transportation Commission (MTC) and ABAG, the BAAQMD has prepared both federal and State air quality plans to bring the SFBAAB into attainment with federal and State ozone standards. Several prior air quality plans have been prepared for the Bay Area. The 1994 Carbon Monoxide Maintenance Plan primarily sought to ensure continued attainment of the national CO standard. The 2001 Ozone Attainment Plan described the Bay Area's strategy for compliance with the federal 1-hour ozone standard. The 2005 Bay Area Ozone Strategy charted a course for future actions to reduce ozone and ozone precursor levels in the Bay Area. The 2010 Clean Air Plan provided control strategies for reducing ozone, particulate matter, air toxics and greenhouse gases. It specifically addressed non-attainment of the State ozone standards.

The most recent 2017 Bay Area Clean Air Plan, known as "Spare the Air and Cool the Climate", provides a regional strategy to protect public health and protect the climate. To protect public health, the Plan describes how the Air District will continue progress toward attaining all state and federal air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. To protect the climate, the 2017 Clean Air Plan defines a vision for transitioning the region to a post-carbon economy as needed to achieve ambitious reduction targets for greenhouse gases for 2030 and 2050, and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets. The 2017 Clean Air Plan includes a wide range of 186 control measures. These control measures are designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and toxic air contaminants; to reduce emissions of methane and other "super-GHGs" that are potent climate pollutants in the near-term; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion. Key elements in the 2017 Clean Air Plan's control strategy include:

- Decrease emissions of GHGs and criteria air pollutants through a region-wide strategy to reduce combustion and improve combustion efficiency at industrial facilities, beginning with the three largest sources of emissions: oil refineries, power plants and cements plants
- Reduce methane emissions from landfills and from oil and natural gas production and distribution
- Reduce emissions of toxic air contaminants by adopting more stringent thresholds and methods for evaluating toxic risks at existing and new facilities
- Reduce motor vehicle travel by promoting transit, bicycling, walking and ridesharing
- Implement pricing measures to reduce travel demand
- Direct new development to those areas that are well served by transit and conducive to bicycling and walking
- Accelerate the widespread adoption of electric vehicles
- Promote the use of clean fuels and low- or zero carbon technologies in trucks and heavy-duty equipment
- Expand the production of low-carbon, renewable energy by promoting on-site technologies such as rooftop solar, wind and ground-source heat pumps
- Support the expansion of community choice energy programs throughout the Bay Area
- Promote energy and water efficiency in both new and existing buildings
- Promote the switch from natural gas to electricity for space and water heating in Bay Area buildings

Air District Regulations – New Source Review [3]

New Source Review (NSR) is one of the primary elements of the Air District's regulatory program to attain and maintain the state and federal ambient air quality standards. It is a comprehensive permitting program that applies to facilities in the San Francisco Bay Area when they install new equipment, or make modifications to existing equipment, that will increase their air pollution emissions. When a facility wants to install a new source or modify an existing source that will increase emissions above the specified applicability thresholds, the facility is required to obtain a permit from the Air District and must implement the elements of the NSR program in order to do so. The regulations governing how that permitting process works, and what exactly a facility must do in order to obtain the NSR permit, are set forth in Air District Regulation 2, Rule 2 (commonly referred to as Regulation 2-2). The NSR permitting program for new and modified sources is intended to complement the Air District's efforts to reduce emissions from existing sources in order to achieve the Bay Area's clean air goals. The NSR program aims to achieve this goal in two principal ways.

Best Available Control Technology

NSR requires facilities to use the Best Available Control Technology (BACT) on new and modified sources to limit emissions to the greatest extent possible. The requirement to use the BACT to control emissions is set forth in Section 2-2-301. It requires facilities to use the most current state-of-the-art pollution control equipment on new or modified sources with the potential to emit 10 pounds or more of the criteria pollutants subject to the requirement. The BACT requirement does not require facilities to retrofit existing sources with new control equipment whenever there is any incremental improvement in technology. But when a facility installs a new source or makes a modification to an existing source, it must use the best control equipment (as defined in the regulations) available at that time.

[3] Derived from BAAQMD, *Complex Permitting Handbook for BAAQMD New Source Review Permitting*, September 2016

Emission Offsets

For any new emissions that will occur even after applying the Best Available Control Technology, NSR requires facilities to account for those emissions in order to ensure that they do not jeopardize the Air District's efforts to attain and maintain compliance with ambient air quality standards. This second step takes two different forms, depending primarily on whether the Bay Area is in attainment or not in attainment of the relevant standards for a particular pollutant.

- For pollutants for which the Bay Area is not in attainment, facilities are required to "offset" any new emissions increases to ensure that there is "no net increase" in emissions region-wide. Facilities are required to do so by providing "emission reduction credits" generated by shutting down or curtailing emissions at other sources, in an amount equal to or greater than the new emissions increase.
- For pollutants for which the Bay Area is in attainment, facilities are not required to offset their new emissions, as the region can accommodate a certain amount of new emissions growth without exceeding the applicable standards for those pollutants. But facilities are required to evaluate what the impacts of their new emissions will be, in order to ensure that the new emissions growth will not result in a violation of any applicable standards or a significant deterioration in existing air quality.

The requirement for offsets of emissions are set forth in Section 2-2-302 and Section 2-2-303. Both provisions require that for any facility over the respective applicability thresholds, emissions "offsets" must be provided for the full amount of the facility's "cumulative increase" in emissions, which is the cumulative total of all increases in the facility's potential to emit back to when the respective offset requirement was first implemented. This mechanism ensures that all of the facility's emissions, up to its maximum potential to emit, are offset by corresponding emissions decreases (with an exclusion for "grandfathered" emissions that preceded the beginning of the offsets program).

CEQA Guidelines

BAAQMD also publishes CEQA Air Quality Guidelines to assist lead agencies in evaluating air quality impacts of projects and plans proposed in the Bay Area Air Basin. The Guidelines address evaluating, measuring, and mitigating air quality impacts generated from land development construction and operation activities. The Guidelines focus on criteria air pollutant, GHG, TAC and odor emissions generated by projects and plans. For projects, the Guidelines provide Thresholds of Significance and Screening Criteria to determine the level of analysis needed, and assessment methods and mitigation measures for operational-related, local community risk and hazards, local CO, odors, and construction-related impacts.

The most recent version of the BAAQMD Air Quality Guidelines was published in May 2017. The 2017 Guidelines reflect revisions made to address the California Supreme Court's opinion in December 2015 that CEQA does not generally require an analysis of the impacts of locating development in areas subject to environmental hazards unless the project would exacerbate existing environmental hazards. The 2017 CEQA Guidelines supersede the BAAQMD's previous 1999 CEQA guidance titled BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans). As indicated in the 2017 Guidelines, '*The Guidelines are intended to help lead agencies navigate through the CEQA process. The Guidelines for implementation of the Thresholds are for information purposes only to assist local agencies. Recommendations in the Guidelines are advisory and should be followed by local governments at their own discretion. These Guidelines may inform environmental review for development projects in the Bay Area, but do not commit local governments or the Air District to any specific course of regulatory action. The Guidelines offer step-by-step procedures for a thorough environmental impact analysis of adverse air emissions due to land development in the Bay Area."*

Local Regulations and Policies

South San Francisco General Plan

Local jurisdictions, such as the City of South San Francisco, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City of South San Francisco is also responsible for the implementation of transportation control measures as outlined in the SSF Clean Air Plan. Examples of such measures include bus turnouts, energy-efficient streetlights and synchronized traffic signals.

City of South San Francisco environmental plans and policies recognize community goals for air quality. Chapter 7.3 of the South San Francisco General Plan identifies goals and policies that help the City contribute toward regional efforts to improve air quality, and are consistent with the SSF Clean Air Plan. These are outlined as follows:

- Continue to work toward improving air quality and meeting all federal and state ambient air quality standards by reducing the generation of air pollutants from stationary and mobile sources, where feasible.
- Encourage land use and transportation strategies that promote use of alternatives to the automobile for transportation, including bicycling, bus transit and carpooling.
- Minimize conflicts between sensitive receptors and emissions generators by distancing them from one another.
- Cooperate with the BAAQMD to achieve emissions reductions for nonattainment pollutants and their precursors, including CO, ozone and PM_{10}, by implementation of control measures for air pollution as required by federal and state statutes.
- Use the City's development review process and the CEQA regulations to evaluate and mitigate the local and cumulative effects of new development on air quality.
- Adopt the standard construction dust abatement measures included in BAAQMD's CEQA Guidelines.
- Require new residential development and remodeled existing homes to install clean-burning fireplaces and wood stoves.
- In cooperation with local conservation groups, institute an active urban forest management program that consists of planting new trees and maintaining existing ones.

In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially adverse air quality impacts by conditioning discretionary permits and monitors and enforces the implementation of such mitigation. The City does not have the expertise to develop plans, programs, procedures and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the City relies on the expertise of the BAAQMD and utilizes the BAAQMD CEQA Guidelines as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

The goals and policies outlined in the City of South San Francisco East of 101 Area Plan are consistent with the General Plan, as well as the SSF Clean Air Plan.

Impacts and Mitigation Measures

Thresholds of Significance

Based on CEQA Guidelines and South San Francisco's reliance on BAAQMD CEQA Guidelines, the Project (Master Plan Update) would have a significant air quality impact if it were to:

1. Conflict with or obstruct implementation of the applicable air quality plan;
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
4. Expose sensitive receptors to substantial pollutant concentrations; or
5. Create objectionable odors affecting a substantial number of people.

Assessing Consistency with Clean Air Plan

The 2017 BAAQMD CEQA Guidelines recommend that, for a plan (such as the Genentech Master Plan Update) to be found consistent with the applicable air quality plan, it must:

- Support the primary goals of the 2017 Bay Area Clean Air Plan (CAP), which include: reducing emissions of criteria air pollutants and toxic air contaminants from all key sources; reducing emissions of "super-GHGs" such as methane, black carbon and fluorinated gases; decreasing demand for fossil fuels (gasoline, diesel and natural gas); and decarbonizing our energy system; and
- Include applicable air pollution control measures from the CAP, and not disrupt or hinder implementation of any CAP control measures

Projects that incorporate all feasible air quality plan control measures are considered consistent with the CAP. If approval of a plan would not cause the disruption, delay or otherwise hinder the implementation of any air quality control measure, it would be considered consistent with the CAP. Examples of how a plan or project may cause the disruption or delay of control measures include a project that precludes an extension of a transit line or bike path, or proposes excessive parking beyond parking requirements.

Quantitative Thresholds

The BAAQMD 2017 CEQA Guidelines suggest quantitative thresholds for evaluating construction-related and operational emissions of criteria pollutants and precursors and TACs. These thresholds of significance are meant to make the general thresholds presented above more specific and quantitative in relation to Bay Area attainment plans for air quality. Pursuant to the 2017 BAAQMD significance thresholds (as relied on by the City of South San Francisco), implementation of the Project would have a single-source significant effect on air quality if:

- Average daily construction emissions would exceed 54 pound per day (lb/day) of reactive organic gas (ROG), nitrogen oxides (NOx), or PM2.5, or 82 lb/day of fine particulate matter less than 10 micrometer in diameter (PM10), whereby the thresholds for PM10 and PM2.5 apply to exhaust emissions only;
- Operational emissions would exceed 54 lb/day or 10 tons per year (t/yr) of ROG, NOx, or PM2.5, or 82 lb/day or 15 t/yr of PM10;

- The Project's construction or operation would cause an excess cancer risk level exceeding 10 in 1 million or a health hazard index greater than 1.0 at the maximally exposed sensitive receptor (MEISR); or
- The Project's construction or operational activities would generate annual PM2.5 concentrations that exceed 0.3 micrograms per cubic meter (µg/m3)

Cumulative Thresholds

For criteria air pollutants, BAAQMD considers projects that result in significant project-level impact to result in significant cumulative impacts for criteria air pollutants. For risks and hazards, implementation of the Project would contribute to a cumulatively considerable health risk impact on air quality if it would result in:

- An excess cancer risk level of more than 100 in 1 million or a non-cancer (i.e., chronic or acute) hazard index (HI) greater than 10 from all local sources within 1,000-foot zone of influence; or
- A concentration greater than 0.8 µg/m3 annual average PM2.5 from all local sources within 1,000-foot zone of influence

Approach to the Analysis

Criteria Air Pollutants

The following air quality analyses provide an assessment of potential criteria air pollutants and ozone precursor emissions that would result from construction and operation of the Project, consistent with guidelines and methodologies from air quality agencies, specifically, the Bay Area Air Quality Management District (BAAQMD), the California Air Resources Board (ARB) and the US Environmental Protection Agency (USEPA). Consistent with CEQA requirements, this air quality analysis evaluates mass emissions of criteria air pollutants from both construction and operational activities (including traffic generated from the Project).

Consistency with Clean Air Plan

Air Quality 1: Implementation of the Project would not conflict with or obstruct implementation of the applicable air quality plan. (**Less than Significant**)

Consistency with 2017 Clean Air Plan Sector-based Control Strategies

The currently applicable air quality plan is the 2017 BAAQMD Bay Area Clean Air Plan (or 2017 CAP). To be found consistent with the Plan, the Project must support the primary goals of Plan, must include applicable control measures of the Plan for air pollution, and must not disrupt or hinder implementation of any control measures of the Plan. The Plan's control strategies are based on an economic sector framework that includes:

- Stationary Sources
- Transportation
- Energy
- Buildings
- Agriculture
- Natural and Working Lands
- Waste Management
- Water
- Super-GHG Pollutants

Beginning in 2004, Genentech has established company-wide sustainability goals pursuant to its privately developed Sustainability Strategic Plan. Genentech's sustainability goals address each of the key areas included in the 2017 CAP, including transportation, energy, building efficiencies, waste to landfill, water and wastewater use, and other key sustainability program areas. These sustainability goals have been developed in multi-year cycles, including the now-current goals for year 2015 through 2020. These goals have evolved over time to track performance and achievement, to build upon prior successes and overcome setbacks, and to respond to science-based models that accurately capture Genentech's overall environmental footprint.

Overall, Genentech's Sustainability Strategic Plan demonstrates consistency with the 2017 CAP control strategies for those sectors that apply to the Project, as discussed below. Many of the control strategies from the 2017 CAP do not directly relate to the Project (e.g., agriculture, working lands, refineries, etc.), so the following consistency discussion focuses on those strategies that do relate.

Transportation

The transportation measures included in the 2017 CAP are aimed at decreasing emissions of criteria pollutants, TACs, and GHGs by reducing demand for motor vehicle travel, promoting efficient vehicles and transit service, decarbonizing transportation fuels, and electrifying motor vehicles and equipment. The 2017 CAP prioritize actions to protect Bay Area communities that are disproportionately impacted by air pollution, particularly including measures to reduce emissions of diesel PM to protect public health in these communities.

Consistent with the 2017 CAP, Genentech has developed a Transportation Demand Management Program (TDM) to reduce energy and transportation requirements and emissions. Genentech's TDM program provides amenities and incentives to encourage non-single-occupancy vehicle transportation by employees and visitors. Genentech's TDM policies and programs are outlined in the Master Plan Update and the Project Description of this EIR. As reported in the 2017 Annual Report, Genentech's TDM program provides a variety of flexible and convenient programs and services to get employees to and from work, as well as around Campus. The objective of TDM program is to reduce vehicle trips by incorporating project components that encourage increased transit use, carpooling, and providing facilities for bicyclists and pedestrians. Genentech has made public transit access a priority through increases in GenenBus service and continued DNA shuttle services to Caltrain and BART stations. Key elements of Genentech's TDM program also include incentive-based measures that encourage all forms of alternative mode use such as carpools, vanpools, transit and shuttles, bicycling, walking, and telecommuting. Other measures include an expansive commuter and internal shuttle program, a transit subsidy program, a Guaranteed Ride Home program, preferential carpool parking, showers and bicycle facilities, commuter incentives and a number of on-site amenities designed to support car-free employees. Participation in alternate transit modes has increased substantially since its inception – from 25 percent alternative mode use in 2006, to a 35 percent alternative mode use in 2009, to between 41 and 43 percent alternative mode use in 2017. Genentech has committed through its Master Plan Update to maintain and expand this TDM program to as much as 47 percent for Campus arrivals as necessary to meet Trip Cap limits on total AM peak hour single-occupant vehicles, and to strive for a TDM performance goal of a 50 percent reduction in drive-alone Campus arrivals and a 57 percent total trip reduction rate inclusive of flexible work opportunities, prior to buildout. The Project supports and implements applicable transportation-based control measures of the 2017 CAP, and does not disrupt or hinder implementation of any other transportation-based control measures.

Energy

The energy control measures included in the 2017 CAP seek to reduce emissions of criteria air pollutants, TACs and GHGs by decreasing the amount of electricity consumed in the Bay Area, and decreasing the carbon intensity of the electricity that is used by switching to less GHG-intensive fuel sources for electricity generation. The strategies to decrease energy demand focus on promoting energy efficiency and conservation.

Genentech is now implementing numerous voluntary initiatives that will reduce GHG emissions and result in significant energy savings:

- Genentech has initiated a solar panel installation program for the Campus that has the potential to generate over 6 million watts of power during peak production. The program involves installation of more than 16,000 solar power panels throughout the Campus, covering approximately 277,000 square feet of roof area. The solar panels system could produce up to 9.7 million kWh annually, and as many as 36 electric car charging-stations could be connected to this system.
- Genentech has initiated construction of a Site Utility Project that incorporates the latest technologies and high-efficiency system designs for industrial cooling and building air conditioning. This Site Utility Project includes installation of a Campus-wide looped pipe system for refrigerated water distribution, installation of new industrial chillers, and replacement of air conditioning equipment in all buildings on Campus. The environmental performance goal of the project targets a 50% reduction in energy used to produce refrigeration components of process cooling and air conditioning throughout all Campus buildings.
- Genentech is exploring an option of installing a new combined heat and power (CHP) plant on Campus. Potentially, this CHP would be a cogeneration plant that would use a natural gas power station to generate electricity for Campus use and, rather than releasing by-product heat from this facility into the environment, use the residual process to heat water needed for industrial manufacturing and lab operations efficiently. Such a facility could substantially reduce direct electrical consumption at the Campus, perhaps by as much as 70 million kw/year, and offset a substantial portion of the electrical demands of new Campus growth.

These voluntary initiatives are supportive of, and implement certain energy-based control measures of the 2017 CAP. The Project does not disrupt or hinder implementation of any other energy-based control measures.

Buildings

Control measures for the building sector included in the 2017 CAP seek to reduce emissions of air pollutants and GHGs. These measures seek to improve the energy efficiency of existing and new buildings, promote use of electricity and on-site renewable energy, and work to ensure that new construction is designed to achieve zero net GHG emissions by 2020 (or the earliest possible date).

Genentech's latest buildings on the Campus have implemented sustainability strategies from a variety of sources. These sources include a Sustainability Design Checklist based on LEED4 New Construction, the U.S. Green Building Council Northern California Building Health Initiative and the Department of Energy's Facility for Low Energy Experiments in Buildings (FLEXLAB) program, LEED Gold certifications and WELL Certification. These most recent building additions to the Campus demonstrate Genentech's commitment to a sustainable campus environment that enhances health, comfort and performance, while minimizing resource consumption. The Master Plan Update anticipates that every new building and Campus improvement will:

- be designed to respect the integrity and biodiversity of natural systems on the Campus
- employ architectural design methods aimed at controlling solar gain, including the use of solar shading devices, white roofing materials and building orientation
- utilize high recycled-content building materials and integrate energy-efficient and water-conserving systems
- utilize landscape with native and drought-tolerant plants
- include bio-swales or similar measures to control rainwater runoff
- be located on sites served by existing infrastructure; and

- will consider opportunities to support public and alternative transportation modes

As indicated in the Greenhouse Gas and Climate Change chapter of this EIR, the Project would not exceed the service-based efficiency threshold for land use based GHG emissions by year 2020. Operation of the Project would not exceed the threshold for GHG emissions per service population, and would result in a less than significant impact. The Project supports and implements applicable building-based control measures of the 2017 CAP, and does not disrupt or hinder implementation of any other building-based control measures.

Waste Management

The Plan's control measures for the waste management sector are focused on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse and recycle.

The current waste reduction goal presented in Genentech's Sustainability Plan is to target an 80% absolute reduction in waste to landfill per employee by 2020, as compared to 2010 levels. Some of the individual projects pursuant to this goal include:

- Increased recycling and composting
- Reduction and reuse efforts to minimize the amount of materials brought into Campus and to maximize reuse
- Green Bio-Pharma program provides off-site recycling of materials used in Genentech's manufacturing processes and diverting bio-process lab waste (i.e., containers, lids and other plastic products) from landfills by providing for their reuse on Campus and by offering excess equipment and supplies to schools and nonprofits

Genentech expects to meet its 10-year goal of 80% absolute reduction in waste to landfill per employee by 2020. The Project supports and implements applicable waste management-based control measures of the 2017 CAP, and does not disrupt or hinder implementation of any other waste management -based control measures.

Water and Wastewater

The 2017 CAP's control measures for the water sector seek to reduce emissions of criteria pollutants, TACs and GHGs by encouraging water conservation, limiting GHG emissions from publicly owned water treatment works and promoting the use of biogas recovery systems.

Since 2004, Genentech has been committed to improving its water use efficiency, particularly through efficiencies in its manufacturing operations. The current water conservation goal presented in Genentech's Sustainability Plan is for a 20% overall water reduction by year 2020, as compared to water use levels in 2010. Some of the individual projects pursuant to this goal include:

- Irrigation savings by prioritizing native, drought tolerant planting for newly landscaped areas, replacing some existing turfed areas with native, drought tolerant plants, and using high-efficiency drip and spray irrigation system with weather controls
- Corporate awareness initiatives to increase employee awareness of water conservation strategies
- Continued commitment to use of, or preparation for use of, recycled water for a variety of non-potable water needs, including installation of recycled water distribution lines (i.e., "purple pipes") throughout the Campus to enable reclaimed water to be transported for internal reuse as it may become available in the future
- Continuation of pilot programs and solutions to reuse and recycle water internally (for example, as make-up water in cooling towers), and expects that the expansion of such solutions will drive significant water savings

The Project's water conservation and water recycling programs are in full compliance with the water-based control measures of the 2017 CAP, and do not disrupt or hinder implementation of any other water-based control measures.

Super-GHGs

Super-GHGs include methane, black carbon and fluorinated gases (F-gases). The compounds are sometimes referred to as short-lived climate pollutants because their lifetime in the atmosphere is generally short. However, their principal characteristic is that they have very high global warming potential on a per-unit basis, in comparison to CO2. Reducing emissions of super-GHGs is a high priority control strategy of the 2017 CAP because this approach represents the best opportunity to slow the rate of global warming in the near term.

The Genentech (Roche) Directive for Substances of Concern (Directive K6) provides a common basis for complying with international and national regulations and conventions, and the gradual phasing-out of concerned substances adversely affecting the ozone layer and the climate. Directive K6 requires eliminating the use of substances that have a negative impact on the environment caused by ozone depletion, global warming or persistence in the atmosphere with potential long-term negative effects. For Genentech, the K6 Directive requires that use of all chlorofluorocarbons (CFCs) and hydro-chlorofluorocarbons (HCFCs) be eliminated by 2018, and use of all hydrofluorocarbons (HFCs) be eliminated by 2022.

Mitigation Measures

None needed. The Project supports the primary goals of the 2017 Bay Area Clean Air Plan, includes applicable control measures from the 2017 CAP for air pollution, and does not disrupt or hinder implementation of any control measures of the 2017 CAP.

The Genentech Master Plan Update (the Project) includes plans for infrastructure capacity to support future Campus growth, but also recognizes that Genentech's infrastructure demands can be reduced through efforts to conserve and minimize the Campus' environmental footprint. Many of sustainability initiatives that Genentech has implemented or is implementing now are examples of the types of efforts that Genentech may pursue towards meeting their own internal sustainability goals and objectives for future Campus growth. Genentech is now implementing numerous initiatives that serve to decrease emissions of the air pollutants that are most harmful to Bay Area residents such as particulate matter, ozone, and toxic air contaminants; to reduce emissions of "super-GHGs" that are potent climate pollutants in the near-term; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion. Genentech anticipates re-evaluation and re-assessment of its current sustainability goals for 2020, and development of successive multi-year goals and implementation strategies based on prior successes and challenges.

Construction-Period Emissions of Criteria Pollutants

AQ 2: Throughout buildout of the Project, construction activities would result in emissions of criteria pollutants for which the region is non-attainment, including releasing emissions of ozone precursors and particulates. However, with implementation of Basic Best Management Practices (BMPs) for all construction projects, construction emissions would be unlikely to exceed applicable thresholds. (**Less than Significant**)

Fugitive Dust

The Project Description anticipates that the Project will include demolition of certain existing structures as part of redevelopment of the Campus, as well as construction of new structures. Project related demolition, grading and other construction activities at the Campus might cause wind-blown dust that could emit particulate matter into the atmosphere. Fugitive dust includes not only PM10 and PM2.5, but also larger

particles as well that can represent a nuisance impact. Dust can be an irritant and cause watering eyes or irritation to the lungs, nose and throat. Demolition, excavation and other construction activities can cause wind-blown dust to add to particulate matter in the local atmosphere. California EPA has found that particulate matter exposure can cause health effects. The current health burden of particulate matter demands that, where possible, public agencies take feasible actions to reduce sources of particulate matter exposure.

During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading, hauling and other activities. Construction-related effects on air quality from the Project would be greatest during the site preparation phases due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at construction site. PM10 emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM10 emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Off-Road Diesel Equipment

Construction activity will also generate air emissions from use of heavy-duty construction equipment. Mobile source emissions, primarily NOx, will be generated from the use of construction equipment such as excavators, bulldozers, wheeled loaders and cranes. During the finishing phase, paving operations and the application of asphalt, architectural coatings (i.e., paints) and other building materials would release ROG. The assessment of construction-period emissions of criteria air pollutants considers each of these sources, and recognizes that construction emissions can vary substantially from day to day, and from project to project, depending on the level of activity and the specific type of operation.

Criteria pollutant emissions from construction activities were calculated using the latest version of CalEEMod.[4] CalEEMod default values were used to generate an inventory of expected construction equipment including details on the equipment type, quantity, assumed construction dates, and hours of operation anticipated for each piece of equipment for each construction phase. Once the equipment inventories were generated, CalEEMod utilized ARB's 2011 Off-Road Equipment Model (OFFROAD2011) methodology to estimate off-road diesel emissions.[5]

On-Road Haul Trucks, Vendor Trucks and Commuting Worker Vehicles

Construction activity will also generate air emissions from vehicle trips hauling materials and from construction workers traveling to and from the site. On-road truck and commuting worker vehicle emissions were calculated using the total number of expected trips, and emission factors from ARB's EMission FACtor model (EMFAC2014). The total number of haul truck trips was estimated based on anticipated levels of demolition and soil excavation. To estimate soil import/export quantities, two separate average excavation rates were used based on recent construction projects at the Campus. One excavation rate was developed for projects on steep terrain and another excavation rate was developed for projects on flat terrain. Contour and aerial maps were used to categorize the different Opportunity Sites as either flat or steep terrain, and

[4] CalEEMod is a land use emissions computer model designed to provide a uniform platform for government agencies, land use planners and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects.

[5] OFFROAD2011 incorporates statewide survey data to develop emission factors based on the fleet average for each year of operation. The OFFROAD2011 model also identifies default horsepower and load factor for each type of equipment, which are included in CalEEMod.

each Opportunity Site area was multiplied by either the flat and steep terrain excavation rate to estimate total excavation.

The total number of vendor trucks and worker commuting vehicle trips are estimated by CalEEMod. For haul trucks, a 20-mile one-way trip length was assumed. For vendor trucks, a 7.3-mile trip length was assumed. For worker cars, a 12.4-mile trip length was assumed. These trip lengths are based on CalEEMod default trip lengths. The EMFAC2014 model was then used to generate emission factors from this construction fleet based on vehicle weight classes.[6]

Architectural Coating Emissions

CalEEMod was also used to estimate ROG emissions from expected architectural coatings used during the construction of new offices, laboratories and amenities. Compliance with BAAQMD regulations restricting the volatile organic compound (VOC) content of commercial paints was assumed.

Construction-Period Criteria Air Pollutant Summary

Table 6-2 shows the total emissions of criteria air pollutants per day that could be expected to result from buildout of the Project. Total construction emissions were annualized by assuming a 20-year construction period, and then averaged across a full 365-day calendar year, to compare to the applicable daily CEQA thresholds. As shown in Table 6-2, construction-period emissions for the Project do not exceed the average daily emission thresholds.

Table 6-2: Construction Criteria Pollutant Emissions

	ROG	NOx	PM10	PM2.5
Project Total Emissions (tons) [1]	36	156	2.2	2.1
Construction Days (20 years, 365 days/yr)				
Per Day Construction Emissions (lbs/day) [2]	10	43	0.6	0.6
Average Daily Threshold (lbs/day)	54	54	82	54
Exceed Threshold?	**No**	**No**	**No**	**No**

1. Emissions estimated via CalEEMod® and the land use information provided in Project Description
2. Although CalEEMod®'s default construction phase length is 16 years for a 123-acre project, Ramboll annualized the total emissions by assuming a 20-year construction period (duration of the Master Plan Update) to compare to the BAAQMD CEQA threshold.

Source: Ramboll, October 2018

Best Management Practices

Consistent with BAAQMD recommendations, the following BMPs shall be implemented by all construction projects, regardless of itemized construction emission levels:

a) All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

[6] EMFAC2014 is an emission inventory model that was developed to determine emission rates from motor vehicles that operate on highways, freeways and local roads in California and is commonly used by ARB to project changes in future emissions from on-road mobile sources. The most recent version of this model, EMFAC2014, incorporates regional motor vehicle data, information and estimates regarding the distribution of vehicle miles traveled (VMT) by speed, and number of starts per day.

b) All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

c) All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

d) All vehicle speeds on unpaved roads shall be limited to 15 mph.

e) All roadways, driveways and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

f) Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

g) All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

h) Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

The analysis of construction-period emissions presented above assumes that construction activities would be averaged across a 20-year buildout period, with an annual average of approximately 215,000 square feet of construction occurring each year. However, it is possible (even likely) those variations to this construction schedule will occur, resulting in construction of individual buildings exceeding the assumed annual average, or that multiple buildings may be constructed across the Campus at the same time. Therefore, the following requirement is recommended as a Condition of Approval for the Project, to address subsequent development-specific circumstances:

Recommendation AQ 2: Project-Specific Construction Emission Analysis: A project-specific construction emissions analysis is required for all projects that exceed the assumptions of this analysis, including:

- Annual construction exceeding 215,000 square feet a year.
- Construction projects that individually exceed 227,000 square feet in size (the lower of BAAQMD screening sizes for either office parks or industrial parks)
- When two or more simultaneously occurring construction projects would exceed this screening size, or construction projects include more than two simultaneously occurring construction phases
- Construction projects that would include demolition, that would involve extensive site preparation (i.e., greater than default assumptions used by the URBEMIS model), or that involve extensive material transport (in amounts greater than 10,000 cubic yards of soil import/export)
- If a project-specific emission analysis exceeds the per-day construction emissions thresholds presented in Table 6-2, then a demonstration of consistency with the results in AQ-3 would also be required.

Construction-Period Health Risk

AQ 3: During construction activities, the Project could expose sensitive receptors to substantial pollutant concentrations from construction-related emissions. Specifically, the Project's construction

emissions could cause an excess cancer risk level exceeding 10 in one million at the maximally exposed sensitive receptor. (**Less than Significant with Mitigation**)

The objective of the following health risk analysis is to evaluate the potential impacts of construction of the Project on off-site and onsite sensitive receptors. Sensitive receptors evaluated in this analysis include daycare receptors (both Genentech daycare and off-site Early Years Preschool), residential receptors to the north (houseboats in the Oyster Point Marina) and recreational receptors on the San Francisco Bay Trail. The criterion for whether or not the Project's construction activities presents a significant air quality impact is if the Project will "expose sensitive receptors to substantial pollutant concentrations," expressed as excess cancer risk exceeding 10 in 1 million, hazard index greater than 1.0 or annual PM2.5 concentrations that exceed 0.3 µg/m3 at sensitive receptor locations.

Construction activities related to the Project will vary depending on a number of factors, so this analysis estimates health impacts using conservative assumptions. This conservative analysis provides bounds within which construction activity has been analyzed. Construction activity that falls outside of these conservative assumptions does not necessarily imply a new or more significant impact. Rather, it indicates that a detailed health risk analysis with refined project components should be conducted to evaluate impacts that may be unique or particular to a specific construction project.

Construction Sources of TAC Emissions

The primary sources of toxic air emissions during construction is off-road equipment and on-road diesel trucks used during construction activities. CalEEMod® is used to obtain the off- and on-road diesel equipment list. Only off-road equipment and on-road diesel truck emissions are modeled. On-road construction worker commuting vehicles are assumed a negligible source of diesel emissions. The cancer risk analysis is based on diesel particulate matter (DPM) concentrations from diesel equipment and on-road vehicles. Diesel exhaust is identified by the State of California as a known carcinogen. DPM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole, as recommended by Cal/EPA. Only annual average concentrations of DPM were modeled to evaluate chronic health risks using the California-developed cancer potency factor and chronic reference exposure level for DPM. This methodology is consistent with BAAQMD guidance.[7]

BAAQMD also has a CEQA threshold for annual average PM2.5 concentration. PM2.5 is a complex mixture of substances that includes elements such as carbon and metals; compounds such as nitrates, organics and sulfates; and complex mixtures such as diesel exhaust and wood smoke. PM2.5 poses an increased health risk relative to PM10 because the particles can deposit more deeply in the lungs and they contain substances that are particularly harmful to human health. It can cause a wide range of health effects including aggravating asthma and bronchitis, causing visits to the hospital for respiratory and cardiovascular symptoms, and contributing to heart attacks and deaths. A separate analysis of potential health impacts of the Project's operational-based criteria pollutant emissions (including PM2.5) is included under Impact AQ-4.

Assumptions Used in HRA Modeling

Air dispersion modeling of DPM and PM2.5 from Project construction sources is conducted using the USEPA atmospheric dispersion modeling (AERMOD) model, version 16216.[8] For each receptor location, the model generates average air concentrations that result from emissions from multiple sources. When site-specific information is unknown, the analysis uses default parameters that are designed to produce conservative (i.e., overestimated) air concentrations.

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[7] BAAQMD. 2005. Guidance for Calculating Maximum Hourly Toxic Air Contaminant Emission Rates. Available online at: http://www.baaqmd.gov/~/media/files/engineering/policy_and_procedures/hourlyemissionguidelines.pdf?la=en

[8] AERMOD version 16216 was the most up to date model version at the time of the Notice of Preparation.

- Construction Period: Project construction is assumed over a twenty-year period. A longer assumed buildout period would result in averaging total emissions over a longer period and resulting in lower annual average concentrations. Maximum hourly concentrations were not modeled.
- Meteorological Data: This analysis utilizes the same meteorological data set that has been used for previous Genentech modeling efforts, including the HRA in support of the recent air permit for the Building 35 emergency generator.[9] Upper air data from the Oakland International Airport was used. Meteorological data was prepared for use in AERMOD with meteorological data preprocessor for AERMOD (AERMET) (version 16216).
- Terrain Considerations: Elevation and land use data were imported from the National Elevation Dataset (NED) maintained by the United States Geological Survey (USGS 2013).
- Emission Rates: Emitting activities were modeled to reflect the typical construction hours in a day. Emissions were modeled such that each construction phase has unit emission rates, and the model estimates dispersion factors. For annual average ambient air concentrations, the estimated annual average dispersion factors are multiplied by the annual average emission rates. The emission rates will vary day to day, with some days having no emissions. The model assumes a constant emission rate during the entire year. TAC emission rates for this analysis are shown in **Table 6-3**.

Table 6-3: Construction TAC Emission Rates

Source	Chemical	Annual TAC Emission Rate (g/sec./acre) [2]
Construction Diesel Emissions [1]	Diesel PM (PM10)	2.4 E-05
	PM2.5	2.2 E-05

1. Only diesel exhaust emissions (no fugitive emissions) were modeled for construction
2. Emissions from off-road diesel sources as well as on-road haul trucks and vendor trucks. One single emission rate was estimated for the entire Project and the emissions were distributed to the different construction locations based on the areas of those locations

Source: Ramboll, October 2018

Sensitive Receptors

Offsite receptors and sensitive population locations evaluated for this study include:

- Daycare uses in the vicinity (both Genentech daycare and off-site Early Years Preschool)
- Residents (houseboats) in the Oyster Point Marina
- Recreational receptors using the San Francisco Bay Trail

Figure 6-1 shows the location of those sensitive receptors evaluated. Receptors were modeled at a height of 1.8 meters above terrain height, a default breathing height for ground-floor receptors.

[9] The District has granted approval of the use of this meteorological data set, which was primarily collected at the San Francisco International Airport during 2001 to 2005.

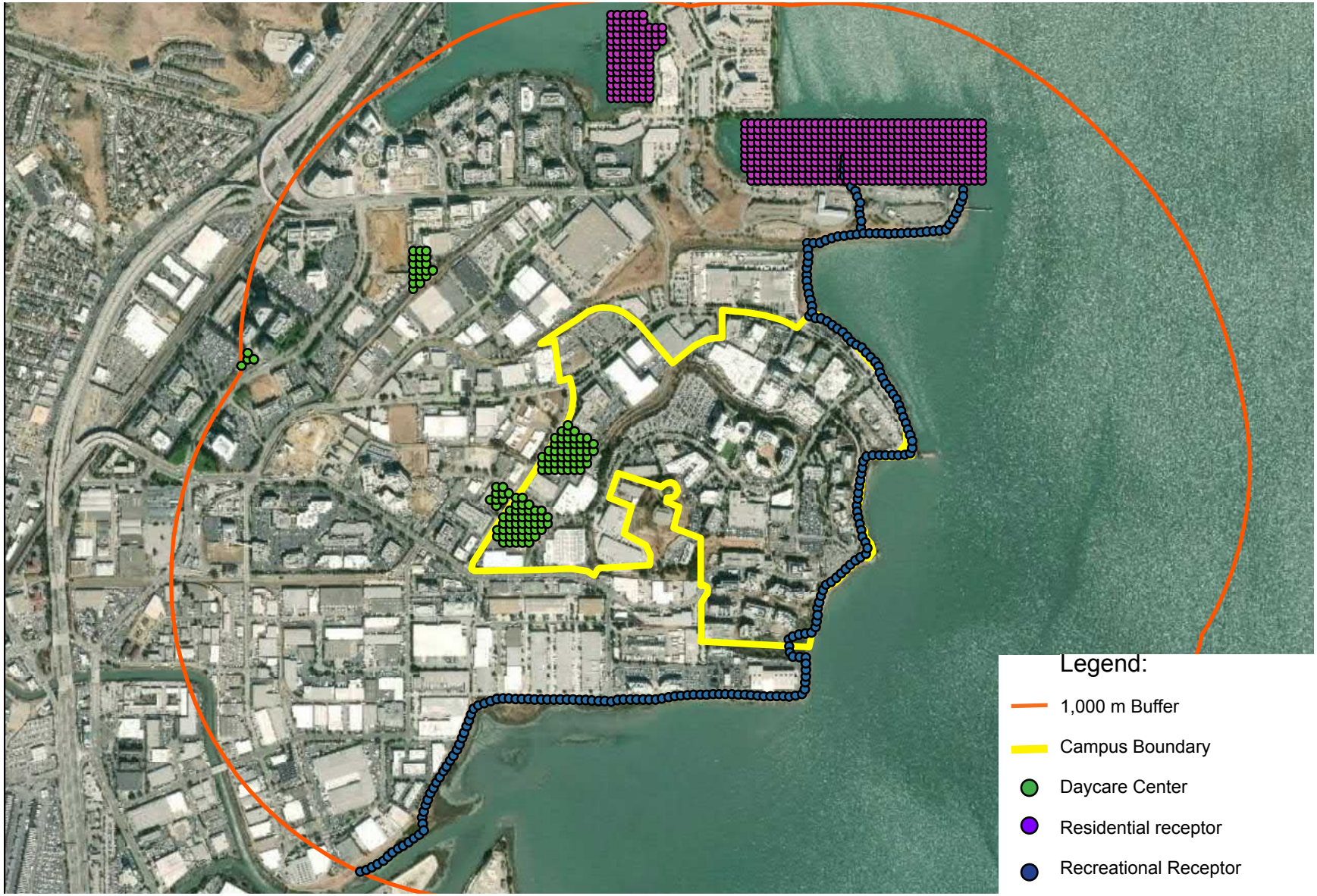

Figure 6-1
Sensitive Receptor Locations

Source: Ramboll, 2018

Average annual dispersion factors were estimated for each receptor location. An adjustment factor was applied to air concentrations modeled with continuous averaging time (i.e., 24 hours per day, 365 days per year) when the actual exposure occurs for less than 24 hours and/or less than one year. It is assumed that the emissions from all construction sources occur only during a 10-hour operational day (7AM to 5PM), compressing emissions that could potentially occur over a 24-hour period, 7 days per week into a 10-hour period, 5 days per week. A modeling adjustment factor (MAF) is applied to certain populations with exposures less than 24 hours in a day (i.e., childcare and recreational users). These adjusted concentrations represent the concentrations over the operating period to which the daycare child or recreational receptor might be exposed. Residents are assumed exposed to emissions 24 hours per day, so the annual average concentration is not adjusted for this population.

Health Risk Maps

For the construction HRA, cancer risk, chronic HI and PM2.5 concentrations were mapped to identify where construction activities are expected to occur that do, and do not exceed thresholds of 10 in a million, 1.0, and 0.3 µg/m3, respectively under an unmitigated scenario.

Figure 6-2 provides an overlay of the three concentration maps. The green areas in Figure 6-2 indicate locations where construction activities could occur within a 20-year period without exceeding any health risk-based thresholds. The blue areas of Figure 6-2 indicate those locations where construction activity during that same 20-year period could contribute to a significant impact, and where refined health risk analysis for individual projects would be necessary to ensure that cancer risk, chronic HI, and PM2.5 concentrations do not exceed significance thresholds at all modeled receptor locations. Construction at those areas indicated in blue does not necessarily result in a significant impact, but indicates that additional refined modeling will be needed to show if impacts are significant. Figure 6-2 shows that 94% of the total Opportunity Site area can be built without further refined construction-period health risk analysis. Cancer risk is the main driver for health risk, and Figure 6-2 is solely dictated by where construction emission sources can be located without further analysis and not exceed the 10-in-a-million threshold. Chronic HI and PM2.5 concentration thresholds would not be exceeded even if construction occurred on all Opportunity Sites.

Table 6-4 shows the cancer risk, chronic HI, and PM2.5 concentration results at the maximum exposed individual receptors (MEISRs) when construction activities (without mitigation) are limited to only those locations (or those Opportunity Sites) that do not contribute to significant health risk impacts. As can be shown, all impacts at 94% of the total Opportunity Site areas are below threshold levels under this construction scenario.

Figure 6-2
Construction Period Health Risk Map

Source: Ramboll, 2018

Table 6-4: Construction Health Risk Assessment, MEIR (Unmitigated)		
Receptor Type	**Cancer Risk (per million) [1]**	**Threshold (per million)**
Daycare (Genentech)	9.96	10
Daycare (Early Years)	1.7	10
Recreational (on Bay Trail)	1.2	10
Residential (Boathouses at Oyster Point Marina)	0.41	10
Non-Cancer Health Impacts [2]	**Value**	**Threshold**
Chronic Health Index	0.0026	1.0
PM2.5 Concentration	0.012 ug/m^3	0.30 ug/m^3

1. The impacts are estimated with construction on locations that would not contribute to significant impact, as shown in Figure 6-2
2. The maximum chronic HI and PM2.5 concentration occur at the Genentech Daycare

Source: Ramboll, October 2018

Mitigation Measures

A mitigated scenario has also been prepared which assumes that all construction off-road equipment used in certain areas (identified in **Figure 6-3**, in pink) will have diesel particulate filters capable of reducing PM10 and PM2.5 emissions by as much as 85%. For this scenario, the off-road equipment inventories (i.e., equipment type, quantity, hours of operation and horsepower) are the same as the unmitigated scenario, but the analysis uses reduced emission factors to estimate emissions.

Mitigation Measure AQ 3 - Diesel Particulate Filters: Construction activity that occurs in proximity to the Genentech daycare center or the Early Years preschool on Allerton Avenue shall use off-road construction equipment installed with diesel particulate filters capable of reducing PM10 and PM2.5 emissions by as much as 85%.

As indicated in **Figure 6-3**, the pink areas indicate where equipping all engines with diesel particulate filters is required pursuant to Mitigation Measure AQ 3.

Resulting Level of Significance

Figure 6-3 shows areas (colored in pink) where equipping all engines with diesel particulate filters is required for construction emissions to not contribute to a significant health risk impact. If all construction activity that occurs in those areas identified in pink on Figure 6-3 uses off-road equipment installed with diesel particulate engines as defined in Mitigation Measure AQ 3, construction activities can occur throughout the entire Project Area without exceeding any health risk-based thresholds. **Table 6-5** shows the mitigated cancer risk, chronic HI and PM2.5 concentration results at sensitive receptors when engines that include diesel particulate filters are used in these areas. As shown, all impacts are reduced to below thresholds even when construction occurs on all Opportunity Sites.

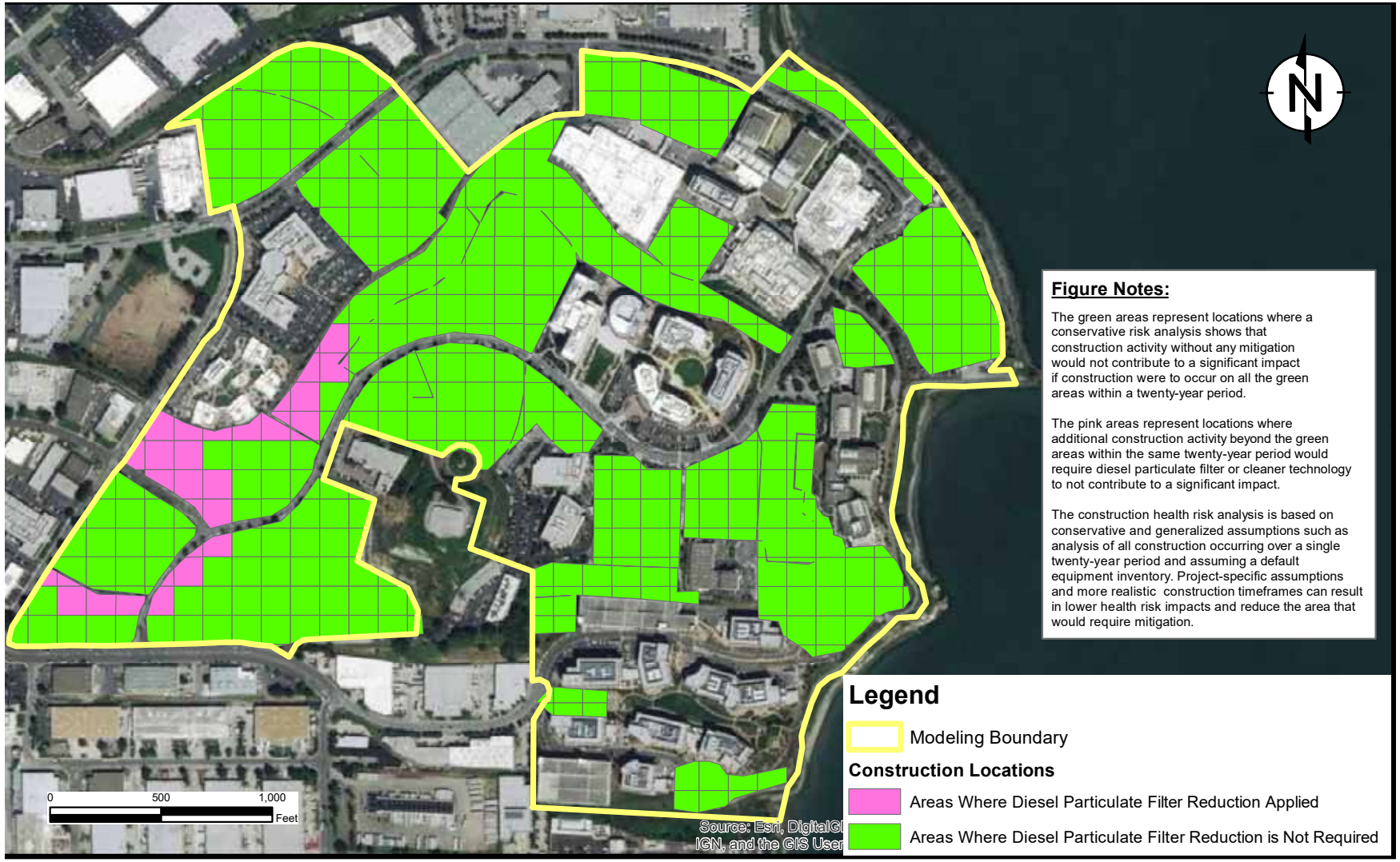

Figure 6-3
Construction Locations Requiring Mitigation

Source: Ramboll 2018

Table 6-5: Construction Health Risk Assessment at Sensitive Receptors (with Mitigation)

Receptor Type	Cancer Risk (per million) [1]	Threshold (per million)
Daycare (Genentech)	9.96	10
Daycare (Early Years)	1.8	10
Recreational (on Bay Trail)	1.2	10
Residential (Boathouses at Oyster Point Marina)	0.41	10
Non-Cancer Health Impacts [2]	**Value**	**Threshold**
Chronic Health Index	0.0016	1.0
PM2.5 Concentration	0.0077 ug/m^3	0.30 ug/m^3

1. The impacts are estimated with construction at all Opportunity Sites, using engines with diesel particulate filters
2. The maximum chronic HI and PM2.5 concentration occur at the Genentech daycare

Source: Ramboll, October 2018

This analysis provides for two separate conclusions:

- Construction activities can occur on each of those Opportunity Sites as indicated on Figure 6-3 as not contributing to construction-period health risks, without having to conduct further project-specific analysis (i.e., impacts would be less than significant). Construction activities may not proceed on any of those Opportunity Sites as indicated on Figure 6-3 as being contributors to construction-period health risks until a project-specific construction health risk analysis is conducted and demonstrates that the proposed construction activity would not contribute to a new or substantially more significant health risk to sensitive receptors. This analysis may include alternate mitigation measures that must be implemented.
- All construction activities pursuant to buildout of the Project may proceed on all Opportunity Sites without further site-specific or project-specific analysis if diesel particulate filters are installed on all diesel construction equipment used in areas shown in Figure 6-3 as areas where diesel particulate filters are required. With implementation of Mitigation Measure AQ 3, construction health risk impacts would be less than significant for construction activities in all Opportunity Sites.

Operational Criteria Pollutant Emissions

AQ 4: During operations, the Project would result in a cumulatively considerable net increase of criteria pollutants for which the region is non-attainment, including emissions that exceed quantitative thresholds for ozone precursors. Specifically, the Project's average daily operational emissions are projected to exceed 54 pound per day of reactive organic gas (ROG) and nitrogen oxides. **(Significant and Unavoidable)**

Operational sources of criteria air pollutants include stationary sources, area source and mobile sources. Emissions from each of these sources as would be generated by the Project are estimated as indicated below.

Stationary Sources

Based on information provided by the applicant, it is assumed that the Project will include 52 net new diesel-fired emergency generators, increased use of natural gas, potentially a combined heat and power plant (CHP), and 4 new natural gas-fired boilers.

- Emergency Generators: The number of new diesel-fired emergency generators (52) was estimated by comparing the current number of emergency generators (57) and current Campus building space (approximately 4.7 million square) to the net increase in Campus building space pursuant to the Project (approximately 4.3 million square feet). This is likely an unrealistically high (conservative) estimate of the number of future new emergency generators, as future emergency generation capacity is not expected to follow historical trends. Each new emergency generator is assumed to be rated at 2 megawatts (MW), consistent with the rating for the more recent emergency generators installed at the Campus. Emission of PM, TOG and NOx emissions from these diesel emergency generators are estimated based on ARB-certified emission factors.
- Natural Gas Use: The net increase in use of natural gas pursuant to the Project was also based on a proportion increase of existing natural gas use per square foot of existing building space, multiplied by the net increase in building space pursuant to the Project. Emissions from increased use of permit-exempt natural gas-fired boilers were estimated based on BAAQMD limits for NOx and AP-42 emission factors for the other pollutants.
- Combined Heat and Power Plant: The Project includes the potential construction of a new CHP for the Campus. Installation of a new CHP is dependent on future needs as well as feasibility and cost studies yet to be prepared. If ultimately proposed, a new CHP would also require permits from the BAAQMD and would be required to comply with applicable Best Available Control Technology (BACT), including BACT for toxics requirements. VOC emissions from a potential CHP are estimated based on assumed AP-42 emission factors for natural gas turbines. NOx emissions were estimated based on a BAAQMD Best Available Control Technology (BACT) limits. PM10 and PM2.5 emissions were estimated based on emission factors obtained from EPA data.
- Miura Boilers: The Project assumes installation of four new Miura boilers. Emissions of ROG and PM from the boilers are estimated based on AP-42 emission factors. The NOx emission factor and the gas consumption rate for the Miura boilers were estimated from vendor's data.

Area Sources

The Project will include area sources of criteria air pollutants such as architectural coatings, and consumer products and solvents used in the new offices and laboratories. Emissions from these area sources were estimated using CalEEMod®, based on the type and size of land uses associated with the Project.

Mobile Sources

The Project will generate new vehicle trips from new employees and increased vehicle trips by vendors and visitors. The number of estimated new daily vehicle trips generated by the Project was obtained from the same Traffic Impact Analysis as used for the Transportation chapter of this EIR,[10] and includes data such as number of passengers per vehicle, and trip distances for drive alone, carpool, vanpool, GenenBus and motorcycle transportation modes, as well as vehicle deliveries. These data were used to calculate the number of new trips, the percentage of trips for each mode of transportation, and average trip length. Emissions from each of these trip types were obtained using EMFAC2014, based on emission rates per trip type as derived from the vehicle fleet mix in San Mateo County. Using the same trip data, fugitive PM10 and PM2.5 road dust emissions were estimated in accordance with CARB-approved methodologies.

Total Criteria Air Pollutants

Operational emissions of criteria air pollutants from each of the Project's operational sources were added together to derive total emissions values. **Table 6-6** shows the emissions of criteria air pollutants as

[10] Fehr & Peers, Traffic Impact Analysis, October 2018

estimated for the Project, compared to the applicable significance thresholds. Emissions from those sources that will be capped and offset through the BAAQMD's stationary source permitting are not included in the operational emissions. The incremental emissions for NOx, ROG and PM10 are above significance thresholds, mostly due to NOx and PM10 emissions from mobile sources, and emission of VOCs from laboratory and consumer products.

Table 6-6: Operational Criteria Air Pollutant Emissions

Emission Category [1]	ROG (tons/yr)	NOx (tons/yr)	PM10 (tons/yr)	PM2.5 (tons/yr)
Laboratory	9.7			
Misc. natural Gas Combustion	0.88	6.0	1.2	1.2
Mobile Sources	7.9	12	15	3.5
Architectural Coatings	2.0	0	0	0
Consumer Products	15	0	0	0
Landscaping	0.003	0.0003	0.0001	0.0001
Total:	35	18	16	4.8
Threshold Level	10	10	15	10
Exceed Threshold?	**Yes**	**Yes**	**Yes**	No
Other Operational Emissions Requiring a Separate Permit				
IPA Wipe Cleaning	13	0	0	0
Emergency Generators	1.0	19	0.062	0.062
Miura Boilers	1.1	2.2	1.5	1.5
CHP	13	5.8	0.1	0.1
Total:	28	27	1.7	1.7

1. Emissions from architectural coating, consumer products and landscaping are calculated by CalEEMod® using the building square footage information provided in the Project Description

Source: Ramboll, October 2018

Emission Reductions Incorporated into the Project

Mobile Source Reductions

As part of the Project, Genentech is proposing to establish a "Trip Cap" equivalent to the number of drive-alone vehicle trips that have been analyzed pursuant to prior Campus Master Plan approvals, while increasing the underlying entitlement from approximately 6.8 million square feet, up to 9 million square feet of building space. This Trip Cap commitment is possible based on a continuation and expansion of Genentech's TDM program. Genentech proposes to implement TDM programs for all of its employees at levels that can reduce drive-alone trips such that the Trip Cap is not exceeded. Genentech's Campus-wide TDM goal to achieve a 50 percent reduction in drive-alone vehicle trips (or a minimum 50 percent alternative mode use), to be achieved by the time of full buildout of the Master Plan Update. The strategies included in Genentech's updated TDM Plan are designed to build upon the success of existing programs, provide for improvement where needed, and to offer options for new measures that further increase employee travel choice and improve the user experience. A brief summary of proposed TDM strategies includes:

- Genentech will continue to operate commuter GenenBus routes for employees who live throughout the San Francisco Bay Area, connecting employees from Alameda, Contra Costa, Marin, Santa Clara, San Francisco, San Mateo and Solano Countries to the South San Francisco Campus
- Genentech will continue to operate the intra-campus DNA Shuttle routes for employees to travel between Campus buildings, parking facilities and GenenBus stops
- Genentech has initiated, and will continue to offer a stand-alone ferry service to markets unserved by public ferry operators, using private high-speed vessels to provide exclusive ferry service for commuting employees

Genentech will continue to offer a suite of incentive-based TDM programs to encourage non-single automobile travel. The TDM program includes, but is not limited to transit reimbursements, carpool and vanpool incentives, car- sharing programs, a Guaranteed Ride Home program, flexible daily work schedules, incentives for walking or biking to work, on-site bicycle facilities, funding for important bikeway improvements, and offering preferred parking for vehicle types that reduce emissions as compared to traditional autos.

These TDM Program strategies will substantially reduce emissions of criteria air pollutants from operational mobile sources, as compared to emission levels that would be expected without such a robust TDM program.

Area Source Reductions

Pursuant to Genentech's Sustainability Strategic Plan, ongoing sustainability initiatives include installing a Campus-wide system for refrigerated water distribution, installation of new industrial chillers, replacement of air conditioning equipment and other industrial process efficiencies that may reduce natural gas consumption by as much as 700,000 therms per year, thereby reducing associated criteria pollutants as well.

Regulatory Requirements

Stationary sources that are subject to permitting by the BAAQMD are required to be offset per BAAQMD Regulation 2-2: New Source Review, Section 302: Offset Requirements, if the facility emits or is permitted to emit greater than 35 tons per year of NOx and ROGs. Genentech is permitted to emit greater than 35 tons per year of both NOx and ROG, and is therefore required to submit emissions offsets for every new permitted source or emissions modification that results in increased emissions. Offsets are established at a 1.15 to 1.0 ratio.

Regulatory Requirement AQ 4 - New Source Review Offset: Genentech shall purchase offset credits pursuant to BAAQMD Regulation 2-2: New Source Review, Section 302: Offset Requirements for each new permitted stationary source of NOx and/or ROG emissions, and for any modifications to existing stationary emission sources that result in increased NOx and/or ROG emissions.

The BAAQMD's offset program is intended to ensure a no net increase of NOx and ROG emissions in the San Francisco Bay Area. The purchase and retirement to the BAAQMD of offsets ensures that new emissions are balanced by federally enforced emission reductions or emissions source removals.

Mitigation Measures

No additional measures are available or feasible.

Resulting Level of Significance

The Project incorporates numerous features in its design that will serve to reduce operational emissions of criteria pollutants from that which would otherwise be generated, and the BAAQMD offset program will ensure a no net increase of NOx and ROG emissions from stationary sources. Although these TDM measures, energy efficiency features and regulatory requirements are incorporated into the Project, total emissions of

criteria pollutants from mobile sources and other sources not requiring separate permits form BAAQMD would still exceed the thresholds of significance. There are no additional quantifiable and feasible mitigation measures capable of further reducing these emissions, and this impact would remain **significant and unavoidable**.

Potential Health Impacts of the Project's Criteria Pollutant Emissions

A separate analysis was conducted to estimate the potential health impacts of criteria pollutants, specifically oxides of nitrogen (NOx), volatile organic compounds (VOC), ozone, particulate matter smaller than 2.5 microns in diameter (PM2.5), and oxides of sulfur (measured as sulfur dioxide (SOx). As discussed further below, the results of the analysis indicate that anticipated health impacts are vanishingly small.

In order to estimate the potential health impacts of criteria pollutants emitted by the Project, a photochemical grid model (PGM) known as CAMx was applied to estimate the small increases in concentrations of ozone and PM2.5 in the region that would result from the emissions of criteria pollutants from the Project. A USEPA-authored program known as the Benefits Mapping and Analysis Program (BenMAP) was then applied to estimate the resulting health impacts from these small increases in concentration. BenMAP uses concentration estimates along with population and health effect concentration/response functions to estimate various health effects of the concentration increases. BenMAP has a wide history of applications by EPA and others, including for local-scale analysis as needed for assessing the health impacts of a project's emissions. The details of this methodology and resulting calculations are provided in **Appendix 6E**.

The incidences for assessing the health effect concentration/response (or endpoints) related to PM2.5 concentrations include mortality (all causes), hospital admissions (respiratory, asthma, cardiovascular), emergency room visits (asthma) and acute myocardial infarction (non-fatal). The endpoints used to measure the health effects for ozone are mortality, emergency room visits (respiratory) and hospital admissions (respiratory).

The estimated PM2.5-related health outcomes for the Project are less than one additional incidence of asthma-related emergency room visits, asthma-related hospital admissions, all cardiovascular-related hospital admissions (not including myocardial infarctions), all respiratory-related hospital admissions, mortality, and nonfatal acute myocardial infarction. The estimated ozone-related health outcomes are less than one additional incidence for all respiratory-related hospital admissions, mortality, and asthma-related emergency room visits for any age range. For all these health endpoints, the number of estimated incidences is less than 0.0015% of the baseline number of incidences, where the "baseline incidence" is the actual incidence of health effects as measured in the local population in the absence of additional emissions from the Project (i.e., a 0.0015% increase in asthma induced emergency room visits for the 0-17 age group, above what would occur in the absence of the Project). The health impacts estimated using this methodology conservatively presume that health impacts seen at larger concentration differences can be linearly scaled down to smaller increases in concentrations, such as those small concentrations that result from the Project. This methodology of linearly scaling impacts is broadly accepted for use in regulatory evaluations and is considered as being health protective. The health impacts associated with criteria pollutant emissions from the Project are conservatively estimated, and the actual impacts may be zero.

Operational Health Risks

AQ 5: During operational activities, the Project could expose sensitive receptors to substantial health risk from operational-related emissions if operational sources of TAC emissions are not limited in location and operational parameters. (**Less than Significant with Mitigation**)

As was analyzed for construction emissions, sensitive receptors evaluated in this analysis include daycare receptors, residential receptors to the north (houseboats in the Oyster Point Marina) and recreational

receptors on the San Francisco Bay Trail. The criterion for whether or not the Project's operations activities presents a significant air quality impact is if the Project will "expose sensitive receptors to substantial pollutant concentrations," expressed as excess cancer risk exceeding 10 in 1 million, hazard index greater than 1.0 or annual PM2.5 concentrations that exceed 0.3 µg/m3 at sensitive receptor locations.

Operational activities related to the Project may vary depending on a number of factors including varying site locations for operational emission sources, so this analysis estimates health impacts using conservative and present-day assumptions. These conservative assumptions are not meant to reflect actual anticipated operations. Rather, these assumptions provide bounds within which operational activities have been analyzed. Operations that fall outside of these assumptions do not necessarily imply a new or more significant impact from air toxics. Rather, it indicates that a detailed health risk analysis with refined project information should be conducted to determine whether air toxic impacts would be significant based on the unique or particular aspects specific to an operation or emission source that is not addressed in this analysis.

Emission Sources

The potential sources of future additional emissions of toxic air contaminants (TAC) used in this analysis include TAC emissions from laboratory operations, emissions from diesel emergency generators (DPM and PM2.5), and emissions from natural gas combustion at the potential CHP and the four Miura boilers.

- Laboratory emissions encompass the list of all toxic chemicals that are emitted by current laboratory operations, and their relative emission rates (see Appendix 6B).
- The TAC emissions from natural gas combustion at the potential CHP were calculated from the emission factors provided in the California Air Toxic Emission Factor database (see Appendix 6A). Installation of a new CHP is dependent on future needs, as well as feasibility and cost studies yet to be prepared. If ultimately proposed, a new CHP would require permits from the BAAQMD and would be required to comply with applicable Best Available Control Technology (BACT), including BACT for toxics requirements.
- The TAC emissions from four Miura boilers are calculated based on the BAAQMD Permit Handbook for non-PM2.5 emissions, and PM2.5 emissions were calculated based on AP-42 emission factors.
- DPM emissions from future emergency generators are calculated based on emission factors from ARB engine certifications. Emissions of PM10 are conservatively assumed equal to emissions of DPM.

Figure 6-4 indicates the locations assumed for all TAC emission sources. **Appendix 6D** shows the emission rates used for the operational health risk assessment.

On-road vehicle traffic will also contribute to the Project's operational TAC emissions The BAAQMD Roadway Screening Analysis Calculator was used along with Project-specific data to estimate PM2.5 emissions and concentrations from on-road traffic. The Screening Calculator provides screening risk estimates for surface roadways. Two roadways located within 1,000 feet of the Project Area are estimated to have average daily traffic greater than 5,000 vehicles per day (East Grand Avenue and Forbes Avenue/Gull Drive). Contributions to health risks (i.e., cancer risk and PM2.5 concentration) of sensitive populations were estimated from these roadways, based on the distance to the closest sensitive receptor for each of the three population types. **Table 6-7** shows the results of the on-road traffic screening analysis.

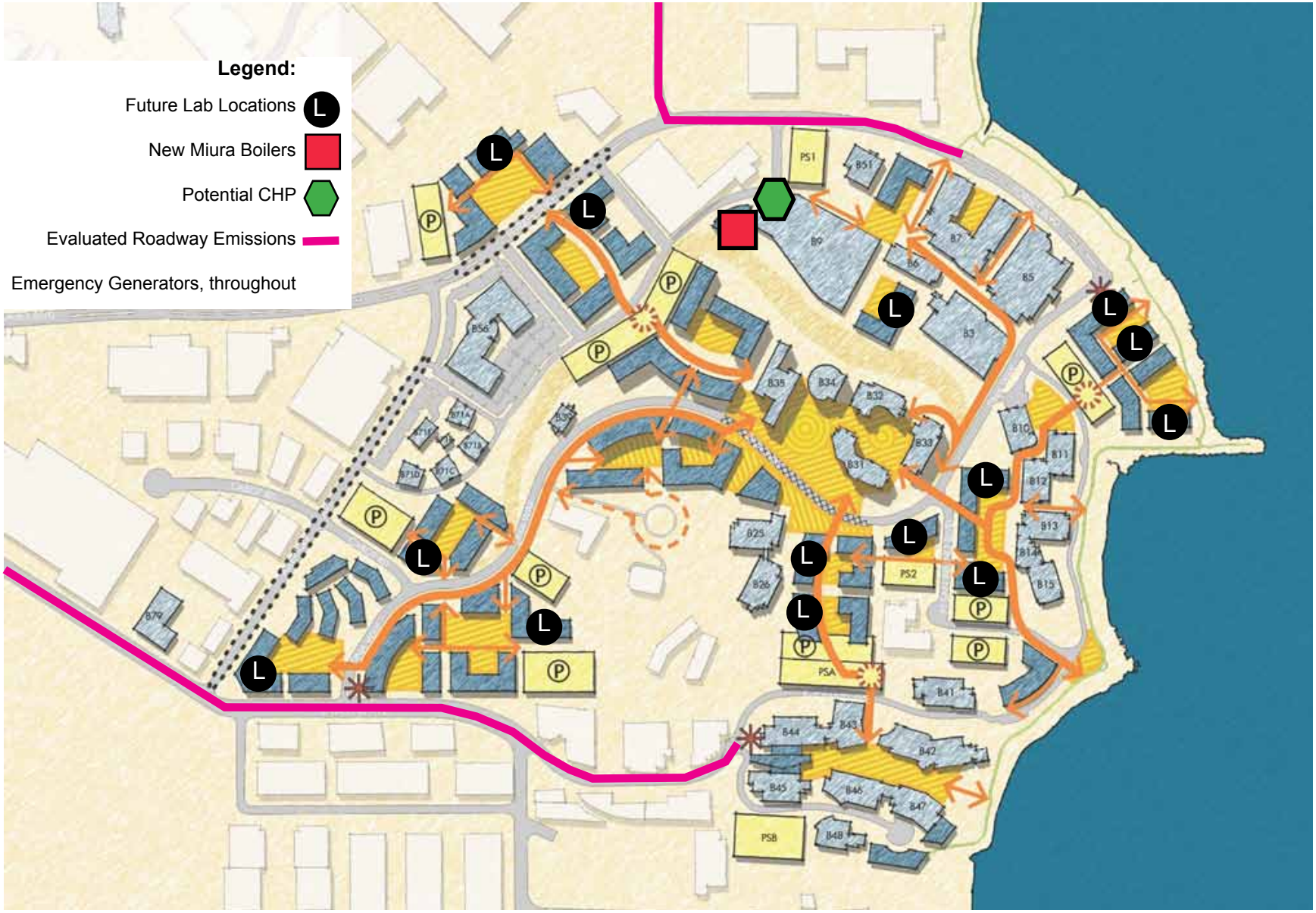

Figure 6-4
Modeled Toxic Air Contaminant Sources

Source: Genentech and Ramboll 2018

Table 6-7 Roadway Screening Health Risk Analysis [1]

Receptor Type	Nearest Roadway	Avg. Daily Traffic	Cancer Risk (per million)	PM2.5 (ug/m3)
Daycare (all)	East Grand Ave.	11,101	1.2	0.046
Resident	Gull Drive	1,881	1.05	0.019
Recreation	Forbes Boulevard	11,101	0.47	0.10

1. Estimated using the BAAQMD Roadway Screening Analysis Calculator where the inputs are: distance from the roadway, side of the roadway and ADT

Average daily trip rate as provided by Traffic Impact Analysis, Fehr & Peers

Source: Ramboll, October 2018

Assumptions Used in HRA Modeling

The modeling for near-field air dispersion TAC and PM2.5 emissions from the Project's operational sources was conducted using the USEPA AERMOD model. For each identified receptor location, the model generates average air concentrations that would result from emissions from each of the multiple emission sources. Maximum hourly dispersion factors were also estimated at each receptor location to estimate the acute health index (HI). Air dispersion models such as AERMOD require a variety of inputs such as source parameters, meteorological parameters, topography information, and receptor parameters. When site-specific information was unknown, default parameters were used. These default parameters are designed to produce conservative (i.e., overestimated) air concentrations.

Many of the assumptions for the air dispersion modeling of operational TAC emissions are similar to assumptions used for modeling of construction-period emissions. These similar assumptions include meteorological data, terrain considerations, the locations of sensitive receptors, modeling adjustment factors based on exposure duration, exposure assumptions, intake factors for exposure pathways, age sensitivity factors and intake exposure pathways. Assumptions specific to operational emission analysis include the following:

- Emission Rates: In the operational model, all hours of the day are included. Although operational emissions primarily occur during the daytime, emissions can theoretically occur at any hour of the day.
- Source Parameters: The potential CHP and the four Miura boilers were modeled as point sources. The prospective emergency generator sources were modeled a point source grid overlaying the Opportunity Sites. The locations of the prospective laboratory stacks were identified, and the modeling source parameters for the prospective laboratory stacks were determined based on the most conservative set of parameters (e.g., lowest stack height, release temperature and velocity) from representative laboratories (see **Appendix 6A**).
- Receptors: For the annual average impacts (i.e., cancer risk, chronic HI and PM2.5 concentration), the same receptor locations used for the construction health risk was used for the operational health risk. However, for the maximum hourly impact analysis (i.e., acute HI), sensitive populations can theoretically be at any location for up to an hour. In addition to the locations modeled for the annual analysis, two additional grids were added to the model, and used for the acute HI analysis. All impacts evaluated for this analysis attribute outdoor air concentrations at all modeled receptor locations. This is conservative because many of the modeled sensitive receptors are located indoors, and indoor air concentrations are typically lower than outdoor air concentrations.
- Modeling Adjustment Factors: Modeling adjustment factors were applied to estimate the exposure levels (based on annualized average concentrations of TAC emissions) to recreational and daycare

populations. These adjustments assume a typical operational workweek of 5 days, and a typical operational workday of 12 hours, and represent the concentrations to which the daycare child or offsite recreational receptor might be exposed to operational emissions over the operating period.

The operational parameters covered in this analysis are shown in **Table 6-8**. The assumed locations for future laboratories, Miura boilers and the potential CHP are as indicated in Figure 6-4. The per-laboratory emission rates were estimated by averaging the emission rates for all existing laboratory buildings that are known to emit each chemical. This health risk assessment assumes that all new laboratory buildings will have at least two stacks (conservative assumption based on existing laboratory characteristics), so the per-stack emission rates were calculated by dividing the per-building emission rates by two.

Table 6-8: Operational Parameters for TAC Emission Calculations

Source	# of Sources	Stack Height (m)	Stack Temp (k)	Stack Velocity (m/s)	Stack Diameter (M)
Labs	34	20	287	13	1
Generators	492	2.2	679	29	0.46
Miura Boilers	4	12	422	16	1.1
CHP	1	12	422	16	1.1

Notes:

1. The modeling source parameters for the prospective laboratory stacks were determined based on the most conservative set of parameters (e.g., lowest stack height, release temperature and velocity) from representative laboratories (South Campus and FRC II laboratory buildings). The locations and number of prospective laboratory stacks were provided per the Project Description
2. Modeling parameters for the emergency generators were determined based on the most conservative set of parameters from the last 10 generators permitted at Genentech. The generator sources were placed 30 meters apart throughout all of the Opportunity Sites.
3. The modeling parameters for the Miura boilers and the combined heat and power plant were obtained from Genentech (see Appendix 6D)

Estimated Operational TAC Concentrations

The analysis of health risk concludes that as long as the emergency generators and laboratory stacks are located in certain areas and operated within certain parameters, operational cancer risk, health index and PM2.5 concentrations would not exceed health risk thresholds. The analysis considers operational parameters and potential locations of emissions sources based on best available information at the time, but it is possible that other variations could be proposed in the future. Therefore, mitigation measures are included to address the potential for specific project changes outside the locations and operational parameters identified.

Figure 6-5 identifies the locations where the modeling shows that laboratory stacks could be located such that health risk would be below the significance thresholds at all sensitive receptor locations. Per Figure 6-5, laboratory stacks could be located on 79% of all modeled locations (Opportunity Sites anticipated under the Project Description as potential future lab locations) without the need for a separate health risk analysis. Similarly, **Figure 6-6** provides the analogous map for emergency generators laboratory stack locations. Based on this figure, generators can be located on approximately 67% of all modeled locations (Opportunity Sites) without the need for a separate, refined health risk analysis.

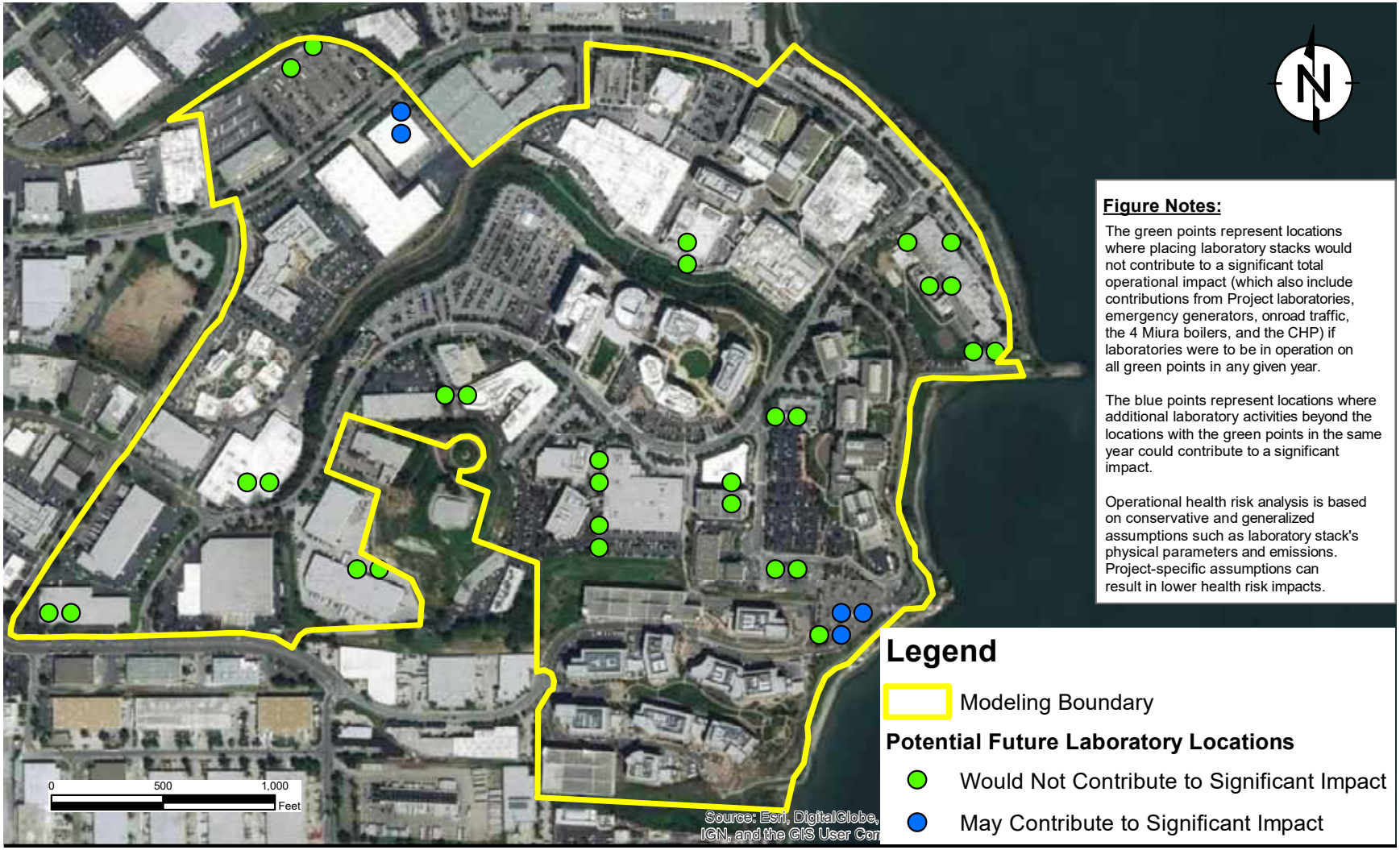

Figure 6-5
Laboratory Stack Locations, Health Risk Implications

Source: Ramboll 2018

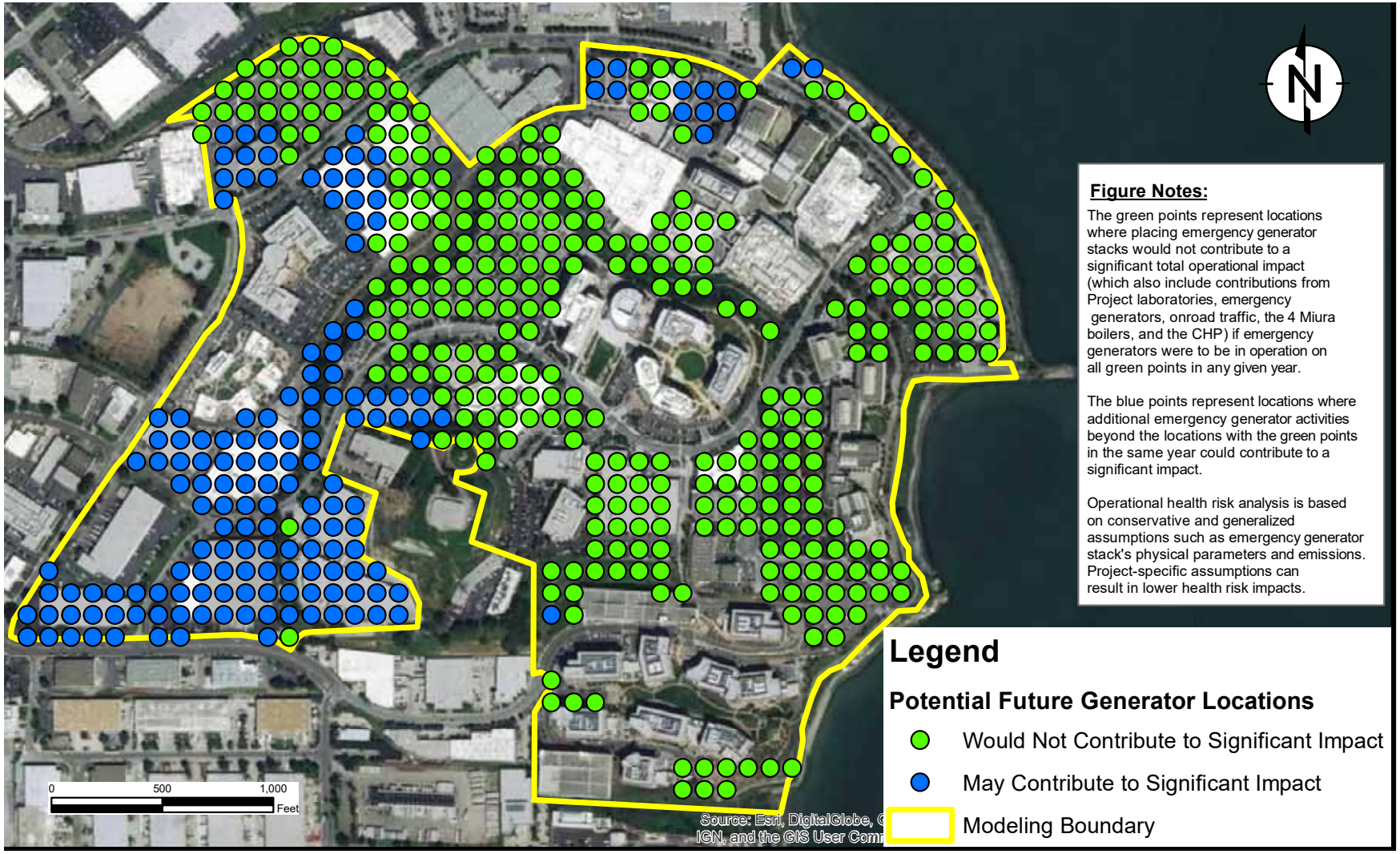

Figure 6-6
Emergency Generator Locations, Health Risk Implications

Source: Ramboll 2018

Figures 6-5 (Laboratories) and 6-6 (Emergency Generators) each take into account the health risks associated with all other sources of TAC emissions, and include contributions of emissions from roadway sources, Miura boilers and the potential CHP, if laboratories and emergency generators were to be in operation on all green points in any given year. The results presented in these figures include only impacts from Project sources, and do not include any impacts from cumulative sources (i.e., other sources within 1,000 feet of the Project). The blue points represent locations where additional laboratory activities or emergency generators beyond the locations with the green points, operating during the same year, may contribute to a significant impact based on conservative assumptions. Operations in the blue areas does not necessarily result in a significant impact, but does indicate that additional refined modeling will be needed to determine if impacts are significant.

Table 6-9 shows the additive impacts from those operational emissions attributed to all operational sources, under a scenario where no emission sources are located in areas where they would individually exceed threshold levels. As indicated, no health risk threshold levels are exceeded (i.e., impacts are below significant thresholds) under this limited scenario.

Table 6-9: Operational Health Risk Assessment, at Sensitive Receptors [1]

Receptor Type	Cancer Risk (per million) [1]	Threshold (per million)
Daycare (Genentech)	9.9	10
Daycare (Early Years)	1.3	10
Recreational (on Bay Trail)	7.6	10
Residential (Boathouses at Oyster Point Marina)	8.6	10
Non-Cancer Health Impacts [2]	**Value**	**Threshold**
Chronic Health Index	0.28	1.0
Acute Health Index	0.94	1.0
PM2.5 Concentration	0.24 ug/m^3	0.30 ug/m^3

1. The impacts are estimated with operation from 4 Miura boilers, CHP, Project mobile sources, locations of laboratories that would not contribute to significant impact (as shown in Figure 6-5), and locations of emergency generators that would not contribute to significant impacts (as shown in Figure 6-6),.
2. The maximum chronic HI and PM2.5 concentrations occur on the San Francisco Bay trail next to Forbes Boulevard.

Source: Ramboll, October 2018

Mitigation Measures

The following Mitigation Measures define the limitations (or boundaries) applicable to the assessment of operational health risk impacts as conducted for this EIR:

Mitigation Measure AQ 5A - Parameters for Operational Emissions: New operational sources of TAC emissions (i.e., emergency generators, laboratories with emissions stacks, or natural gas combustion at the Miura boilers or potential CHP) shall operate within the operational parameters as used in this analysis (as shown in Table 6-9). For any operational source of TAC emissions that does not operate within these parameters, a subsequent, project-specific health risk analysis shall be performed. Any such subsequent, project-specific health risk analysis must be able to demonstrate that the proposed operational source of TAC emissions would not contribute to new or substantially more significant health risks to sensitive receptors than those health risks presented in this EIR. This conclusion may

account for any additional project-specific measures to reduce TAC emissions included as part of such an emission source.

Mitigation Measure AQ 5B - Locational Restrictions on Future Operational Emission Sources: Emergency generators and laboratories with emissions stacks shall be limited to those locations as shown on Figure 6-5 (for laboratories) or Figure 6-6 (for emergency generators), where their operations have been demonstrated to not exceed health risk thresholds. For any operational source of TAC emissions that are located outside of these locations, a subsequent project-specific health risk analysis shall be performed. Any such subsequent, project-specific health risk analysis must be able to demonstrate that the proposed location would not contribute to new or substantially more significant health risks to sensitive receptors than those health risks presented in this EIR. This conclusion may account for any additional project-specific measures to reduce TAC emissions included as part of such an emission source.

Resulting Level of Significance

This analysis provides for several significance conclusions:

- First, operational source of TAC emission that operate within the emission parameters used in this analysis can be located on any of those Opportunity Sites shown on Figures 6-5 and 6-6 as not contributing to operational-period health risks without having to conduct further project-specific analysis. Health risk impacts resulting from such emission sources and sited at these locations would be less than significant.
- Secondly, individual projects that include new sources of operational TAC emissions that would operate outside of the operational parameters used in this EIR may only be initiated after preparation of a subsequent project-specific health risk analysis. Only those projects that can be demonstrated as not contributing to a new or more significant health risk to sensitive receptors (potentially accounting for any additional project-specific measures to reduce TAC emissions) can be considered as having been addressed in this EIR. Health risk impacts resulting from such emission sources would also be less than significant, pending affirmative conclusions of subsequent project-specific health risk analyses.
- Third, individual projects that include new operational sources of TAC emissions and that are sited at locations not shown on Figure 6-5 (for laboratories) or Figure 6-6 (for emergency generators) may only be initiated after preparation of a subsequent project-specific health risk analysis. Only those projects that can be demonstrated as not contributing to a new or more significant health risk to sensitive receptors due to their location (potentially accounting for any additional project-specific measures to reduce TAC emissions) can be considered as having been addressed in this EIR. Health risk impacts resulting from emission sources at these locations would also be less than significant, pending affirmative conclusions of subsequent project-specific health risk analyses.

Operational source of TAC emissions that would operate outside of the emissions parameters used in this analysis, or that would be located on any Opportunity Site shown on Figures 6-5 and 6-6 as contributing to operational-period health risks have not been fully analyzed. Such operational sources should undergo subsequent project-specific analysis and affirmatively demonstrate that no new or more significant health risk to sensitive receptors would occur beyond those analyzed or considered in this EIR.

Cumulative Health Risk

AQ 6: The Project would not contribute at a significant level to a cumulatively considerable health risk impact. Specifically, the TAC emissions generated by the Project, when added to TAC emissions from all local sources within 1,000-foot zone of influence, would not result in an excess cancer risk level of

more than 100 in 1 million, a hazard index greater than 10, or a concentration greater than 0.8 $\mu g/m^3$ annual average PM2.5. (**Less than Cumulatively Significant**)

The following provides an analysis of cumulative health risks (cumulative cancer risk and cumulative PM2.5 concentrations) that would accrue to the nearest maximum exposed individual sensitive receptor (MEIR), resulting from implementation of the Project (construction and operation) plus all nearby sources in the surrounding area. Nearby sources in the surrounding area includes permitted stationary sources (e.g., emergency generators and boilers), roadway traffic sources, and truck idling emissions at the nearby UPS and Blue Line Transfer, Inc. facilities.

Off-Site Stationary Sources

A number of stationary sources of TAC emissions are located off-site, but within 1,000 feet of the Project Area. These existing off-site stationary sources were included in the cumulative TAC emissions analysis based on:

- the BAAQMD Risk Analysis Tool, which lists permitted stationary sources, as well as their maximum screening-level cancer risk, chronic HI, and PM2.5 concentrations
- data provided by the BAAQMD for facilities where maximum screening level cancer risk, chronic HI, and PM2.5 concentrations were not readily available from the Risk Analysis Tool
- the contributions to PM2.5 concentrations specific to Blue Line Transfer Inc. facility were derived by performing a screening model analysis using USEPA's SCREEN3 model and emission rates for the facility as obtained from BAAQMD
- adjustments for TAC emission concentrations from known gasoline dispensing facilities, based on the distance from the facility to the MEISRs assessed in this analysis, using the BAAQMD's Diesel Internal Combustion (IC) multiplier tool,
- adjustments for TAC emission concentrations from known for gasoline dispensing facilities, based on the distance from the facility to sensitive receptors was assessed in this analysis using the BAAQMD's Gasoline Dispensing Facility (GDF) Distance Multiplier tool, and
- additional adjustment factors relying on exposure assumptions for the different population types, using recently developed 2015 OEHHA guidance

Existing Genentech Stationary Sources

The contribution to cancer risk from Genentech's existing TAC emission sources was provided by Genentech, as included in Appendix 6A.

Concentrations of PM2.5 emissions from existing emergency generators and boilers were derived from emission rates for each facility, and concentrations were estimated based on the BAAQMD's Beta calculator tool (Version 1.3 beta) to estimate PM2.5 concentrations. Emissions from existing Genentech boilers were obtained based on known emission rates per boiler, modeled using AERMOD to obtain the PM2.5 concentrations at all sensitive receptors.

Other Existing Sources

- Roadway Sources: The cumulative analysis includes vehicle TAC emissions from all roadways with over 5,000 vehicles per day, or 500 trucks per day on roadways located within 1,000 feet from sensitive receptors identified in this analysis. Similar to stationary sources, the screening risks for roadway sources were adjusted to be consistent with 2015 OEHHA guidance.
- Truck Idling: Emissions from truck idling activities at the UPS and Blue Line Transfer Inc. facilities were estimated using daily trip count information from the Traffic Analysis prepared for this EIR, an

assumed idling time of 5 minutes per trip (consistent with ARB's limit on Diesel-Fueled Commercial Motor Vehicle Idling), and a conservative dispersion factor using the SCREEN3 model.

Cumulative Analysis Results

Table 6-10 shows the cumulative (combined) cancer risk and PM2.5 concentration from all existing and nearby sources, and all Project sources, compared against cumulative thresholds. As shown in this table:

- the cumulative cancer risks at all sensitive receptor locations analyzed are below the cumulative threshold of 100 in a million, but
- the cumulative PM2.5 concentrations at all sensitive receptor locations are significantly above the cumulative threshold of 0.8 µg/m3

Note that the Project's maximum contribution to cumulative health risks at each sensitive receptor is different under each type of analysis, or scenario. Under the operational scenario, the Project's contribution to cancer risk is greatest at the Genentech Daycare Center and the Project's contribution to PM2.5 concentrations is greatest at the Bay Trail. Under the construction scenario, the Project's contribution to cancer risk is greatest at the Genentech Daycare Center and the Project's contribution to PM2.5 concentrations is greatest at the Early Years preschool. For the construction scenario, all emissions are greatest under the unmitigated scenario, and are improved with mitigation.

Table 6-10: Cumulative Operational Health Risk Assessment, at Sensitive Receptors [1]

Operational Scenario	Genentech Daycare (Cancer Risk per million)	Bay Trail (PM2.5 Concentrations (ug/m^3)
Existing Off-Site Stationary Sources	21	1.20
Truck Idling	6.8	0.01
Surface Streets		NA
Existing Genentech Sources	10	0.10
Plus Project Emissions	9.9	0.24
Total:	**48**	**1.5**
Thresholds:	100	0.8
Exceed Threshold?	No	**Yes**

Construction Scenario	Not Mitigated- Genentech Daycare (Cancer Risk per million)	Not Mitigated - Early Years Daycare (PM2.5 Concentrations (ug/m^3)
Existing Off-Site Stationary Sources	23	1.20
Truck Idling	5.1	0.004
Surface Streets		0.038
Existing Genentech Sources	10	0.031
Plus Project Emissions	10	0.012
Total:	**48**	**1.3**
Thresholds:	100	0.8
Exceed Threshold?	No	**Yes**

Source: Ramboll, October 2018

The largest contribution to PM2.5 concentration in the surrounding area is from the Blue Line Transfer Inc. transfer station (an existing off-site stationary source). By itself, this facility's contributions are 1.2 to 1.5 µg/m^3 depending on the locations of the measured sensitive receptor. All other sources combined (including the Project) contribute to a concentration of less than 0.2 µg/m^3. The PM2.5 concentrations from the Blue Line Transfer Inc. facility were estimated using SCREEN3 methodology that includes many conservative assumptions. The actual PM2.5 concentration values for this facility are likely much lower because the reported concentrations represent total PM (i.e., all sizes of particulate matter) including particulate matter greater than 2.5 microns in size, which likely drop out of the atmosphere well before mixing with other source emissions at more distant sensitive receptor locations. Eliminating these conservative assumptions from the modeling would likely have reduced the calculated PM2.5 concentration from the Blue Line Transfer Inc. facility significantly.

The Project's contribution to cancer risks and PM2.5 concentrations at all measured sensitive receptors, when added to other cumulative sources, do not result in exceeding a cumulatively threshold that is not already exceeded, and therefore are considered less than cumulatively significant.

Mitigation Measures

None needed, beyond those identified for the Project's individual TAC emissions under both operations and construction scenarios.

Cumulative Air Quality Effects

Other than the individual health risks from toxic air pollutants presented above, air pollution is largely a cumulative impact. Emissions from past, present, and reasonably foreseeable future projects all contribute to the region's air quality on a cumulative basis. However, no individual project by itself is of sufficient size to cause regional non-attainment of ambient air quality standards. Thresholds for air quality impacts as used in this EIR are set such that projects meeting the thresholds are not considered to lead to cumulatively considerable air quality impacts. Air quality emissions associated with the Project would make a cumulatively considerable contribution to significant cumulative air quality impacts if they exceed these thresholds. As indicated in the analyses above, the Project will result in a cumulatively considerable contribution to significant cumulative impacts on air quality. These cumulative air quality impacts can adversely affect the entire San Francisco Bay Area Air Basin.

Ambient Air Quality Standards

The San Francisco Bay Area Air Basin is currently designated as nonattainment for ozone, PM10 and PM2.5. Since the Project's emissions of criteria pollutants (i.e., PM10, PM2.5, and the ozone precursors NOx and ROG) from construction and operation of the Project exceeds threshold levels, impacts of the Project due to the emission of non-attainment pollutants is considered cumulatively considerable. The Project incorporates numerous features in its design that will serve to reduce operational emissions of criteria pollutants, including a TDM program that exceeds local requirements and implementation of energy efficiency features in future building designs. The Project's participation in the BAAQMD offset program will also ensure a no net increase of NOx and ROG emissions from stationary sources. Although these TDM measures, energy efficiency features and regulatory requirements are incorporated into the Project, total emissions of criteria pollutants from mobile sources and other sources not requiring separate permits from the BAAQMD would still exceed the thresholds of significance. There are no additional quantifiable and feasible mitigation measures capable of further reducing these emissions, and the Project would make a substantial contribution to cumulatively **significant and unavoidable** air quality impacts.

Construction-period Emissions

Throughout buildout of the Project, construction activities would result in emissions of criteria pollutants for which the region is non-attainment, including releasing emissions of ozone precursors and particulates. These construction-period emissions would combine with emissions from other cumulative construction project and other cumulative operational emissions to affect regional air quality. However, with implementation of Basic BMPs as identified in this EIR at all of the Project's construction activities and additional BMPs for those construction projects that exceed screening criteria, the Project's construction emissions would be unlikely to exceed applicable thresholds, and thus **not considered cumulatively significant**.

Objectionable Odors

Increased traffic, maintenance equipment operations and application of architectural coatings associated with the long-term operations of land uses within the East of 101 area are unlikely to create objectionable odors, such that more than five confirmed complaints per year averaged over three years would likely be received. The Project would have a **less than cumulatively considerable** contribution to significant cumulative odor impacts.

7

Biological Resources

This chapter evaluates the potential impacts of the Project on biological resources. This chapter describes existing biological resources in the Project Area and within an expanded biological resources study area (or Study Area) that includes adjacent habitat types or habitats that cross Project Area boundaries. This chapter evaluates the extent to which development of the Project may cause significant impacts to those biological resources, and identifies regulatory requirements and mitigation measures (where necessary) to reduce or avoid those potential impacts.

Setting information and analysis was prepared primarily by H.T. Harvey & Associates, including the following primary sources:

- Five separate site visits were conducted by H. T. Harvey & Associates ecologists on June 3, 2016, June 29, 2016, July 25, 2016, March 29, 2017, and May 18, 2017
- H.T. Harvey and Associates, Biological Constraints and Opportunities Report, September 2016 (**Appendix 7A**)
- H.T. Harvey and Associates, Memorandum regarding the Special-Status Plant Survey and Drainage Ditch Evaluation, July 2017 (**Appendix 7B**)

Environmental Setting

Habitats

For purposes of ensuring evaluation of potential direct, indirect and cumulative effects on biological resources, the biological resources Study Area includes an expansion of the Project Area boundary to include a portion of the San Francisco Bay. Seven habitat types were identified within the biological Study Area: developed and landscaped, tidal aquatic, upland ruderal grassland and shrubland, rocky shoreline, ornamental woodland, coastal salt marsh, and drainage ditches. **Table 7.1** provides a summary of the habitat acreages on the biological Study Area, and **Figure 7-1 and 7-2** show their distribution and extent.

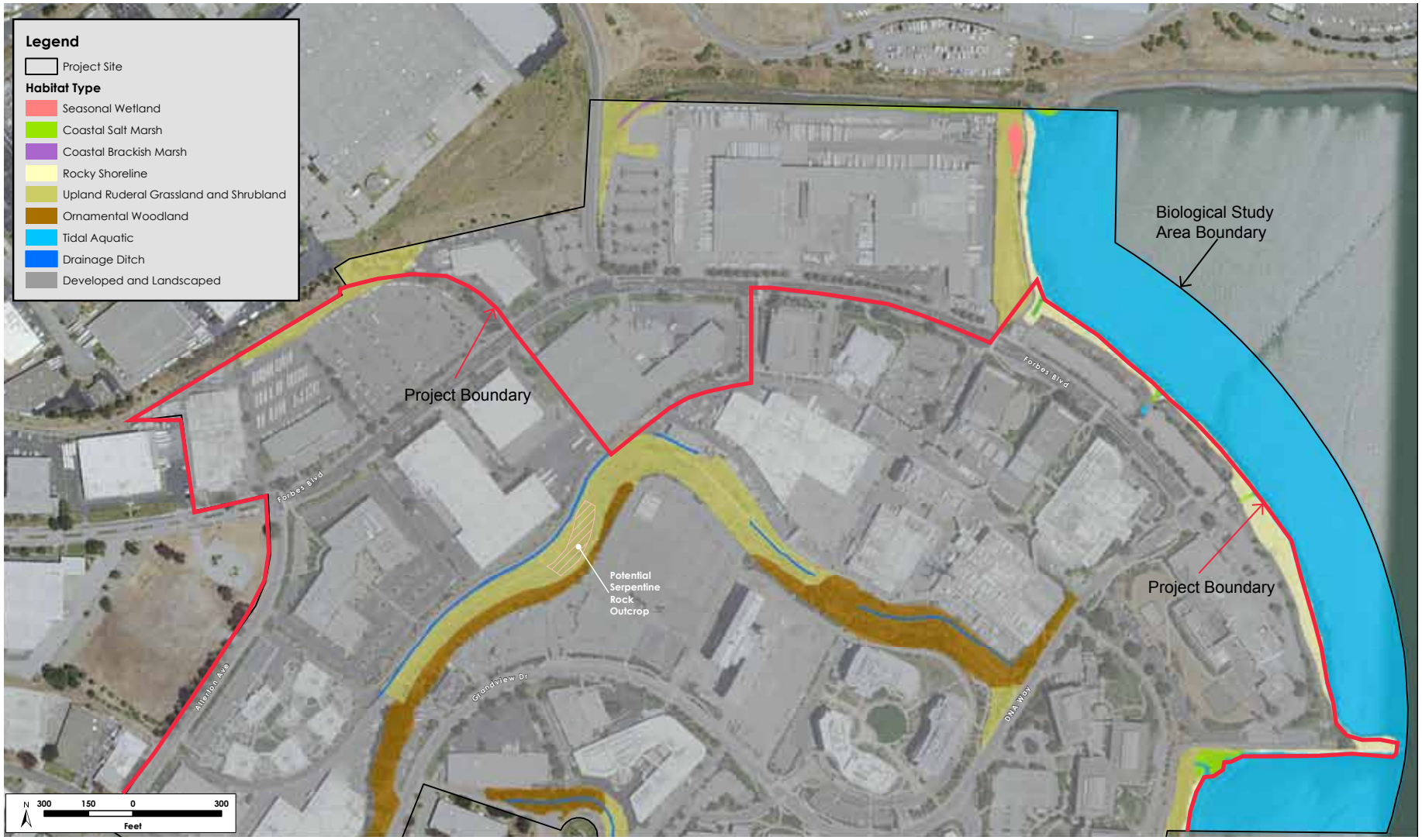

Figure 7-1
Biotic Habitats (northerly Study Area)

Source: HT Harvey Associates, 2017

Figure 7-2
Biotic Habitats (southerly Study Area)

Source: HT Harvey & Associates, 2017

Table 7.1: Habitat Acreages in the Biological Study Area (acres)

Habitat	Project Area	Additional Biological Study Area	Total Study Area
Developed and landscaped	182.5	27.5	210.1
Upland ruderal grassland and shrubland	11.9	1.2	13.1
Ornamental woodland	5.7	-	5.7
Rocky shoreline	6.8	0.3	7.1
Coastal salt marsh	0.7	0.1	0.8
Seasonal wetlands	-	0.1	0.1
Coastal brackish marsh	-	0.1	0.1
Drainage ditches	0.3	-	0.3
Tidal aquatic	-	20.3	20.3
Totals:	**207.9**	**49.6**	**257.5**

* Values are subject to rounding

Source: HT Harvey & Associates, 2017

The nine habitat types, including the vegetation and wildlife they support, are discussed below.

Developed and Landscaped

Vegetation

The Study Area is dominated by developed and landscaped habitat, which includes paved roads, buildings, parking lots, paved and gravel trails, ornamental and landscaped areas (typically irrigated with a mulch base), and irrigated turf. The habitat suitability for rare or native vegetation in these areas is very low to absent. Most of the developed and landscaped habitat is under an altered hydrologic regime, being either dewatered by hardscape or irrigated to support landscape plants. The developed and landscaped habitat areas appear to be continually maintained or otherwise are permanently impacted by hardscape and buildings.

Common ornamentals planted in the landscaped areas along the shoreline include black sage (*Salvia mellifera*), big saltbush (*Atriplex lentiformis*), common woolly sunflower (*Eriophyllum lanatum*), and Perez's sea lavender (*Limonium perezii*). Sydney golden wattle (*Acacia longifolia*), ceanothus cultivars (*Ceanothus* spp.), ornamental bunchgrasses, irises (*Iris* spp.), and strawberry madrone (*Arbutus unedo*) are scattered throughout the interior. There are few naturally occurring plants in the Project Area. These plants include nonnative annual grasses, smooth cat's ear (*Hypochaeris glabra*), bristly ox-tongue (*Helminthotheca echioides*), and yellow sorrel (*Oxalis corniculata*).

Wildlife

Developed habitats such as those in the Study Area primarily support common, urban-adapted wildlife species, and overall wildlife abundance and diversity are low. Due to the uniform nature of most landscaping and regular disturbances from maintenance and human use, landscaped habitats in the Project Area are used sparingly by most wildlife species. Dense shrub and tree landscape components may offer sufficient cover for nesting birds and mammals, and wildlife using adjacent habitats occasionally exploits foraging opportunities offered by the limited landscaped habitats in the Study Area.

Common species using the developed and landscaped habitat include the common raven (*Corvus corax*), Anna's hummingbird (*Calypte anna*), red-shouldered hawk (*Buteo lineatus*), northern mockingbird (*Mimus polyglottos*), black phoebe (*Sayornis nigricans*), California towhee (*Melozone crissalis*), house finch (*Haemorhous mexicanus*), American goldfinch (*Spinus tristis*), lesser goldfinch (*Spinus psaltria*), and bushtit (*Psaltriparus minimus*). In the winter, the white-crowned sparrow (*Zonotrichia leucophrys*) and golden-crowned sparrow (*Zonotrichia atricapilla*) are typical. Bats (e.g., Mexican free-tailed bat [*Tadarida brasiliensis*]), could roost in small numbers in structures that offer crevices or cavities for shelter. Small, non-native mammals such as house mice (*Mus musculus*) and eastern gray squirrels (*Sciurus carolinensis*) are expected to forage in shrubs and trees in the landscaped potions of the Project Area, and invasive Norway rats (*Rattus norvegicus*) likely make use of landscaped areas as well as inhabiting storage areas and garbage facilities, at least in small numbers. Urban-adapted native mammals such as raccoons (*Procyon lotor*) and striped skunks (*Mephitis mephitis*) occasionally occur here as well.

Cabbage whites (*Pieris rapae*), painted ladies (*Vanessa cardui*), and other common butterflies, as well as honeybees (*Apis mellifera*) and other common invertebrate species use flowering landscape plants for foraging. Areas landscaped with ornamental species, such as woolly sunflower or sea lavender can provide suitable nectar sources for a diversity of common butterflies and insects. However, these relatively small areas are isolated from other suitable habitats by dense urban development, and they lack the diverse assemblage of native and nectar-producing species typically needed to support populations of sensitive native pollinating insects.

Upland Ruderal Grassland and Shrubland

Vegetation

Upland ruderal grassland and shrubland is found in those disturbed areas of the Study Area that are not maintained as ornamental landscaping and do not support large trees. Dominant plants include fennel (*Foeniculum vulgare*), pampas grass (*Cortederia* sp.), nonnative annual grasses—such as wild oats (*Avena* sp.), ripgut brome (*Bromus diandrus*), and mouse barley (*Hordeum murinum*)—and weedy forbs such as wild radish (*Raphanus sativa*), bristly ox-tongue, and bird's-foot trefoil (*Lotus corniculatus*). Occasional coyote brush (*Baccharis pilularis*) and toyon (*Heteromeles arbutifolia*) shrubs provide sparse to medium cover.

The suitability of these upland ruderal grasslands and shrublands to support special-status plants is generally very low. However, one location near the center of the Project Area and along the steeper hillside between the Upper Campus and West Campus appears to be underlain by native soil and bedrock and supports a higher density and diversity of native forbs, including blue-eyed grass (*Sisyrinchium bellum*), Douglas' silverpuffs (*Microseris douglasii*), and Monterey centaury (*Zeltnera muehlenbergii*).[1]

Wildlife

The ruderal grasslands in the Study Area are relatively small, and generally occur in long linear patches either along steep hillslopes or in small patches on undeveloped portions of the site. These patches of habitat are separated from the more expansive annual grasslands in the surrounding region by extensive urbanization. Human disturbance of this habitat is frequent, as office buildings, laboratories and other commercial facilities are located immediately adjacent. The San Francisco Bay Trail runs through or adjacent to ruderal grassland habitats near the shoreline.

Animal species occurring in this habitat type within the Study Area are common species habituated to regular human presence, including the red-tailed hawk (*Buteo jamaicensis*), common raven, northern mockingbird, black phoebe and California towhee. During winter, white-crowned sparrows and golden-crowned sparrows

[1] This area appears to be a potential serpentine rock outcrop.

also use this habitat. The scattered trees and shrubs in or adjacent to the ruderal grasslands provide perches and foraging opportunities for common species which might not otherwise occur in ruderal grasslands, such as the red-shouldered hawk, Anna's hummingbird, bushtit, and house finch. Other common species include the western fence lizard (*Sceloporus occidentalis*), western terrestrial garter snake (*Thamnophis sirtalis*), house mouse (*Mus musculus*), California vole (*Microtus californicus*), valley pocket gopher (*Thomomys bottae*), deer mouse (*Peromyscus maniculatus*), striped skunk and raccoon.

Species typically associated with extensive, contiguous grasslands, such as the western meadowlark (*Sturnella neglecta*), white-tailed kite (*Elanus leucurus*), and grasshopper sparrow (*Ammodramus savannarum*), are not expected to occur in the Project Area.

Ornamental Woodland

Vegetation

Ornamental woodland is found in limited naturalized portions of the Study Area where mostly non-native trees and some native trees and shrubs dominate the vegetation. Characteristic species include beach pine (*Pinus contorta*), Monterey cypress (*Hesperocyparis macrocarpa*), Sydney golden wattle (*Acacia longifolia*), eucalyptus (*Eucalyptus* spp.), coast live oak (*Quercus agrifolia*), toyon and coyote brush. The herbaceous layer of this habitat type is characterized by the same species as those found in upland ruderal grassland and shrubland.

Wildlife

Ornamental trees and shrubs provide habitat for moderate numbers of common, urban-adapted wildlife species. Several species of resident and breeding birds nest and forage in this habitat, including house finches, bushtits, Anna's hummingbirds, American robins (*Turdus migratorius*), mourning doves (*Zenaida macroura*), and American crows (*Corvus brachyrhynchos*). Red-tailed hawks and red-shouldered hawks, which have adapted well to urbanization in the San Francisco Bay region, also may occur in the Project Area, although no raptor nests were observed, and these species are expected to occur only as occasional foragers.

Migratory birds and wintering species may also use the ornamental woodland habitat in the Study Area. Migrant songbirds such as the Wilson's warbler (*Cardellina pusilla*), orange-crowned warbler (*Oreothlypis celata*), western tanager (*Piranga ludoviciana*), Pacific-slope flycatcher (*Empidonax difficilis*) and warbling vireo (*Vireo gilvus*) forage during spring and fall migration. Several other species, including the ruby-crowned kinglet (*Regulus calendula*), yellow-rumped warbler (*Setophaga coronata*), white-crowned sparrow and golden-crowned sparrow may occur in this habitat as both migrants and winter residents.

Urban-adapted mammals may occasionally reside in ornamental woodlands in the Study Area, including raccoon, striped skunk, and the nonnative Virginia opossum (*Didelphis virginiana*). Western fence lizards occur where debris piles, rocks, or other refugia are present.

Rocky Shoreline

Vegetation

The rocky shoreline habitat type includes rocky shoreline areas that are above the high tide line. The eastern edge of the Study Area along the San Francisco Bay is characterized by an armored rock slope composed of large rock riprap on a relatively steep slope ranging from 10 to 60 feet wide. Vegetation varies from sparse to dense, and is dominated by non-native annual grasses, sea fig (*Carpobrotus* spp.), fennel, and pampas grass, with occasional coyote brush, black sage, and several species of buckwheat (*Eriogonum* spp.).

Flatter, rocky beaches that lack vegetation and are characterized by smaller rocks and a more gradual slope are also present in a few patches along the shoreline, within and adjacent to the armored rock areas. The

rocky beaches and portions of the armored rock slopes are above the high tide line and the intertidal zone, but are influenced to some degree by the adjacent tidal aquatic habitats, such as during storm events or extreme high tides. Rocky beaches support very little vegetation due to the mostly unconsolidated rock substrate, high drainage and continuous rock movement. Some sparse vegetation that exists in the rocky beach habitat includes sea fig and beach bur-sage (*Ambrosia chamissonis*). The rocky shoreline in the Study Area is variably bordered on the landside by coastal salt marsh, upland ruderal grassland and shrubland, and developed and landscaped habitats, and on the Bay side by tidal aquatic and salt marsh habitats. The habitat suitability for rare plants in these areas is very low.

Wildlife

Riprap is largely not vegetated and thus provides habitat for few wildlife species. California ground squirrels (*Otospermophilus beecheyi*), raccoons, striped skunks and other small mammals may find refugia in spaces between or beneath the rocks, and small birds may occasionally use riprap as cover. Overall wildlife use of the rocky shoreline is low. No areas providing high quality nesting habitat for waterbirds was observed along the shoreline during reconnaissance surveys.

Coastal Brackish Marsh

Vegetation

Coastal brackish marsh is located at the western end of a tidally influenced drainage along the northern edge of the Study Area (not within the Project Site). Vegetation in the western portion of this channel is dominated by alkali bulrush (*Bolboschoenus maritimus*) in the center of the channel and fennel, pampas grass, and nonnative annual grasses on the banks.

Coastal Salt Marsh

Vegetation

Coastal salt marsh is found in several small patches on the eastern edge of the Study Area along the Bay shoreline, within two large tidally influenced channels, and within several small channels associated with stormwater outfalls. These areas are in the intertidal zone, strongly influenced by the daily rising and falling tides within the Bay, and are vegetated. Coastal salt marshes in the Study Area are dominated by a mix of native and non-native species, including pickleweed (*Salicornia pacifica*), salt grass (*Distichlis spicata*), marsh jaumea (*Jaumea carnosa*), marsh gumplant (*Grindelia stricta* var. *angustifoli*a), Algerian sea lavender (*Limonium ramosissimum*), alkali Russian thistle (*Salsola soda*), and fat-hen (*Atriplex prostrata*). The habitat suitability for rare plants to occur in this habitat is low due to the fragmented and disturbed nature of the small areas of marsh.

Wildlife

Brackish and salt marsh habitats form important ecological communities in the Bay where they are sufficiently extensive. Such habitats support wildlife species uniquely adapted to a saline environment and frequent changes in water levels, as well as common species that are adapted to a wide range of conditions. However, the marsh habitats in the Study Area are too limited in extent and too isolated from other large expanses of tidal marsh. Thus, they do not provide high-quality habitat or support some of the rarer species associated with tidal salt marsh in San Francisco Bay such as California black rails (*Laterallus jamaicensis coturniculus*), salt marsh harvest mice (*Reithrodontomys raviventris*), or salt marsh wandering shrews (*Sorex vagrans halicoetes*).

Mudflats associated with Bay salt marsh habitats in the Study Area provide shelter for burrowing invertebrates and rich foraging habitats for a variety of wildlife species. Mallards (*Anas platyrhynchos*), a great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), and snowy egrets (*Egretta thula*) were

observed foraging in the salt marsh habitats along the northern, eastern, and southern edges of the Study Area. Common bird species that use adjacent annual grassland, ornamental, or landscaped habitats (e.g., house finches, American goldfinches and California towhee) may occasionally forage in the higher portions of these marshes. Small numbers of Alameda song sparrows (*Melospiza melodia pusillula*) may also be found in this habitat type in the Study Area. California gulls, western gulls, black-necked stilts (*Himantopus mexicanus*), and whimbrels (*Numenius phaeopus*) frequently use marsh habitats in the vicinity to forage. Mammals such as Norway rats, striped skunks and raccoons may forage in the salt marshes.

Seasonal Wetland

Vegetation

One seasonal wetland is located in the northeastern corner of the Study Area, at the north end of an undeveloped patch of ruderal grassland and shrubland. This seasonal wetland is **not** within the Project Site. Dominant plants in this seasonal wetland are tall flatsedge (*Cyperus eragrostis*) and salt grass. Other vegetation in the seasonal wetland includes nonnative species such as cutleaf plantain (*Plantago coronopus*), brass buttons (*Cotula coronopifolia*), perennial ryegrass (*Festuca perennis*), bird's-foot trefoil and rabbit's foot grass (*Polypogon monspeliensis*).

Wildlife

Throughout most of the year, the small seasonal wetland habitat in the Study Area supports habitat for a range of wildlife species similar to that described above for upland ruderal grassland and shrubland. These species may include common birds like the black phoebe, California towhee, house finch and American goldfinch, and small mammals like the house mouse, deer mouse and California vole. However, during the winter months when the seasonal wetland is full of water, this feature also provides a small amount of suitable aquatic habitat for common amphibians and reptiles, and foraging habitat for wading bird species. Seasonal wetland habitats in the Study Area support a suite of small crustaceans and semiaquatic insects, such as seed shrimp (*Order Ostracoda*), copepods (*Order Copepoda*), and diving beetles (*Order Coleoptera, Family Dytiscidae*), which in turn provide an important source of prey for amphibians and wading birds. Shorebirds may forage on such invertebrates, although due to the small size of this wetland and disturbance by human activity along the Bay Trail, this wetland likely supports low abundance and diversity of wetland-associated wildlife.

Drainage Ditches

Vegetation

Several concrete-lined drainage ditches are located in the inland portion of the Project Area, within or adjacent to ruderal grassland and ornamental woodland habitats. Whether these drainage ditches are determined to be wetlands is based on the US Army Corps of Engineers' *Wetlands Delineation Manual* (Environmental Laboratory 1987), an approach that relies on identification of three parameters: hydrophytic vegetation, hydric soils, and wetland hydrology indicators. Areas typically not considered jurisdictional waters include non-tidal drainage and irrigation ditches excavated in uplands. The on-site drainage ditches have been excavated in uplands for conveying stormwater runoff from the hillslopes and developed areas to the underground stormwater system, which eventually drains to the San Francisco Bay. They support little to no vegetation, are not suitable for rare or native vegetation, and therefore unlikely to be determined as jurisdictional waters (see further discussion under Sensitive Natural Communities, Habitats and Vegetation Alliances, below).

Wildlife

The drainage ditches in the Project Area generally do not provide suitable habitat for common or special-status wildlife species. Common reptiles (e.g., western fence lizard, common garter snake) often use exposed concrete areas for basking. Common bird and mammal species that occur in the adjacent habitats may occasionally cross through or move along the drainage ditches.

Tidal Aquatic

Vegetation

Tidal aquatic habitat is found along the Bay shoreline on the eastern edge of the Study Area. These habitat areas are in the intertidal zone, and are influenced by the daily rising and falling tides within the Bay. The tidal aquatic habitat in the biological Study Area supports very little vegetation, with the exception of algae. It includes areas that are permanently flooded with tidal waters (open water habitat) as well as portions of the levee slopes below the high tide line that are periodically or even regularly exposed except under high tide conditions.

Wildlife

The San Francisco Bay supports a variety of animal species, including special-status species such as Central California Coast steelhead (*Oncorhynchus mykiss*) and green sturgeon (*Acipenser medirostris*). Benthic (i.e., bottom dwelling) invertebrates present in open water and intertidal habitats near the Study Area include the native Olympia oyster (*Ostreola conchaphila*). Populations of native oysters within the Bay are relatively low as compared with historical conditions.[2] Suitable habitat, which consists of solid surfaces to which the larvae can easily attach, is distributed in patches along the rocky shoreline habitat of the Project Area. Native oysters have been documented to occur approximately 0.25 mile north of the site, on the breakwaters of the Oyster Point marina.[3] No evidence of large oyster beds was observed. No oyster beds are known to occur along the shoreline of the Study Area, and this species is likely to occur only sparsely.

A diversity of other invertebrates provides a prey base for common fish species. In the Study Area and its vicinity, three species of pelagic fish account for the majority of fish in the Bay: northern anchovy (*Engraulis mordax*) is the dominant species, and Pacific herring (*Clupea pallasii*) and jacksmelt (*Atherinopsis californiensis*) is the second and third most common. No spawning areas for Pacific herring are known in the Study Area. Spawning areas were documented in 2015 and 2016 approximately 4.4 miles to the southeast, off Coyote Point.[4] Other fish species that occur in shallow or open water areas of tidal aquatic habitats in the Study Area vicinity include the Pacific halibut (*Hippoglossus stenolepis*), starry flounder (*Platichthys stellatus*), and Pacific sardine (*Sardinops sagax*).

Tidal aquatic habitats in the Bay provide refuge and foraging habitat for a variety of resident and migratory birds. The San Francisco Bay-Delta is an important wintering and stopover site for the Pacific Flyway. More than 300,000 wintering waterfowl use the Bay and associated salt ponds each year. Bird guilds that use the open waters of the Bay include diving birds, which feed in deeper water on benthic invertebrates; dabblers, which feed in the upper water column of shallow subtidal areas; piscivores, which feed on fish; and opportunistic predators. Typical marine birds regularly inhabiting or found in tidal aquatic habitats in the Study Area include double-crested cormorants (*Phalacrocorax auritus*), western gulls (*Larus occidentalis*), California gulls (*L. californicus*), western grebes (*Aechmophorus occidentalis*), and California brown pelicans

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[2] Harris, 2004

[3] Zabin et al., 2010

[4] CDFW, 2016

(*Pelecanus occidentalis californicus*). Among the diving benthivores guild, greater scaup (*A. marila*), lesser scaup (*A. affinis*), and surf scoter (*Melanitta perspicillata*) are common in Bay waters.

In general, the presence of marine mammals, including harbor seals (*Phoca vitulina*) and California sea lions (*Zalophus californianus*) in the San Francisco Bay is related to the distribution and presence of prey species and foraging habitat. Additionally, these species use various intertidal substrates where they are exposed at low to medium tide levels for resting and breeding. Harbor seals are known to use multiple haul out sites along the west shoreline of the Bay in the Study Area vicinity and regularly forage in the open water portions of the Study Area, although no substantial haul-out sites are known in the Study Area. Sea lions may only occasionally occur in the vicinity.

Special-Status Species

Special-Status Plants

The U.S. Fish and Wildlife Service, California Natural Diversity Database, and California Native Plant Society (CNPS) identify 82 special-status plant species as potentially occurring in the Project Area and vicinity (see **Appendix 7A** for a full list of these species).[5] Special-status plant species include those plants with a current CNPS California Rare Plant Rank of 1A, 1B, 2A, and 2B, 3 and 4, and natural communities of special concern. Twenty-seven special-status plant species have been documented by the CNDDB in the Project Area vicinity (i.e., within the nine 7.5-minute USGS quadrangles containing and surrounding the Project Area) as shown in **Figure 7-3**). Seventy-three of the 82 special-status plant species were determined by H.T. Harvey to be absent from the Project Area for one of more of the following reasons:

- a lack of specific habitat or microhabitat conditions for the species
- the species elevation range is outside the range in the Project Area
- the species is known from only a few locations near the Project Area
- the occurrence records near the Project Area are historic
- the species is known or presumed to be extirpated from the region

For these reasons, the potential presence of these species was not assessed further as part of the biological resource reconnaissance efforts for this EIR.

The remaining nine species, described below, were determined to have at least some potential to occur in the Project Area. However, all nine species have been determined absent based on the results of seasonally appropriate surveys conducted on July 25, 2016, March 29, 2017, and May 18, 2017, as shown in **Table 7.2**.

[5] USFWS 2016, CNDDB 2016, CNPS 2016

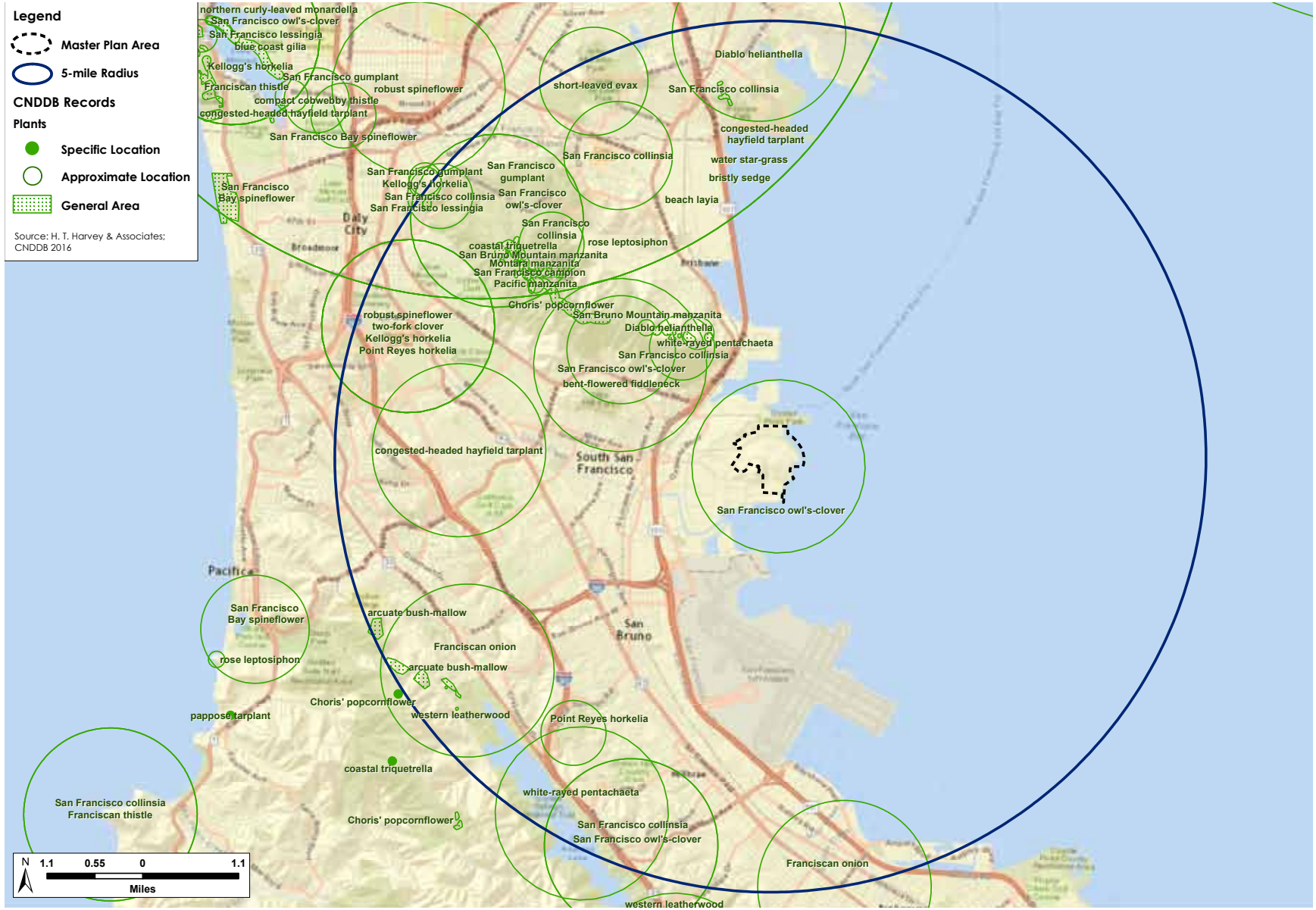

Figure 7-3
CNDDB Plant Records

Source: HT Harvey 2016, CNDDB 2016

Table 7-2: Status and Potential Occurrence of Special-Status Plant Species in the Project Area

Name	Status	Habitat	Occurrence
Franciscan onion (Allium peninsulare var. franciscanum)	1B.2	Cismontane woodland, valley and foothill grassland, on clay soil at 170 to 984 feet elevation	**Determined to be Absent:** Species was not observed in the Project Area during a seasonally appropriate survey in spring 2017
Bent-flowered fiddleneck (Amsinckia lunaris)	1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland at 10 to 1,640 feet elevation	**Determined to be Absent:** Species was not observed in the Project Area during a seasonally appropriate survey in spring 2017
Coast rockcress (Arabis blepharophylla)	4.3	Coastal prairie, mixed evergreen forest, and northern coastal scrub and coastal bluff scrub in rocky soils from 10 to 3,609 feet elevation	**Determined to be Absent:** Species was not observed in the Project Area during a seasonally appropriate survey in spring 2017
Coastal marsh milk-vetch (Astragalus pycnostachyus var. pycnostachyus)	1B.2	Mesic coastal dunes, coastal scrub, coastal salt marshes and swamps, and stream sides at 0 to 98 feet elevation	**Determined to be Absent:** Species was not observed in coastal salt marsh in the Project Area during seasonally appropriate surveys in summer 2016
Pappose tarplant (Centromadia parryi ssp. parryi)	1B.2	Chaparral, coastal prairie, meadows and seeps, coastal salt marshes and swamps, vernally mesic sites in valley and foothill grassland, often in alkaline soil, at 0 to 1,378 feet elevation	**Determined to be Absent:** Species was not observed in coastal salt marsh in the Project Area during seasonally appropriate surveys in summer 2016
Point Reyes bird's-beak (Chloropyron maritimum ssp. palustre)	1B.2	Coastal salt marshes and swamps at 0 to 33 feet elevation	**Determined to be Absent:** The CNDDB has no record of this species being present in the vicinity. In addition, the species was not observed in coastal salt marsh in the Project Area during seasonally appropriate surveys in summer 2016
San Francisco wallflower (Erysimum franciscanum)	4.2	Chaparral, coastal dunes, coastal scrub, valley and foothill grassland, often on serpentinite or granitic soil, sometimes along roadsides; at 0 to 1,804 feet elevation	**Determined to be Absent:** Species was not observed in the Project Area during a seasonally appropriate survey in spring 2017
Fragrant fritillary (*Fritillaria liliacea*)	1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland, often on serpentinite soil, at 10 to 1,345 feet elevation	**Determined to be Absent:** Species was not observed in the Project Area during a seasonally appropriate survey in spring 2017

San Francisco owl's-clover (*Triphysaria floribunda*)	1B.2	Coastal prairie, coastal scrub, valley and foothill grassland, usually in serpentinite soil, at 33 to 525 feet elevation	**Determined to be Absent:** Species was not observed in the Project Area during a seasonally appropriate survey in spring 2017

CNPS Listing key:

1A = Plants presumed extirpated in California and either rare or extinct elsewhere

1B = Plants rare, threatened, or endangered in California and elsewhere

2B = Plants rare, threatened, or endangered in California, but more common elsewhere

3 = Plants about which more information is needed; a review list

4 = Plants of limited distribution; a watch list

.1 = Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)

.2 = Moderately threatened in California (20–80% of occurrences threatened/moderate degree and immediacy of threat)

Franciscan onion (Allium peninsulare var. franciscanum)

Franciscan onion is a perennial bulbiferous herb in the onion family (Alliaceae) that blooms from April to June. It inhabits clay, volcanic, or serpentinite substrates in cismontane woodland and valley and foothill grassland habitat at elevations from 171 to 984 feet. Franciscan onion is a California endemic that occurs, or has been known to occur, in Mendocino, Santa Clara, San Mateo and Sonoma counties. It is known from the Central Coast and the San Francisco Bay from 21 occurrences, many of which have not been observed in recent years.[6] Several historical and current populations of the Franciscan onion occur within 10 miles to the south of the Project Area in places such as near Crystal Springs Lakes. Within its range, the Franciscan onion is threatened by development, foot traffic, non-native plants and trail maintenance.

Bent-flowered fiddleneck (Amsinckia lunaris)

Bent-flowered fiddleneck is an annual herb in the borage family (Boraginaceae) that blooms from March to June. It inhabits gravelly slopes, grasslands and openings in cismontane woodland, coastal bluff scrub, and valley and foothill grassland habitat, often on serpentine substrate, at elevations from 10 to 1,640 feet. Bent-flowered fiddleneck occurs (or has been known to occur) in Alameda, Contra Costa, Colusa, Lake, Marin, Napa, San Benito, Santa Clara, Santa Cruz, San Mateo and Yolo counties. It is known from the North and Central Coast ranges, Sacramento Valley, and Central Coast from 64 occurrences, many of which have not been observed in recent years.[7] The nearest recent bent-flowered fiddleneck record (2008) occurs approximately 7 miles south of the Project Area near Lower Crystal Springs Reservoir.[8] A 1963 collection was located approximately 1 to 2 miles northwest of the Project Area on San Bruno Mountain.[9] Within its range, the bent-flowered fiddleneck is threatened by development and mining.

Coast rockcress (Arabis blepharophylla)

Coast rockcress is a California endemic that has been known to occur in Contra Costa, Lake, Monterey, Santa Cruz, San Francisco, San Mateo and Sonoma counties. It is known from 208 records in the North and Central coasts near the San Francisco and Monterey bays.[10] The Coast rockcress is a perennial herb in the mustard family (Brassicaceae) that blooms from February through May. It inhabits coastal prairie, mixed evergreen forest, and northern coastal scrub and coastal bluff scrub, habitat types. In general, coast rockcress occurs on rocky substrates at elevations from 10 to 3,609 feet. Both historical and extant populations of this species have been recorded near the Project Area, and the closest, existing population is approximately 5 miles to the southwest in the hills surrounding Crystal Springs Reservoir. Within its range, the coast rockcress is possibly threatened by recreational activities, non-native plants and development.

Coastal marsh milk-vetch (Astragalus pycnostachyus var. pycnostachyus)

Coastal marsh milk vetch is a perennial herb in the pea family (Fabaceae) that blooms from April to October. It inhabits mesic coastal dune, coastal scrub, and coastal salt and streamside marsh and swamp habitat at elevations from zero to 98 feet. Coastal marsh milk vetch is a California endemic that occurs, or has been known to occur, in Humboldt, Marin, San Luis Obispo and San Mateo counties. It is known from 25 occurrences in the North and Central coasts, two of which are considered extirpated.[11] All historical and current documented populations of coastal marsh milk vetch occur at least 10 miles north or south of the

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6 CNPS, 2016

7 CNPS, 2016

8 CNDDB, 2016

9 Regents of the University of California, 2011; CNDDB, 2016

10 Calflora, 2016

11 CNPS, 2016

Project Area in places such as Crystal Springs Reservoir, Stinson Beach and Pillar Point. The species has never been documented from the Bay side of the San Francisco peninsula nearer than Crystal Springs Reservoir. Within its range, the coastal marsh milk vetch is possibly threatened by cattle trampling, erosion and competition.

Pappose tarplant (Centromadia parryi ssp. parryi)

Pappose tarplant is an annual herb in the sunflower family (Asteraceae) that blooms from May to November. It inhabits chaparral, coastal prairie, meadows and seeps, coastal salt marshes and swamps, and vernally mesic valley and foothill grassland habitat, often on alkaline substrate, at elevations from zero to 1,378 feet. Pappose tarplant is a California endemic that occurs, or has been known to occur, in Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano and Sonoma counties. It is known from 29 occurrences in the Inner and Outer North ranges, the Central Coast, and Sacramento Valley, many of which have not been observed in recent years.[12] The nearest records of pappose tarplant are from approximately 6 miles to the southwest of the Project Area, near Rockaway Beach, and a record from 1908 located approximately 19 miles to the southeast in East Palo Alto near the Ravenswood Open Space Preserve. The remaining historical and current populations occur at least 35 miles to the north of the Project Area, north of Suisan and San Pablo bays. Within its range, pappose tarplant is threatened by agriculture, competition, development, grazing, foot traffic, habitat disturbance and road maintenance.

Point Reyes bird's-beak (Chloropyron maritimum ssp. palustre)

Point Reyes bird's-beak is an annual herb in the broomrape family (Orobanchaceae) that blooms from June to October. It inhabits coastal salt marshes and swamps, at elevations from zero to 33 feet. Point Reyes bird's-beak occurs, or has been known to occur, in Alameda, Humboldt, Marin, Santa Clara, San Francisco, San Mateo, and Sonoma counties, and into Oregon. It is known from 68 occurrences in the North and Central coasts, 10 of which are possibly extirpated.[13] All historical and current populations of the Point Reyes bird's-beak occur at least 9 miles from the Project Area in places such as Corte Madera Ecological Reserve and Richardson Bay. The nearest records represent populations that are likely extirpated. Within its range, the Point Reyes bird's-beak was once common, but is now significantly reduced by development. The species is also threatened by foot traffic, non-native plants, hydrological alterations and cattle grazing and trampling.

San Francisco wallflower (Erysimum franciscanum)

San Francisco wallflower is a perennial herb in the mustard family (Brassicaceae) that blooms from March to June. It inhabits chaparral, coastal dunes, coastal scrub and valley and foothill grassland habitat, often on serpentinite or granitic substrate or roadsides, at elevations from zero to 1,804 feet. San Francisco wallflower is a California endemic that occurs, or has been known to occur, in Marin, Santa Clara, Santa Cruz, San Francisco, San Mateo and Sonoma counties. It is known from 296 records in the North and Central coasts and the San Francisco Bay, many of which have not been observed in recent years.[14] Both historical and current populations of San Francisco wallflower have been collected near the Project Area, with the nearest location approximately 2 miles to the west of the Project Area in the San Bruno Mountains.[15] Within its range, the San Francisco wallflower is possibly threatened by recreational activities and non-native plants.

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12 CNPS, 2016

13 CNPS, 2016

14 Regents of the University of California, 2011

15 Calflora, 2016

Fragrant fritillary (Fritillaria liliacea)

Fragrant fritillary is a perennial bulbiferous herb in the lily family (Liliaceae) that blooms from February to April. It often inhabits serpentinite substrates in cismontane woodland, coastal prairie, coastal scrub and valley and foothill grassland habitat, at elevations from 10 to 1,345 feet. Fragrant fritillary is a California endemic that occurs, or has been known to occur, in Alameda, Contra Costa, Monterey, Marin, San Benito, Santa Clara, San Francisco, San Mateo, Solano and Sonoma counties. It is known from the Sacramento Valley, Central Coast, San Francisco Bay area, and the Inner and Outer South Coast ranges from 68 occurrences, 10 of which are presumed extirpated.[16] All historical and current populations of the fragrant fritillary occur at least 5 miles outside of the Project Area in places such as Edgewood Park and Lower Crystal Springs Reservoir. Within its range, the fragrant fritillary is threatened by grazing, agriculture, urbanization and non-native plants. Recreational activities and foot traffic may also present threats to the species.

San Francisco owl's-clover (Triphysaria floribunda)

San Francisco owl's-clover is an annual herb in the broomrape family (Orobanchaceae) that blooms from April to June. It inhabits coastal prairie, coastal scrub and valley and foothill grassland habitat, usually on serpentinite substrate, at elevations from 33 to 525 feet. San Francisco owl's-clover is a California endemic that occurs, or has been known to occur, in Marin, San Francisco and San Mateo counties. It is known from the Central Coast and San Francisco Bay Area, from 41 occurrences, one of which is possibly extirpated, and two are known to be extirpated.[17] The nearest recent record (2002) occurs approximately 10 miles to the north of the Project Area at the San Francisco Presidio.[18] All other records of San Francisco owl's-clover on the San Francisco Peninsula are from the 1960s or earlier, but include a 1964 collection from the Project Area: Point San Bruno, at the eastern end of San Bruno Mountain.[19] Within its range, the San Francisco owl's-clover is threatened by grazing, non-native plants, and trampling.

Subsequent Special-Status Plant Survey

Site surveys for rare plants conducted in 2016 identified an area of upland ruderal grassland and shrubland habitat (see **Figure 7-4**) that supported a higher density and diversity of native forbs than other portions of the Campus, and which, based on field observations, may be underlain with serpentine soils and bedrock. This area was determined to potentially provide habitat suitable for several special-status plant species, including Franciscan onion (Allium peninsulare var. franciscanum), bentflowered fiddleneck (Amsinckia lunaris), fragrant fritillary (Fritillaria liliacea), and San Francisco owl's-clover (Triphysaria floribunda). Because these four species have bloom periods during the spring and prior site surveys were conducted in the summer, seasonally appropriate surveys during the appropriate published bloom period were required to determine their presence or absence at the Project Site. H. T. Harvey & Associates plant ecologists conducted early spring surveys for fragrant fritillary on March 29, 2017 and a mid-spring special-status plant survey on May 18, 2017.

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16 CNPS, 2016

17 CNPS, 2016

18 CNDDB, 2016

19 Regents of the University of California, 2011; CNDDB, 2016

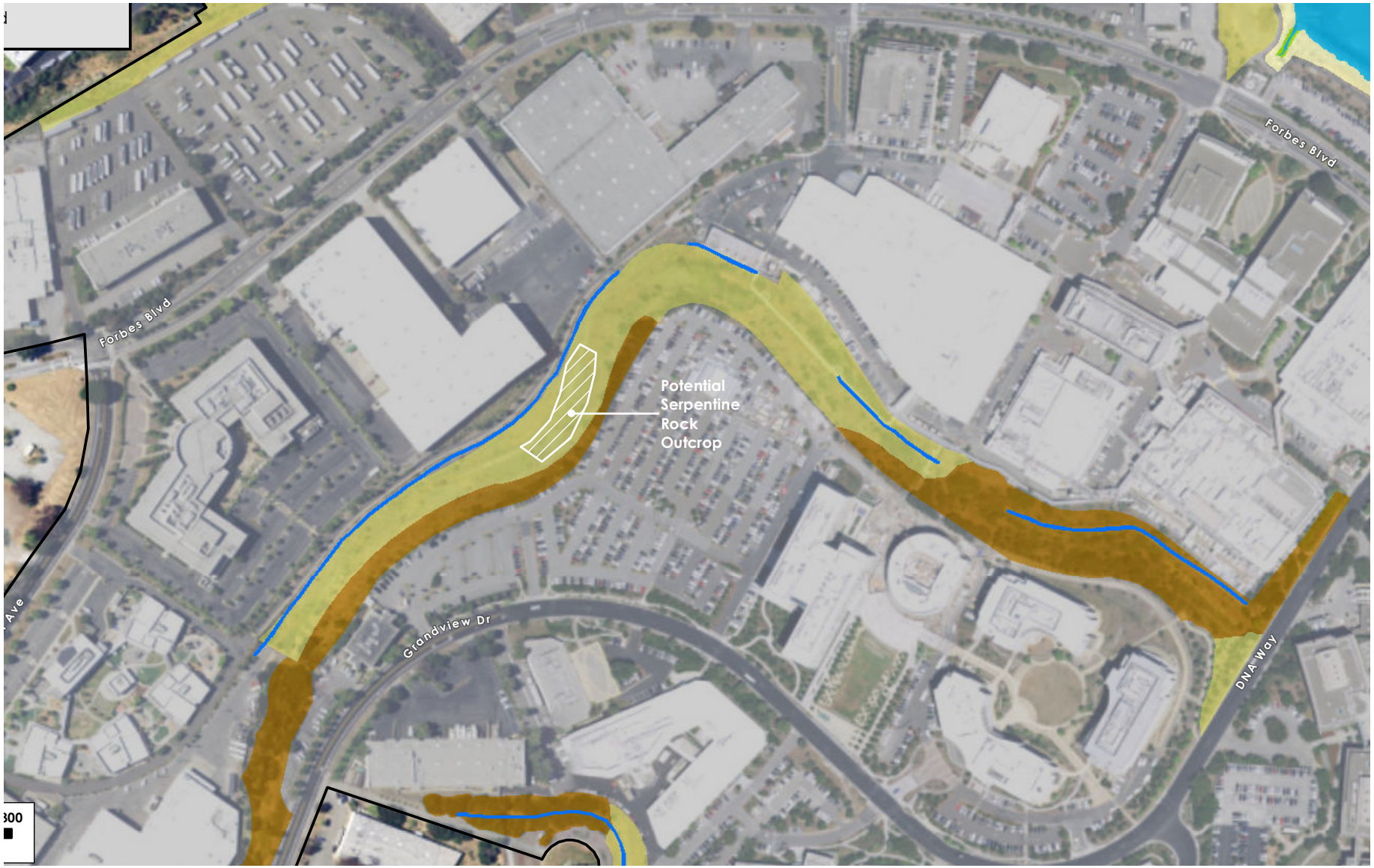

Figure 7-4
Subsequent Special Status Plant Survey Area

Source: HT Harvey & Associates, 2017

No fragrant fritillary plants were observed in the early spring survey, and fragrant fritillary was determined to be absent from the survey area. Similarly, Franciscan onion was determined to be absent from the survey area. No bent-flowered fiddleneck plants were observed in the survey area, and no plants in the same genus (i.e., Amsinckia) were observed anywhere in the Study Area. Thus, bent-flowered fiddleneck was determined to absent from the survey area. Further, no San Francisco owl's clover was observed in the Study Area. Neither of the two additional potentially occurring special-status plant species (coast rockcress and San Francisco wallflower) was observed during the surveys. Therefore, special-status plants are considered absent from the survey area, and therefore from the larger biological Study Area.

Special-Status Animals

Special-status animals are animal species that are either:

- listed under the federal Endangered Species Act (ESA) as threatened, endangered, proposed threatened, proposed endangered, or a candidate species;
- listed under the California ESA as threatened, endangered, or a candidate species;
- designated by the California Department of Fish and Wildlife (CDFW) as a California species of special concern; or
- listed in the California Fish and Game Code as a fully protected species (birds at §3511, mammals at §4700, reptiles and amphibians at §5050, and fish at §5515)

CNDDB-mapped occurrences of special-status animal species that have been documented in the Project vicinity are shown on **Figure 7-5**, and the legal status and potential for occurrence of special-status animal species known to occur or potentially occur in the general vicinity of the Study Area are provided in **Table 7-3**. Expanded descriptions are also included in **Appendix 7B** for those species that are known to occur in the Study Area; for which potentially suitable habitat occurs within or in the general vicinity; for which the site is accessible to animals from known populations; and for which resource agencies have expressed particular concern such that more expanded discussion is required. Species that are listed in Table 7-3 but not discussed in detail have no reasonable expectation of occurrence in the Study Area.

Several special-status species are present in the South Bay and on the San Francisco Peninsula, but are absent from the Study Area due to a lack of suitable habitat and/or isolation from existing populations by urbanization and associated barriers to dispersal. These species are: the Bay checkerspot butterfly (*Euphydryas editha bayensis*), Mission blue butterfly (*Icaricia icarioides missionensis*), San Bruno elfin butterfly (*Incisalia mossii bayensis*), Callippe silverspot butterfly (*Speyeria callippe callippe*), Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*), Central California Coast Coho salmon (*Oncorhynchus kisutch*), tidewater goby (*Eucyclogobius newberryi*), California red-legged frog (*Rana draytonii*), San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), western pond turtle (*Actinemys marmorata*), California black rail, western snowy plover (*Charadrius alexandrinus nivosus*), salt marsh harvest mouse, salt marsh wandering shrew, San Francisco dusky footed woodrat (*Neotoma fuscipes annectens*), pallid bat (*Antrozous pallidus*) and Townsend's big-eared bat (*Corynorhinus townsendii*). Although some of these species occur in the South San Francisco area (e.g., some of the rare butterflies occur on San Bruno Mountain, and the California red-legged frog and San Francisco garter snake occur near the San Francisco International Airport), suitable habitat is absent from the Project Area. Intensive development between extant occurrences and the Project Area would preclude the ability of those species to disperse to the Project Area.

Figure 7-5
CNDDB Animal Records

Source: HT Harvey 2016, CNDDB 2016

Several other special-status species may occur in the Study Area as occasional foragers, but they do not breed on or very near the site, nor do they occur regularly or in large numbers. These species include the California least tern (*Sterna antillarum browni*), yellow warbler (*Setophaga petechia*), Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*), yellow-breasted chat (*Icteria virens*), tricolored blackbird (*Agelaius tricolor*), loggerhead shrike (*Lanius ludovicianus*), northern harrier (*Circus cyaneus*), American peregrine falcon (*Falco peregrinus anatum*), and white-tailed kite.

Nine special-status animal species are known to breed or could potentially breed in the Study Area or its vicinity, to occur commonly as non-breeders in the Study Area (and thus could potentially be substantially affected by activities that occur under the Project), and/or are of particular concern to regulatory agencies. These are the Central California Coast steelhead, green sturgeon, longfin smelt, California Ridgway's rail (*Rallus obsoletus obsoletus*), burrowing owl (*Athene cunicularia*), San Francisco common yellowthroat (*Geothlypis trichas sinuosa*), Alameda song sparrow, harbor seal and sea lion.

Table 7-3: Status and Potential Occurrence of Special-Status Animal Species

Name	Status*	Habitat	Potential for Occurrence in the Master Plan Update Area
Federal or State Endangered, Rare, or Threatened Species			
Bay checkerspot butterfly (*Euphydryas editha bayensis*)	FT	Native grasslands on serpentine soils - Larval host plants are *Plantago erecta* and/or *Castilleja* sp.	**Absent.** No suitable native grassland or serpentine habitat is present on site. No host plants were observed during site visit in July 2016.
Mission blue butterfly (Icaricia icarioides missionensis)	FE	Coastal chaparral and coastal grasslands - Larval host plant are *Lupinus* spp.	**Absent.** No suitable chaparral or grassland habitat is present on site. No host plants were observed during site visit in July 2016.
San Bruno elfin butterfly (*Incisalia mossii bayensis*)	FE	Coastal mountains near the Bay in the fog-belt of steep, north-facing slopes - Larval food plant is *Sedum spathulifolium*	**Absent.** No suitable native grassland habitat is present on site. No host plants were observed during site visit in July 2016.
Callippe silverspot butterfly (*Speyeria callippe callippe*)	FE	Grasslands of the northern San Francisco Bay Region - Larval host plant is *Viola pedunculata*	**Absent.** No suitable native grassland habitat or suitable habitat for the larval host plant is present on site.
Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*)	FE	Coastal dune and prairie habitat - Larval host plants are violets, typically *Viola adunca*	**Absent.** No suitable native grassland habitat or suitable habitat for the larval host plant is present on site.
Green sturgeon (Acipenser medirostris)	FT, CSSC	Spawns in large river systems such as the Sacramento River; forages in nearshore oceanic waters, bays, and estuaries - Juvenile green sturgeon prefer temperatures of 59–60.8 °F	**May be Present -** Spawning habitat suitable for this species is not present within the Project Area. However, this species forages in the Bay, possibly including tidal aquatic habitats in the biological Study Area, and this species may be present in the Study Area as an occasional forager. Tidal aquatic habitat within the Study Area is designated critical habitat for this species.
Longfin smelt (Spirinchus thaleichthys)	ST, CSSC	Spawns in fresh water tributaries in the upper end of the Bay; occurs year-round in the South Bay	**May be Present -** Suitable spawning habitat for this species is not present in the Project area. However, this species forages in the Bay, possibly including tidal aquatic habitats in the Study Area. Therefore, this species may be present in the Study Area as an occasional forager.
Central California Coast Coho salmon (*Oncorhynchus kisutch*)	FE, SE	Spawning in accessible coastal streams, generally in areas with complex in-stream habitat, heavy forest cover, and high quality water - Juveniles rear in these areas for two years before migrating to the ocean	**Absent.** This species has been extirpated from all San Mateo County streams flowing to the Bay (Leidy 2007).

Table 7-3: Status and Potential Occurrence of Special-Status Animal Species

Name	Status*	Habitat	Potential for Occurrence in the Master Plan Update Area
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 -** Juveniles and adult steelhead could occur in the open waters in the Study Area as they migrate to and from spawning and rearing streams in the South Bay. Populations are known to occur in tributaries to the South Bay, such as San Francisquito Creek approximately 20 mi to the southeast of the Project Area. Tidal aquatic habitat within the Study Area is designated critical habitat for this species.
Tidewater goby (Eucyclogobius newberryi)	FE, CSSC	Brackish water habitats along coast, fairly still but not stagnant water and high oxygen levels	**Absent.** This species has been extirpated from the Bay (CNDDB 2016).
California red-legged frog (Rana draytonii)	FT, CSSC	Streams, freshwater pools, and ponds with emergent or overhanging vegetation	**Absent.** No suitable aquatic habitat is present on or near the Project Area, and there is no habitat connectivity with known populations (CNDDB 2016)
San Francisco garter snake (Thamnophis sirtalis tetrataenia)	FE, SE	Prefer densely vegetated freshwater habitats. May use upland burrows for aestivation	**Absent.** There is no suitable habitat in the Project Area, and there is no connectivity between the onsite wetlands (i.e., the seasonal wetland and marshes) and other freshwater wetlands in the region. Further, there are no extensive freshwater wetland habitats supporting San Francisco garter snake populations or populations of their prey-base (red-legged frogs and Sierran chorus frogs) in the Project Area vicinity, and the Project Area is isolated from the nearest known population by extensive urbanization (CNDDB 2016)
California Ridgway's rail (*Rallus obsoletus obsoletus*)	FE, SE, SP	Salt marsh habitat dominated by pickleweed and cordgrass (*Spartina* spp.)	**May be Present -** The tidal salt marshes in the Study Area are extremely limited in extent and are highly disturbed. There is a low potential for individuals to forage in the tidal aquatic and coastal salt marsh habitat along the southeastern edge of the Project Area, and it is possible that a pair could breed in this marsh; however, such an occurrence would be expected only very infrequently, if at all
California black rail (Laterallus jamaicensis coturniculus)	ST, SP	Breeds in fresh, brackish, and tidal salt marsh	**Absent.** The tidal salt marshes in the Study Area are extremely limited in extent (too small to provide breeding habitat), and are highly disturbed, and this species is not expected to occur here
Western snowy plover (Charadrius alexandrinus nivosus)	FT, CSSC	Sandy beaches on marine and estuarine shores and salt pans in San Francisco Bay saline managed ponds	**Absent.** Suitable nesting and foraging habitat for this species is not present in the Study Area, and this species is not expected to occur here

Table 7-3: Status and Potential Occurrence of Special-Status Animal Species

Name	Status*	Habitat	Potential for Occurrence in the Master Plan Update Area
California least tern (Sterna antillarum browni)	FE, SE, SP	Nests along the coast on bare or sparsely vegetated, flat substrates - In the South Bay, nests in salt pans and on an old airport runway - Forages for fish in open waters	**Absent as Breeder -** This species does not currently breed anywhere on the west side of the South Bay, and no suitable breeding habitat is present in the Study Area. There is some potential for small numbers of individuals from East Bay or Suisun Bay breeding areas to forage in tidal aquatic habitat in the Study Area on occasion
Tricolored blackbird (Agelaius tricolor)	SC, CSSC (nesting colony)	Nests near fresh water in dense emergent vegetation	**Absent.** No suitable, non-tidal freshwater marshes or ponds are present in the Master Plan Update area and this species is not known to nest in the vicinity (CNDDB 2016).
Townsend's big-eared bat (Corynorhinus townsendii)	CSSC, SC	Roosts in caves and mine tunnels, and occasionally in deep crevices in trees such as redwoods or in abandoned buildings, in a variety of habitats	**Absent.** The species has been extirpated from the flat bayside lands of San Mateo County.
Salt marsh harvest mouse (Reithrodontomys raviventris)	FE, SE, SP	Salt marsh habitat dominated by common pickleweed	**Absent.** Tidal salt marsh habitats in the Study Area are not suitable for this species due to their isolation from other marsh habitats, limited extent and high level of human disturbance. This species has not been recently recorded on the San Francisco Peninsula north of the Foster City/San Mateo Bridge area (CNDDB 2016)
California Species of Special Concern			
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	**Absent as Breeder -** No spawning habitat for this species is present in the Study Area, although this species could occasionally move through portions of the Bay within the Study Area during migration between oceanic habitats and spawning areas
Western pond turtle (*Actinemys marmorata*)	CSSC	Permanent or nearly permanent water in a variety of habitats	**Absent.** No suitable freshwater aquatic habitat is present in the Study Area. This species has not been recently recorded in the Project Area vicinity (CNDDB 2016)
Northern harrier (*Circus cyaneus*)	CSSC (nesting)	Nests in marshes and moist fields, forages over open areas	**Absent as Breeder -** No suitable nesting or foraging habitat is present in the Study Area. Although individuals of this species may infrequently occur in the Study Area as occasional foragers, this species is only a species of special concern while nesting

Table 7-3: Status and Potential Occurrence of Special-Status Animal Species

Name	Status*	Habitat	Potential for Occurrence in the Master Plan Update Area
Burrowing owl (Athene cunicularia)	CSSC	Nests and roosts in open grasslands and ruderal habitats with suitable burrows, usually those made by California ground squirrels	**Absent as Breeder -** There are no records of burrowing owls in the Project Area vicinity and the closest record of occurrence is from approximately 6.5 mi to the southeast of the site, at Seal Point (CNDDB 2016). The ruderal annual grassland habitats in the Project Area did not show any evidence of ground squirrel occupancy during the reconnaissance survey in June 2016. Occasional migrating or dispersing individuals could forage in the Project Area, and could possibly take temporary refuge in riprap along the shoreline. However, this species is not expected to breed, occur regularly or occur in numbers on the site.
Loggerhead shrike (*Lanius ludovicianus*)	CSSC (nesting)	Nests in tall shrubs and dense trees; forages in grasslands, marshes, and ruderal habitats	**Absent as Breeder -** This species is unlikely to occur due to the limited extent of annual grasslands and the high level of human disturbance. Breeding shrikes have been confirmed in the Project Area vicinity (Sequoia Audubon Society 2001), but records in the area are few, and the Project Area is isolated from larger patches of suitable habitat by extensive development. This species may occur in the site as an occasional nonbreeding visitor, if at all
Yellow warbler (Setophaga petechia)	CSSC (nesting)	Nests in dense riparian woodlands	**Absent as Breeder -** This species prefers riparian corridors with adjacent open space (rather than in heavily developed areas) and supporting an over story of mature cottonwoods (*Populus* spp.) and sycamores (*Platanus* spp.), a mid-story of box elders (*Acer negundo*) and willows (*Salix* spp.), and a substantial understory of shrubs (Bousman 2007). Migrating individuals of this species may occasionally forage in landscaped areas in the Project Area during the spring and fall; however, no suitable nesting habitat for this species is present in the Project Area and this species is only a species of special concern while nesting
San Francisco common yellowthroat (*Geothlypis trichas sinuosa*)	CSSC	Nests in herbaceous vegetation, usually in wetlands or moist floodplains	**May be Present -** Suitable breeding and foraging habitat is present in the Study Area along the tidal channels along the northeastern and southeastern edges of the Project Area, and individuals have been observed in the Project Area vicinity during the breeding season (CNDDB 2016; Cornell Lab of Ornithology 2016). Up to one or two pairs of this species may breed in these marsh habitats

Table 7-3: Status and Potential Occurrence of Special-Status Animal Species

Name	Status*	Habitat	Potential for Occurrence in the Master Plan Update Area
Alameda song sparrow (Melospiza melodia pusillula)	CSSC	Nests in salt marsh, primarily in marsh gumplant (Grindelia stricta) and cordgrass along channels	**May be Present -** Suitable breeding and foraging habitat is present in the Study Area along the tidal channels along the northeastern and southeastern edges of the Project Area, and individuals have been observed in the Project Area vicinity during the breeding season (CNDDB 2016; Cornell Lab of Ornithology 2016). A few pairs of this species may breed in these marsh habitats.
Bryant's savannah sparrow (Passerculus sandwichensis alaudinus)	CSSC	Nests in pickleweed dominant salt marsh and adjacent ruderal habitat	**Absent as Breeder -** The salt marsh habitats in the Study Area do not provide suitable nesting habitat for this species, primarily due to their limited extent and close proximity to development. Individuals breeding elsewhere could occur as non-breeders (e.g., during winter)
Salt marsh wandering shrew (Sorex vagrans halicoetes)	CSSC	Medium to high marsh with abundant driftwood and common pickleweed	**Absent.** The small mats of pickleweed within salt marsh habitats in the Study Area do not provide suitable habitat for this species, due to the high level of human disturbance, limited extent and isolation from other salt marsh habitats.
Pallid bat (Antrozous pallidus)	CSSC	Forages over many habitats; roosts in caves, rock outcrops, buildings, and hollow trees	**Absent.** This species has been extirpated as a breeder from urban areas close to the Bay, including the Project Area.
San Francisco dusky-footed woodrat (Neotoma fuscipes annectens)	CSSC	Nests in a variety of habitats including riparian areas, oak woodlands, and scrub	**Absent.** No suitable habitat occurs in the Project Area and the area is isolated from the nearest existing populations by extensive development. No evidence of occupancy by woodrats was observed in the Project Area during the reconnaissance survey conducted in June 2016.
State Fully Protected Species			
American peregrine falcon (*Falco peregrinus anatum*)	SP	Forages in many habitats; nests on cliffs and tall bridges and buildings	**Absent as Breeder.** Dispersing or migrating individuals may rarely move through or forage on portions of the, but no suitable nesting habitat is present.

Table 7-3: Status and Potential Occurrence of Special-Status Animal Species

Name	Status*	Habitat	Potential for Occurrence in the Master Plan Update Area
White-tailed kite (*Elanus leucurus*)	SP	Nests in tall shrubs and trees, forages in grasslands, marshes, and ruderal habitats	**Absent as Breeder.** The Study Area provides some low-quality foraging habitat, and individuals have been observed in the Project Area vicinity. However, no suitable nesting habitat for this species exists in the Project Area and there are no records of breeding in the vicinity (Sequoia Audubon Society 2001). Individual dispersants could potentially forage in the Project Area on occasion.
Federal Protected Marine Mammal Species			
Harbor seal (*Phoca vitulina*)	MM	Resident in the Bay and the Sacramento-San Joaquin Delta - Feeds in the deepest waters of the Bay and hauls out on offshore rocks and sandy beaches - May also use manmade structures, such as floating docks, for haul out sites	**May be Present -** Suitable aquatic habitat is present in the study area for feeding and dispersal, and individuals likely use tidal aquatic habitat in the study area for these purposes. No known haul-out or pupping sites are located in the Project Area. Although the rocky shore habitat in the Project Area may provide suitable haul-out sites for this species, the high level of disturbance and human presence along the San Francisco Bay Trail and shoreline greatly reduces the likelihood of this species using any part of the site except as an occasional visitor to Bay waters.
Sea lion (Zalophus californianus)	MM	Occurs throughout West Coast, typically within 10 mi of the shore, and breeds in Southern California - Permanent resident in San Francisco Bay and the Sacramento-San Joaquin Delta - Uses offshore rocks, sandy beaches, and floating docks, wharfs, vessels, or other man-made structures to haul out	**May be Present -** Suitable aquatic habitat is present in the Study Area for feeding and dispersal, and individuals likely use tidal aquatic habitat in the Study Area for these purposes. No known haul-out or pupping sites are located in the Project Area. Although the rocky shore habitat in the Project Area may provide suitable haul-out sites for this species, the high level of disturbance and human presence along the San Francisco Bay Trail and shoreline greatly reduces the likelihood of this species using any part of the site except as an occasional visitor to Bay waters.

Table 7-3: Status and Potential Occurrence of Special-Status Animal Species

Name	Status*	Habitat	Potential for Occurrence in the Master Plan Update Area

*SPECIAL-STATUS SPECIES DESIGNATIONS

FE = Federally listed Endangered

FT = Federally listed Threatened

MM = Protected Marine Mammal

SE = State listed Endangered

ST = State listed Threatened

SC = State Candidate for listing

CSSC = California Species of Special Concern

SP = State Fully Protected

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 the California Natural Diversity Database. 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.

Impacts on CDFW sensitive natural communities, vegetation alliances/associations, or any such community identified in local or regional plans, policies or 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 U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), CDFW and/or the USFWS.

CDFW Natural Communities of Special Concern

A query of natural communities of special concern identified no natural communities of special concern occurring within the Study Area or vicinity.[20] The CDFW does consider streams and riparian habitat as sensitive. Along the tidal channel at the southern end of the Study Area, the CDFW may consider areas below the top of bank as sensitive.

CDFW Sensitive Vegetation Alliances

One sensitive vegetation alliance occurs in the Study Area, based on the dominant species observed: coastal salt marsh. The coastal salt marsh habitat can be characterized by the pickleweed mat alliance. Coastal salt marsh habitat is considered sensitive statewide. [21]

Essential Fish Habitat

The National Marine Fisheries Service (NMFS) considers open water portions of tidal aquatic habitats in the Project's biological Study Area to be Essential Fish Habitat (EFH) for an assemblage of fish species that includes anchovies, sardines, rockfish, sharks, sole and flounder. Areas potentially supporting the native Olympia oyster, such as hard surfaces in the tidal aquatic and rocky shoreline habitats, are also considered Essential Fish Habitat by NMFS because oyster beds serve a number of important roles in the Bay ecosystem.

Waters of the U.S. and State

Potentially jurisdictional waters of the U.S. occur in the Study Area (see **Figures 7-6 and 7-7**). Jurisdictional waters include the tidal channel at the southern end of the site and the associated wetlands and shoreline areas (extending up to the high tide line or the upper limits of wetlands, whichever is higher). Jurisdictional wetlands include several small patches of coastal salt marsh along the eastern edge of the site and one moderately sized patch of coastal salt marsh at the southeastern corner of the Study Area. Waters of the state include all waters of the U.S.

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[20] CNDDB, 2016

[21] CDFG, 2010

Figure 7-6
Potential Waters of the US, State and BCDC Jurisdiction (northerly Project Area)

Source: HT Harvey & Associates, 2017

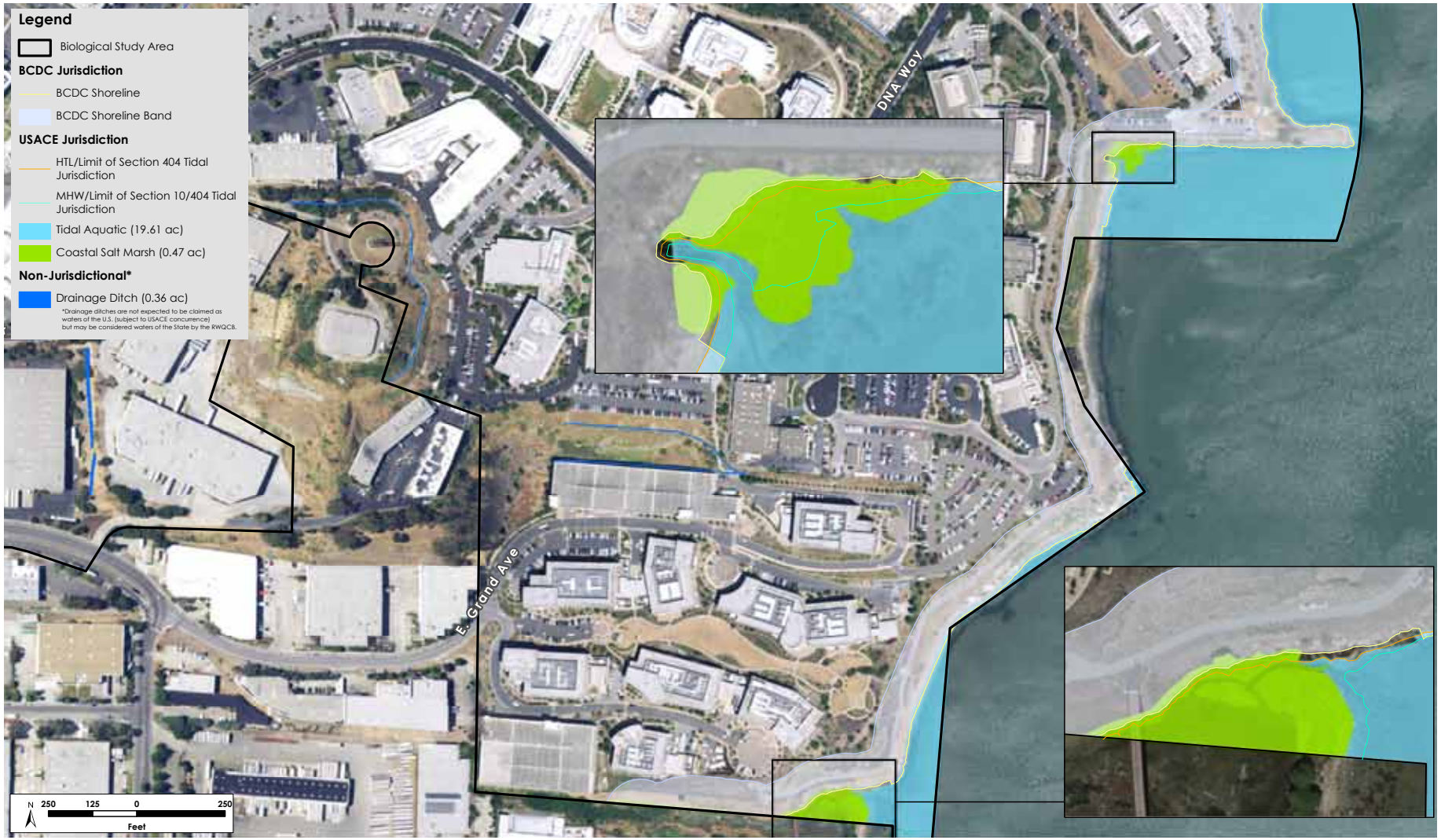

Figure 7-7
Potential Waters of the US, State and BCDC Jurisdiction (southerly Project Area)

Source: HT Harvey & Associates, 2017

Drainage Ditches

Several concrete-lined and non-lined drainage ditches are located throughout the Project Area (see **Figure 7-8**). These ditches appear to be excavated in uplands for conveying stormwater runoff from the hillslopes and developed areas in the Project Area to the underground stormwater system, which eventually drains to the Bay. A senior wetland delineator conducted a focused assessment of three drainage ditch features in the Study Area to assess the likelihood that these ditches would be claimed or disclaimed as jurisdictional features.

- National Wetland Inventory mapping and aerial imagery of the site were reviewed.[22] None of the three drainage ditches identified on the Project Area are shown in National Wetland Inventory mapping.
- Google Earth historic imagery from 1993 shows the Project Area in a relatively similar development stage as it is currently (per the March 2017 biological resource surveys). The site was developed with paved roads, buildings, and parking lots, much as exist today. Drainage ditches #1 and #2 appear to be existing in a similar configuration to the current condition. Drainage ditch #3 appears to have been constructed by years 2002 or 2003.
- Nationwide Environmental Title historic aerial imagery from as early as 1946 was also reviewed.[23] Similar to the NWI and Google Earth results, no native channels were apparent in this imagery. The imagery shows the extent of Bay fill that was placed in the vicinity. By 1968, the historic imagery shows the San Francisco Bay margin had been filled to create uplands to the north of the Project Area. According to the Daly City & Vicinity Creek and Watershed Map, Bay fill has been placed north of the drainage ditch #1 area, and it extends north for approximately 0.4 mile.[24]
- H. T. Harvey & Associates' senior plant ecologist and wetland delineator visited the three drainage ditches shown in Figure 7-8 on March 29, 2017. During the survey, the three ditches were examined for topographic features, source inputs and alterations to site hydrology or vegetation, and recent significant disturbance.

Based on the mapping research and field surveys, the following conclusions as to the biological value and likelihood that these drainage ditches may be claimed as jurisdictional waters of the U.S. can be determined:

Drainage Ditch #1

Drainage ditch #1 is located in an area where there is no evidence of a prior native channel having been present. The ditch occurs near an area of fill that was in-place by 1968. In March 2017, drainage ditch #1 was found to be a well-maintained cement lined ditch, with source water feeding from piped in-puts conveying stormwater from nearby impervious surfaces such as paved parking lots, paved roads and walking paths with associated storm drain infrastructure. No native channel was observed in the vicinity or upstream of the source. All observed hydrologic inputs appear to arise from either a series of several pipes emanating from storm drains (i.e., two 2-4 inch PVC pipes and one 12-inch corrugated metal pipe) or a cement curb cut that focuses flows into the ditch from an adjoining paved parking lot. No earthen bed or banks occur in the feature, and it is entirely cement lined. The feature appears to be piped underground, downstream into storm drain infrastructure.

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[22] National Wetlands Inventory, 2017, Wetlands Mapper, U.S. Fish and Wildlife Service, accessed at http://www.fws.gov/wetlands/Wetlands-Mapper.html Accessed March 2017

[23] Nationwide Environmental Title Research, 2017, Historic Aerials Website, http://www.historicaerials.com , Accessed March 2017

[24] Givler, R.W., J.M. Sowers, and P. Vorster, 2006, Creek & Watershed Map of Daly City & Vicinity, Oakland Museum of California, Oakland, CA, 1:25,800 scale

Figure 7-8
On-Site Drainage Ditch Locations

Source: HT Harvey & Associates, 2017

Drainage Ditch #2

Drainage ditch #2 is located in areas where there is no evidence of a prior native channel having been present. Drainage ditch #2 is located on a hillslope and was found to be entirely cement lined and well maintained. The water source at the origin of the ditch #2 is identified as an approximately 2- to 4-inch pipe in-put with a faucet opening. The source of the pipe is likely from the buildings on the hilltop. Several other piped inputs were observed over the length of the ditch. The drainage ditch was excavated in uplands for the purpose of stormwater conveyance.

Drainage Ditch #3

Drainage ditch #3 is located in areas where there is no evidence of a prior native channel having been present. Drainage ditch #3 is located on a hillslope and is entirely cement lined. The water source appears to be PVC piping that is located several feet upslope of the start of the cement channel. The source piping appears to arise from developed uplands located upslope, including storm drains from the paved parking lot. A few additional piped inputs were observed along the length of the ditch, although the source was not apparent. The drainage ditch #3 appears to drain to storm drains downslope of this area.

Conclusion

The Project Area's 0.29-acres of constructed (concrete-lined and unlined) drainage ditches have been excavated in uplands to convey stormwater runoff from the surrounding developed land to the underground stormwater system. These stormwater drainage ditches likely are not jurisdictional waters of the United States or state under Section 404 or 401 of the Clean Water Act, or Section 1600 of the California Fish and Game Code, because:

- they were excavated in uplands for stormwater conveyance and treatment,
- source inputs appear to be from storm drain systems collecting runoff from developed uplands,
- they appear to drain to a constructed storm drain system,
- none of these drainage ditches replace native drainages, and
- the ditches have been well maintained since construction

It is unlikely that the USACE or CDFW would claim jurisdiction over these drainage ditches. The RWQCB would consider the drainage ditches as required parts of the Project Area's overall Stormwater Management Plan under the Statewide General Construction Permit, and therefore would require that the drainage functions of such features be replaced if they are affected.

Nonnative and Invasive Plant Species

Several nonnative plant species occur in the Project Area that are rated as highly invasive by the California Invasive Plant Council, and may have severe ecological impacts. Of these, pampas grass and fennel were the most abundant during the June 2016 site visits. In addition, several moderately invasive species, which may have substantial ecological impacts, dominate upland ruderal grassland and shrubland habitat in the Project Area. These species include wild oats, ripgut brome and mouse barley. Another moderately invasive species, alkali Russian thistle, was observed in some of the coastal salt marsh patches in the Study Area.

Regulatory Setting

Federal Regulations

Endangered Species Act

Under the federal ESA, the Secretary of the Interior and the Secretary of Commerce have joint authority to list a species as threatened or endangered (16 United States Code [USC] 1533[c]). Pursuant to the requirements of ESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed or proposed species may be present in the project region, and whether the proposed project would result in a "take"[25] of such species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under ESA, or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3][4]). The "take" prohibition of ESA applies to any action that would adversely affect a single member of an endangered or threatened species.

Listed plant species are provided less protection than listed wildlife species. Listed plant species are legally protected from take under the ESA only if they occur on federal lands or if the project requires a federal action, such as a Clean Water Act Section 404 fill permit from the USACE.

The USFWS has jurisdiction over federally listed threatened and endangered wildlife species (and some fish) under the ESA, while the NMFS has jurisdiction over federally listed marine species and anadromous fish.

No federally listed plant species are known or expected to occur in the Project Area. Federally listed animal species that could potentially occur in or immediately adjacent to the Study Area include the Central California Coast steelhead, green sturgeon and California Ridgway's rail.

The green sturgeon and Central California Coast steelhead are not expected to breed in the Study Area, and they would occur only in waters of the Bay. There is a low probability of occurrence of the California Ridgway's rail on or immediately adjacent to the Study Area, and (at most) a single pair may occasionally breed there.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA; 16 USC, Section 703, Supplement I, 1989) prohibits killing, possessing or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. Migratory birds protected under this law include all native birds and certain game birds (e.g., turkeys and pheasants). This act encompasses whole birds, parts of birds, and bird nests and eggs. The MBTA protects active nests from destruction and all nests of species protected by the MBTA, whether active or not, cannot be possessed. An active nest under the MBTA, as described by the Department of the Interior in its April 16, 2003 Migratory Bird Permit Memorandum, is a nest that contains eggs or young.

All native bird species occurring in the Project Area are protected by the MBTA.

Clean Water Act

The Clean Water Act is a 1977 amendment to the federal Water Pollution Control Act of 1972, which set the basic structure for regulating discharges of pollutants to waters of the United States. Although the purpose of

[25] "Take," as defined in Section 9 of the federal ESA, is broadly defined to include intentional or accidental "harassment" or "harm" to wildlife. "Harass" is further defined by the USFWS as an intentional or negligent act or omission, which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, which include, but are not limited to, breeding, feeding and sheltering. "Harm" is defined as an act, which actually kills or injures wildlife. This may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

the act is primarily to maintain water quality for both human and environmental benefits, regulations developed pursuant to this act deal extensively with permitting of actions in wetlands. The EPA has primary authority under the Clean Water Act to set standards for water quality and for effluents.

Areas meeting the regulatory definition of "waters of the U.S." are subject to the jurisdiction of the USACE under provisions of Section 404 of the 1972 CWA. These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, natural ponds, etc.), territorial seas, and wetlands adjacent to waters of the U.S. (33 CFR, Part 328). Wetlands on non-agricultural lands are identified using the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) approach that relies on identification of three parameters: hydrophytic vegetation, hydric soils and wetland hydrology indicators. Areas typically not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated in uplands, artificially irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions (33 CFR, Part 328).

In freshwater systems, USACE jurisdiction extends to the ordinary high water mark. This is defined in Title 33, CFR, Part 328.3 as "the line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation or the presence of litter and debris." This guidance is based on the identification of the OHW mark by examining physical evidence of surface flow in the stream channel; there is no hydrologic definition of the ordinary high water mark. In tidal waters, USACE jurisdiction extends to the landward extent of vegetation associated with salt or brackish water or the high tide line. The high tide line is defined in 33 CFR Part 328.3 as "the line of intersection of the land with the water's surface at the maximum height reached by a rising tide." If there are wetlands adjacent to channelized features, the limits of USACE jurisdiction extend beyond the ordinary high water mark or high tide line to the outer edges of the wetlands.

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 RWQCBs) charged with implementing water quality certification in California (see Section 2.2.1, "Porter-Cologne Water Quality Control Act").

Any work within areas defined as waters of the U.S. may require a Section 404 fill discharge permit from the USACE. Waters of the U.S. include open water and intertidal habitats in the Bay, the tidal channel at the southern end of the site, associated wetlands and shoreline areas (extending up to the high tide line or the upper limits of wetlands, whichever is higher), and infrastructure on the site that drains to the Bay (such as stormwater drain outlets). The approximate limits of USACE jurisdiction under the CWA, as mapped during reconnaissance surveys and using available topographic information, are shown on Figures 7-6 and 7-7. A formal wetland delineation to determine precise boundaries of USACE jurisdiction, followed by USACE verification of the delineated boundaries, would need to be performed to determine definitively the jurisdictional boundaries.

Rivers and Harbors Act of 1899

Section 10 of the Rivers and Harbors Act prohibits the obstruction or alteration of any navigable water 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 USC 403). Under this act, the USACE must authorize any excavation or deposition of materials into such waters, or for any work that could affect the course, location, condition or capacity of such waters.

Within the Study Area, the tidal channel at the southern end of the site and associated wetlands and shoreline areas extending up to the mean high water line, are subject to USACE jurisdiction under the Rivers

and Harbors Act. Any activities affecting these areas would potentially require a Section 10 Letter of Permission.

Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) is the principal federal legislation that guides the protection and conservation policy for marine mammal species. The MMPA delegates authority for oceanic marine mammals to the Secretary of Commerce, the parent agency of the NMFS. Under the MMPA, the NMFS regulates species of the order Cetacea (whales and dolphins) and species, other than walrus (*Odobenus rosmarus*), of the suborder Pinnipedia (seals and sea lions). Marine mammals that are already managed under international agreements are exempt as long as the agreements further the purposes of the MMPA. The MMPA prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the United States.

Two species regulated by NMFS under the MMPA may occur immediately adjacent to the Project Area and within the biological Study Area's tidal aquatic habitat: harbor seal and California sea lion. These species may occasionally use tidal aquatic habitat adjacent to the Study Area for foraging or dispersal.

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 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 fishery management plans for all managed species. Federal agencies that fund, permit or implement activities that may adversely affect Essential Fish Habitat are required to consult with the NMFS regarding potential adverse effects of their actions on Essential Fish Habitat, and respond in writing to recommendations by the NMFS.

A number of fish species regulated by NMFS according to the Coastal Pelagic, Pacific Groundfish and Pacific Coast Salmon Fisheries Management Plans occur in tidal habitats in the Bay, including areas adjacent to the Study Area. Thus, tidal habitats within and adjacent to the Study Area are considered EFH.

State Regulations

California Endangered Species Act

The California Endangered Species Act (ESA) (Fish and Game Code of California, 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 California ESA, the California Department of Fish and Wildlife (CDFW) has jurisdiction over state listed species.

The CDFW regulates activities that may result in "take" of individuals listed under California ESA (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."

Pursuant to the requirements of California ESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species could be present on the project site and determine whether the proposed project could have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may affect a candidate species. Project-related impacts on species on the California ESA endangered or threatened lists would be

considered significant in this EIR. Impacts on species of concern would be considered significant under certain circumstances, discussed below.

No state listed plant species are known or reasonably expected to occur in the Project Area. State listed animal species occurring or potentially occurring in the Project's biological Study Area are the longfin smelt (*Spirinchus thaleichthys*), which may occur in Bay waters, and the California Ridgway's rail.

California Environmental Quality Act

The intent of CEQA is to maintain "high-quality ecological systems and the general welfare of the people of the state." It is the policy of the State to "prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities and examples of the major periods of California history." CEQA forbids agencies from approving projects with significant adverse impacts when feasible alternatives or feasible mitigation measures can substantially lessen such impacts.[26]

CEQA directs each State agency to consult with the CDFW on any project that an agency initiates and that is not statutorily or categorically exempt from CEQA. CEQA Guidelines (Section 15065a) indicate that impacts to rare, threatened or endangered plants or animals are significant. This finding of significance can be applied directly to state- and federally listed species. Impacts to other species that may generally meet these criteria, but are not officially listed, may be considered significant by the lead agency (for an EIR), depending on the applicability of other laws (e.g., MBTA) and the discretion of the agency. The CDFW interprets Lists 1A, 1B, and 2 of the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California to consist of plants that, in a majority of cases, would qualify for listing as rare, threatened, or endangered; in addition, species on Lists 3 and 4 are often considered during CEQA impact assessments. The determination of whether an impact is significant is a function of the lead agency, absent the protection of other laws. Projects subject to CEQA review must specifically address the potential impact of the listed species and provide mitigation measures, if the impact is significant.

California Fish and Game Code

The California Fish and Game Code include regulation governing the use of, or effects on many of the state's fish, wildlife and sensitive habitats. The CDFW exerts jurisdiction over the bed and banks of rivers, lakes and streams according to provisions of Sections 1601–1603 of the Fish and Game Code. Ephemeral and intermittent streams, rivers, creeks, dry washes, sloughs, blue line streams on U.S. Geological Service 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. Streams and riparian habitat are defined in Title 14, California Code of Regulations, Section 1.72, and Fish and Game Code Section 2786; respectively. Using these definitions, the lateral extent of a stream and associated riparian habitat would fall under the jurisdiction of CDFW. These areas 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.

Pursuant to Fish and Game Code Section 1603, the 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." 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 Streambed Alteration Agreement must be prepared. This permit sets reasonable

[26] §15092. CEQA §15091 and §15093 provide that a project might be approved in spite of residual, unmitigated significant impacts, by adoption of a statement of overriding social and economic considerations in situations where mitigations or alternatives are deemed infeasible.

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 permit.

Certain sections of the Fish and Game Code describe regulations pertaining to certain wildlife species. For example, Fish and Game Code Sections 3503, 2513 and 3800 (and other sections and subsections) protect native birds, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW. Raptors (i.e., eagles, falcons, hawks and owls) and their nests are specifically protected in California under Fish and Game 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." Non-game mammals are protected by Fish and Game Code Section 4150, and other sections of the Code protect other taxa.

California Native Plant Protection Act

State listing of plant species began in 1977 with the passage of the California Native Plant Protection Act, which directs the CDFW to carry out the legislature's intent to "preserve, protect and enhance endangered plants in this state." The Native Plant Protection Act gives the California Fish and Game Commission the power to designate native plants as endangered or rare and to require permits for collecting, transporting or selling such plants. The Native Plant Protection Act prohibits take of endangered or rare native plants, but includes some exceptions for agricultural and nursery operations; emergencies; and after properly notifying CDFW for vegetation removal from canals, roads, and other sites; changes in land use; and in certain other situations.

There are no plant species protected under the Native Plant Protection Act in the Project Area.

McAteer-Petris Act

The McAteer-Petris Act, enacted on September 17, 1965, serves as a legal provision under California state law to preserve the 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 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.[27] The area of BCDC jurisdiction is defined in the California Government Code Section 66610-66611 to include a 100-foot wide band along the shoreline of the Bay. 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 the Bay 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."

BCDC has jurisdiction over the portion of the tidal channel in the Study Area and BCDC's shoreline band jurisdiction extends 100 feet landward of the Bay edge.

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 to regulate activities that could result in a discharge of dredged or fill material comes from the CWA and the Porter-Cologne Water Quality Control Act (Porter-Cologne).

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[27] BCDC, 2012

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 Clean Water Act 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. The SWRCB has recently developed a Preliminary Draft Water Quality Control Policy that addresses numerous policy elements including development of a wetland definition and description of methodology to be used in defining wetlands as part of waters of the state.[28]

Pursuant to Section 401 of the Clean Water Act, projects that are regulated by the USACE must obtain a Water Quality Certification permit from the RWQCB. This certification ensures that the proposed project will uphold the State's 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 Clean Water Act National Pollutant Discharge Elimination System (NPDES) permits and Waste Discharge Requirements for certain types of point source and non-point discharges to waters. These regulations limit impacts on aquatic and riparian habitats from a variety of urban sources.

Project activities that affect waters of the U.S. and waters of the state will require 401 Certification and/or a Waste Discharge Requirement from the RWQCB. In the Study Area, these include the open water and intertidal habitats in the Bay, tidal channels, associated wetlands and shoreline areas, and stormwater drain outlet structures discharging into the Bay described as likely waters of the U.S. The RWQCB may also exert jurisdiction over the drainage ditches that were excavated in uplands in inland portions of the Project Area (see Figure 7-8), and that drain to the Bay via an underground stormwater conveyance system.

The Hydrology chapter of this document provides detail pertaining to the National Pollutant Discharge Elimination System and the applicable Municipal Regional Stormwater Permit, including regulatory settings and requirements for Construction General Permits and Stormwater Management Plans pursuant to Provision C.3 requirements.

Local Regulations and Policies

SSF General Plan

Guiding policies and implementation strategies of the SSF General Plan pertaining to habitat and biological resource conservation include the following:

- Policy 7.1-G-1: Protect special status species and supporting habitats within South San Francisco, including species that are State or federally listed as Endangered, Threatened or Rare. New development projects in ecologically sensitive areas should consider impacts on valuable and sensitive natural habitats.
- Policy 7.1-G-2: Protect and, where reasonable and feasible, restore salt marshes and wetlands.
- Policy 7.1-I-1: Cooperate with State and federal agencies to ensure that development does not substantially affect special status species appearing on any State or federal list for any rare, endangered or threatened species. Require assessments of biological resources prior to approval of

[28] SWRCB, 2013

any development on sites with ecologically sensitive habitat [on ecologically sensitive wetlands along the bayshore and Colma Creek].

- Policy 7.1-I-3: As part of development approvals on sites that include ecologically sensitive habitat (at Sign Hill and wetlands along the bayshore and Colma Creek], require institution of an on-going program to remove and prevent the re-establishment of the invasive species and restore the native species.
- Policy 7.2-G-1: Comply with the San Francisco Bay RWQCB regulations and standards to maintain and improve the quality of both surface water and groundwater resources.
- Policy 7.2-G-2: Enhance the quality of surface water resources and prevent their contamination.
- Policy 7.2-G-3: Discourage use of insecticides, herbicides or toxic chemical substances within the city.

East of 101 Area Plan

Chapter 11 of the East of 101 Area Plan is the Conservation Element. This chapter contains policies to protect and enhance natural resources in the East of 101 Area. The primary natural resources in the East of 101 Area are wetlands and their associated plant and animal species, and slopes with native vegetation. Other natural resources such as forests soils and minerals are generally absent in the East of 101 Area due to previous industrial use of the land and the fill soils found in the area.

- Policy CON-1: Prior to construction of development projects on sensitive resource lands, the City shall require an applicant to conduct a formal wetlands delineation at the project site. The results of the wetlands delineation shall be made available to evaluate project specific impacts associated with sensitive habitats.
- Policy CON-2: The City shall require that developments comply with all applicable State and federal laws and regulations regarding protection and replacement of wetlands.
- Policy CON-3: Slopes with native vegetation in the East of 101 Area shall be preserved and enhanced. Slopes in the East of 101 Area that have natural native vegetation should be preserved as an important natural amenity and habitat for wildlife. Slopes that should be preserved include the San Bruno Point Hill, which is an important landmark in the East of 101 Area.
- Policy CON-4: The City shall take all feasible measures to preserve any sensitive plant and animal species that occur in the East of 101 Area.
- Policy CON-5: Prior to receiving approval for construction activities or other disturbances on undeveloped land in the East of 101 Area, project sponsors shall conduct environmental analyses to evaluate the site-specific status of sensitive plant and animal species.
- Policy CON-6: If sensitive plant or animal species would be unavoidably affected by a proposed project, the City shall require the project developer to implement appropriate mitigation measures.
- Policy CON-7: New development adjacent to sensitive resource areas shall be required to incorporate the following measures into project design: 1) shield lights to reduce off-site glare, 2) provide buffer areas of at least 100 feet between known sensitive resources and development areas; 3) landscape all on-site buffer areas with native vegetation to screen habitat areas from adjacent land uses; 4) restrict entry to habitat areas through devises such as fencing, landscaping or signage; and 5) ensure that runoff from development does not adversely affect the biotic values of adjacent wetlands or other habitat areas.

City of South San Francisco Tree Preservation Ordinance

City of South San Francisco Municipal Code 13.30 prohibits the removal or pruning of protected trees without a permit. Protected trees are defined as follows:

1. Any upright, single-trunked tree of a species not considered to be a heritage tree as defined in subsection (3) below or a tree listed in subsection (2) below, with a circumference of 48 inches or more when measured 54 inches above natural grade; or
2. Any upright, single-trunked tree of the following species: blue gum (*Eucalyptus globulus*), black acacia (*Acacia melanoxylon*), myoporum (*Myoporum lactum*), sweetgum (*Liquidambar styraciflua*), glossy privet (*Lingustrum lucidum*), or Lombardy poplar (*Populus nigra*) with a circumference of 75 inches or more when measured 54 inches above natural grade; or
3. Any upright, single-trunked tree considered a heritage tree species, with a circumference of 30 inches or more when measured at 54 inches above natural grade. A heritage tree means any of the following: California bay (*Umbellaria californica*), oak (*Quercus* spp.), cedar (*Cedrus* spp.), California buckeye (*Aesculus californica*), Catalina ironwood (*Lyonothamnus asplenifolium*), strawberry tree (*Arbutu*s spp.), mayten (*Maytenus boaria*), or little gem dwarf southern magnolia (*Magnolia grandiflora* "Little Gem"); or
4. A tree or stand of trees so designated by the director 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
5. A stand of trees in which the director has determined each tree is dependent upon the others for survival.

Landscaped areas in the Project Area may contain trees defined as protected by the South San Francisco Tree Preservation Ordinance. Project activities that involve removal or pruning of protected trees as defined by the Ordinance would require a permit from the City of South San Francisco.

Impacts and Mitigation Measures

Thresholds of Significance

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." Under State CEQA Guidelines section 15065, a project's effects on biotic resources are deemed significant where the project would:

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

In addition to the Section 15065 criteria that trigger mandatory findings of significance, Appendix G of the State CEQA Guidelines provides a checklist of other potential impacts to consider when analyzing the significance of project effects. Under the CEQA Guidelines, Appendix G – Environmental Checklist Form, the Project would have a significant environmental impact if it were to:

1. 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
2. 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
3. Have a substantial adverse effect on state or federally protected wetlands through direct removal, filling, hydrological interruption or other means
4. 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
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan

Approach to the Analysis

As described in Chapter 3, the Project Description provides one potential detailed buildout scenario that meets the goals and objectives of the Master Plan Update, and is used for quantitative analytical purposes for this EIR. This Project Description is specific enough to allow for detailed analysis in this EIR, and represents the maximum development potential that could occur pursuant to the Master Plan Update's flexible development potential. The EIR Project Description also identifies the most likely locations (i.e., Opportunity Sites) where new development or redevelopment will occur. However, the Master Plan Update is intentionally flexible and does not define precise development locations. Therefore, the following impact analysis was prepared assuming that Project-related development could occur in any portion of the Project Area, with the following exception - it is assumed that no development or redevelopment activities would occur in habitats mapped as coastal salt marsh, rocky shoreline or tidal aquatic (see prior Figures 7-1 and 7-2). Such habitats are not encompassed within the Opportunity Sites and, due to the sensitivity of these habitats and the species they support, development under the Project would not occur in these locations.

Special-Status Species

The following impact analysis describes the Project's potential adverse effects on special-status species. The analysis is organized by sub-topics and species type. Nine special-status animal species are known to breed or could potentially breed in the Study Area or its vicinity, to occur commonly as non-breeders in the Study Area (and thus could potentially be substantially affected by activities that occur under the Project), and/or are of particular concern to regulatory agencies. These species include the Central California Coast steelhead, green sturgeon and longfin smelt, California Ridgway's rail, burrowing owl, San Francisco common yellowthroat and Alameda song sparrow, and harbor seal and sea lion. Potential impacts resulting from implementation of the Project on each of these species, as well as potential impacts to sensitive natural communities, migratory birds, and impacts pertaining to invasion of non-native plant species, are also analyzed below.

Tidal Aquatic Species and Essential Fish Habitats

Bio 1: The Project could potentially have an indirect adverse effect on Central California Coast steelhead, green sturgeon, longfin smelt and their tidal aquatic habitat within the Bay. However, these potential adverse effects will be reduced to less than significant levels with compliance with regulatory requirements. **(Less than Significant with Regulatory Compliance)**

Central California Coast steelhead (federally listed as threatened), green sturgeon (federally listed as threatened and a California species of special concern), and longfin smelt (state listed as threatened) could occur in tidal aquatic habitats of the Bay, such as those within and immediately adjacent to the Study Area. None of these species is expected to spawn in the waters in or adjacent to the Study Area. However, steelhead could occur in the open waters adjacent to the Study Area as they migrate to and from spawning and rearing streams in the South Bay, and green sturgeon and longfin smelt may forage occasionally in the tidal aquatic habitat within and adjacent to the Study Area. Bay water is designated as Essential Fish Habitat for Pacific Coast Salmon and Coastal Pelagics, and a Fisheries Management Plan for Pacific Groundfish has been prepared and is applicable to the Bay waters adjacent to the Study Area. No new development undertaken pursuant to the Project would occur within this tidal aquatic habitat.

However, Project construction activities may occur in close proximity to the Bay and could result in vegetation removal and mobilization of sediment that, in combination, could lead to erosion of sediment into the Bay. Increases in turbidity and sediment input may stress fish because of feeding difficulties or displacement. Further, minor spills of petrochemicals, hydraulic fluids and solvents may occur during vehicle and equipment refueling or because of leaks, adversely affecting water quality and potentially killing or injuring fish. Therefore, Project activities could result in potentially significant indirect impacts on steelhead, green sturgeon, longfin smelt and Essential Fish Habitat through impacts on water quality and resulting impairment of the health of individuals.

Regulatory Requirements

The CDFW has jurisdiction over the longfin smelt pursuant to the State Endangered Species Act (ESA). Incidental take approval from the CDFW would be needed if the Project were to result in take of longfin smelt. The NMFS has jurisdiction over the Central California Coast steelhead and green sturgeon pursuant to the federal ESA. Incidental take approval from the NMFS would be needed if the Project were to result in take of either of these species. However, the Project will comply with all regulatory requirements to control the discharge of stormwater pollutants and these regulatory requirements will minimize the risk of adverse indirect impacts on water quality such that no take of the longfin smelt, Central California Coast steelhead or green sturgeon will occur.

Regulatory Requirement Hydro 1A - Construction General Permit/Stormwater Pollution Prevention Plan:

All new qualifying construction projects pursuant to the Master Plan Update will be required to comply with Provision C.6 of the Municipal Regional Permit (MRP), and a Notice of Intent for permit coverage under the Construction General Permit must be filed.

1) To obtain Construction General Permit coverage, construction projects must include a Stormwater Pollution Prevention Plan (SWPPP) that demonstrates compliance with the City's Grading Ordinances and other local requirements.

2) The SWPPP must demonstrate implementation of seasonally appropriate and effective best management practices (BMPs) to prevent construction site discharges of pollutants into the storm drains, before approval and issuance of local grading permits.

3) Such construction projects are required to implement the stormwater BMPs identified by the San Mateo Countywide Stormwater Pollution Prevention Program, including plans to address materials and waste management, equipment management and spill control, grading and earthmoving to prevent erosion, paving and asphalt work, concrete and mortar applications, painting and paint removal, landscaping and dewatering.

BMPs will be incorporated into individual SWPPPs prior to approval of grading permits, providing an acceptable level of water quality protection. Implementation of the General Construction General Permit requirements will reduce potential impacts to water quality during construction activities to a less than significant level.

Regulatory Requirement Hydro 1B - Provision C.3 Requirements/Stormwater Management Plan: All new Regulated Projects pursuant to the Master Plan Update will be required to comply with Provision C.3 of the MRP, including requirements to incorporate post-construction stormwater control and low-impact development (LID) measures. Each individual development project must meet Provision C.3 requirements capable of reducing long-term impacts of development on stormwater quality. Some combination of the following post-construction stormwater controls will be required to demonstrate compliance with the hydraulic design criteria of the MRP:

1) Site design may include minimizing impervious surfaces minimizing impervious surfaces that are directly connected to the storm drain system, or using landscaping as a drainage feature.
2) Source control measures may include roofed trash enclosures, berms that control runoff from a pollutant source, use of indoor mats/equipment wash racks that are connected to the sanitary sewer (where allowed under separate sewer discharge permits), and regular inspection and cleaning of storm drain inlets.
3) Stormwater treatments may be met by a combination of measures that may include, but are not limited to bioretention areas, flow-through planter boxes, infiltration trenches, extended detention basins, green roofs, pervious paving and grid pavements, rainwater harvesting and subsurface infiltration systems.

These regulations ensure that potential water quality impacts related to post-construction activity pursuant to the Project will be reduced to a less than significant level.

Mitigation Measures

No mitigation measures are required.

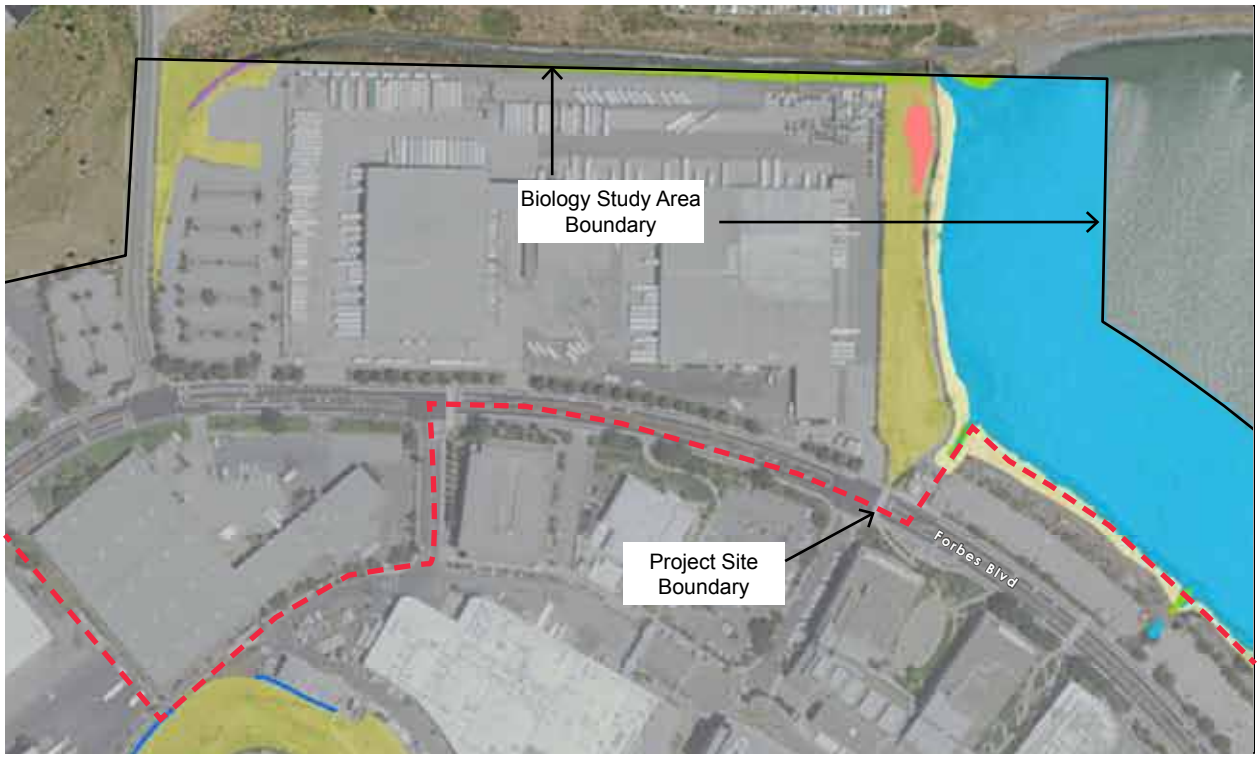
Compliance with regulatory requirements for water quality will reduce the potential for indirect impacts to these species to a level of less than significant.

California Ridgway's Rail

Bio-2: The Project may cause a substantial adverse effect, both directly and through habitat modification, on California Ridgway's rail (federally and state listed as endangered and designated as a state fully protected species). However, these potential adverse effects will be reduced to less than significant levels with compliance with regulatory requirements and mitigation measures as recommended in this EIR. (**Less than Significant with Mitigation Measures**)

The California Ridgway's rail (federally and state listed as endangered and designated as a state fully protected species) has been recorded in coastal salt marshes along the Bay shoreline approximately 0.3 mile southwest of the Study Area at the mouth of Colma Creek (see **Figure 7-9**). The tidal salt marshes (or coastal salt marshes) within the biology Study Area for this EIR are extremely limited in extent and are highly disturbed. The salt marsh in the northerly portion of the Study Area is small, highly disturbed and isolated, and it is unlikely that rails would nest or forage there. However, there is some (albeit low) potential for individuals to forage in the tidal wetland (i.e., the coastal salt marsh) along the southeastern edge of the Study Area at San Bruno Channel, and it is possible that a pair could breed in this marsh. However, such an occurrence would be expected only very infrequently, if at all. Focused monitoring for nesting rails conducted along the San Bruno Channel in 2009, including 10 repeated site visits from June through August, detected no California Ridgway's rails. [29]

[29] H. T. Harvey & Associates 2009; CNDDB, 2017



Seasonal wetland at northerly Biological Study Area (not in Project Site)

Coastal salt marsh near San Bruno Channel in southerly Biological Study Area (within Project Site)

Figure 7-9
Marsh and Wetland Habitats in Biology Study Area

Source: HT Harvey 2016 and 2017

New development undertaken pursuant to the Project would not result in activities occurring within suitable breeding or foraging habitat for the California Ridgway's rail, and no permanent loss or temporary disturbance of suitable habitat for this species would result from implementation of the Project. However, if rails are present in or immediately adjacent to the biological Study Area, construction-related noise could result in the disturbance of breeding or foraging individuals. Noise may alter rail behavior in ways that result in injury, mortality, or reduced nesting success. Disturbance during the breeding season could cause short-term effects such as failure to breed, nest abandonment, juvenile abandonment and overall lower juvenile survivorship. Disturbance could also result in a reduction in foraging efficiency in foraging areas, increased movement, flushing from cover, or altered activity patterns that reduce energy reserves and increase predation risk. Rails could be forced to adjust the boundaries of their territories or to disperse to other habitat areas. Project impacts on even one nest of the California Ridgway's rail would be significant due to this species' rarity in the region.

Mitigation Measures

The CDFW has jurisdiction over the California Ridgway's rail under the State ESA. Therefore, the CDFW will require that avoidance measures be implemented to avoid take of individual California Ridgway's rails. The following mitigation measures shall be implemented, consistent with CDFW requirements, to avoid take of individual California Ridgway's rails.

Mitigation Measure Bio 2A - Seasonal Avoidance: To avoid causing the abandonment of an active California Ridgway's rail nest, construction activities within 750 feet of the coastal salt marsh habitat in the southeastern corner of the site (see prior Figure 7-9) shall be avoided during the rail breeding season (from February 1 through August 31). If avoidance is not possible, protocol-level surveys (see Mitigation Measure Bio 2, below) shall be conducted by a qualified biologist to determine rail locations and territories.

Mitigation Measure Bio 2B - Protocol-Level Surveys and Buffers around Calling Centers: Prior to any construction activity near the coastal salt marsh along the southeastern edge of the biological Study Area, a protocol-level survey, which involves a series of site visits between mid-January (beginning no later than January 31) and late March, shall be conducted by a qualified biologist. The survey needs to be approved by the USFWS and CDFW in advance.[30] If breeding rails are determined to be present, construction activities shall not occur within 750 feet of an identified calling center during the breeding season.

Mitigation Measure Bio 2C - Initiate Work during the Non-Breeding Season: Regular, ongoing disturbance within a work area that begins prior to the start of the nesting season or nest establishment in an area may deter California Ridgway's rails from nesting near construction activities. If construction activities need to occur within 750 feet of suitable California Ridgway's rail nesting habitat, such activities shall be initiated and shall reach peak levels of disturbance prior to the onset of the nesting season. Peak levels of disturbance is defined as construction noise in the vicinity of the suitable habitat reaching maximum levels, and construction activities that occur as near to the suitable habitat as required for the project. If an active nest is identified subsequent to construction activities reaching a peak level of disturbance, a buffer of 750 feet shall be established between Project activities and the nest.

Resulting Level of Significance

Potential impacts on the California Ridgway's rail were not identified in the previous 2007 MEIR or the 2012 SMEIR, which indicates that habitat of suitable quality to support this species was not considered to be

[30] United States Department of the Interior, Fish and Wildlife Service, California Clapper Rail Survey Protocol, accessed at: https://www.fws.gov/sfbaydelta/documents/June_2015__Final_CCR_protocol.pdf

present in or adjacent to the Study Area. Although the coastal salt marshes in the Study Area are extremely limited in extent and are highly disturbed, the potential for individual California Ridgway's rails to forage or breed in this habitat along the southeastern edge of the Study Area at San Bruno Channel cannot be dismissed. Implementation of Mitigation Measures Bio 2A through 2C above would avoid take of individuals (as is required by the CDFW due to this species' designation as fully protected), would avoid impacts to nesting pairs and Project activities will not adversely affect this species' potential habitat. Therefore, impacts on the California Ridgway's rail will be reduced to a level of less than significant.

Burrowing Owl

Bio 3: The Project would not cause a substantial adverse effect, either directly or through habitat modification, on burrowing owls. Burrowing owls are a migratory species protected under the federal MBTA and California Fish and Game Code, and designated as a state species of special concern. (**Less than Significant**)

The ruderal grasslands in the Project Area provide ostensibly suitable foraging and roosting habitat for the burrowing owl, a California species of special concern. Although there are no records of burrowing owls in the Project vicinity, occasional migrating or dispersing individuals could forage in the Project Area and could possibly take temporary refuge in riprap along the shoreline. However, this species is not expected to breed, occur regularly or occur in numbers in the Project Area, and the San Mateo County Breeding Bird Atlas indicates no evidence of breeding in the Project vicinity.[31]

Project activities would not result in the loss of breeding habitat or impacts to breeding owls or their nests. The majority of suitable habitat for the species (i.e., open grasslands with ground squirrel burrows) occurs along the eastern edge of the Project Area within and adjacent to the rocky shoreline, where no development is proposed to occur. A recent study has suggested that many wintering owls in the South Bay do not breed in the Bay area.[32] Thus, individuals of this species that may be present are likely from populations that are more robust than the dwindling Bay Area population of breeding burrowing owls. Potential impacts to burrowing owls are determined to be less than significant.

Mitigation Measures

No mitigation measures required. New development undertaken pursuant to the Project would not result in the disturbance of breeding individuals or the loss of breeding habitat for this species, and Project impacts are not expected to affect appreciably the regional population of this species. This impact is considered less than significant.

San Francisco Common Yellowthroat, Alameda Song Sparrow and other Native Nesting Birds

Bio 4: The Project may cause a substantial adverse effect, either directly or through habitat modification, on Alameda song sparrow, San Francisco common yellowthroat (both California species of special concern) and other native bird species protected by the MBTA and California Fish and Game Code. However, these potential adverse effects will be reduced to less than significant levels with compliance with mitigation measures as recommended in this EIR. (**Less than Significant with Mitigation Measures**)

The Alameda song sparrow and San Francisco common yellowthroat (both California species of special concern) could occur in brackish marsh along the drainage channel in the northerly portion of the Study Area (**not** in the Project site). They may also occur in the salt marsh habitat along the San Bruno channel at the

[31] Sequoia Audubon Society, 2001

[32] Chromczak et al., 2016

southern boundary of the Study Area (**within** the Project Site). These species are assessed together because the potential impacts of the Project on these species would be similar. Suitable breeding and foraging habitat for the Alameda song sparrow and San Francisco common yellowthroat in the Study Area is of relatively low quality due to its limited extent and the high level of human disturbance associated with the San Francisco Bay Trail and surrounding urban developments. The smaller isolated patches of salt marsh located along the shoreline (see previous Figures 7-1 and 7-2) do not provide suitable habitat for these species due to their very limited extent and sparse vegetation. Therefore, occurrence of the San Francisco common yellowthroat and Alameda song sparrow in the Study Area is expected to be limited to a small number of pairs in salt marsh habitats located along the narrow tidal channels on the northern and southern borders (see prior Figure 7-9).

No Project activities are proposed to occur in the salt marsh habitat in the Study Area. However, Project construction activities that result in ground disturbance, noise and vibrations near this habitat type could potentially disturb nesting Alameda song sparrows and San Francisco common yellowthroats, and cause them to move away from work areas, resulting in the abandonment of active nests with eggs or nestlings. Such impacts would be limited to a small number of pairs, and these individuals represent only a very small proportion of the regional populations of these species. Thus, implementation of the Project is not expected to result in a significant impact on the Alameda song sparrow or San Francisco common yellowthroat.

Nesting Birds

However, all native bird species, including Alameda song sparrows and San Francisco common yellowthroats, are protected by the MBTA and California Fish and Game Code. In particular, active nests of native birds may constrain certain Project-related construction activities. Trees and shrubs throughout the Project Site could provide suitable habitat for nesting native and migratory birds, which are protected under state and federal regulations. Construction activities that occur during the nesting season (February 1 through August 31) could result in the incidental loss of eggs or nestlings, through either the destruction or disturbance of active nests, or indirectly by causing the abandonment of nests, a violation of the provisions of the MBTA and California Fish and Game Code. This is considered a potentially significant impact.

Mitigation Measures

The Alameda song sparrow, San Francisco common yellowthroat and other native birds are protected under the federal MBTA and Sections 3503 and 3800 of the California Fish and Game Code. Therefore, the Project will be required to implement measures to ensure that Project activities comply with the MBTA and California Fish and Game Code. Therefore, the following avoidance mitigation measures shall be implemented, consistent with the MBTA and California Fish and Game Code:

Mitigation Measure Bio 4A - Seasonal Avoidance: To the extent feasible, construction activities should be scheduled to avoid the nesting season. If construction activities are scheduled to take place outside the nesting season, all impacts on nesting birds protected under the MBTA and California Fish and Game Code will be avoided. The nesting season for most birds in San Mateo County extends from February 1 through August 31.

Mitigation Measure Bio 4B - Pre-construction/Pre-disturbance Surveys: If it is not possible to schedule construction activities between September 1 and January 31, then a pre-construction survey for nesting birds shall be conducted by a qualified ornithologist to ensure that no nests will be disturbed during Project implementation. These surveys should be conducted no more than seven days prior to the initiation of any construction activities. During this survey, the ornithologist shall inspect all trees and other potential nesting habitats (e.g., trees, shrubs, ruderal grasslands, buildings) in and immediately adjacent to the impact area, as well as a construction zone of up to 300 feet from the edge of the construction zone into the southerly coastal salt marsh habitat (if applicable), for nests.

Mitigation Measure Bio 4C - Buffers: If an active nest is found sufficiently close to work areas such that it would be disturbed by construction activities, the ornithologist shall determine the extent of a construction-free buffer zone to be established around the nest (typically 300 feet for raptors and 100 feet for other species). Any active nests shall be monitored by the ornithologists to determine when the young fledge, and construction within the buffer zone can resume.

Resulting Level of Significance

Based on the limited extent and low quality of habitat conditions observed during the reconnaissance surveys, as well as the Project's avoidance of wetland habitats, Project development activities are expected to have only limited impacts on a small number of individuals of these species, and would not result in a substantial impact on regional populations. Implementation of Mitigation Measures 4A through 4C would ensure compliance with the MBTA and California and Fish and Game Code, and reduce potential impacts to a level considered less than significant.

Harbor Seal and California Sea Lion

Bio 5: The Project could potentially have an indirect adverse effect on harbor seal and California sea lion (both protected species under the Marine Mammal Protection Act), and their tidal aquatic habitat within the Bay. However, these potential adverse effects will be reduced to less than significant levels with compliance with regulatory requirements. **(Less than Significant with Regulatory Requirements)**

The harbor seal and California sea lion (both protected species under the Marine Mammal Protection Act) may occur in the Bay immediately adjacent to the Study Area. The tidal aquatic habitat adjacent to the Study Area provides suitable foraging and dispersal habitat for these species. The Project has the potential to result in indirect impacts to these species and this habitat type due to adverse effects on water quality.

Although the rocky shore habitat in the Project Area provides ostensibly suitable haul-out sites for these species, the high level of disturbance and human presence along the San Francisco Bay Trail and shoreline greatly reduces the suitability of this habitat, and neither harbor seals nor California sea lions are expected to make use of any part of the Project Area. Further, both species are only expected as occasional visitors to the adjacent Bay waters. If harbor seals or sea lions are present in the waters in or adjacent to the Study Area, Project construction activities that result in high volume underwater sound levels have the potential to result in the disturbance of these species. However, no currently known Project-related development activities are proposed within tidal aquatic or rocky shoreline habitats, and no activities that result in high volume underwater sound levels are anticipated. The potential for direct impacts to these species is considered less than significant.

Regulatory Requirements

The Project does have the potential to result in indirect impacts to these species and their habitat due to adverse effects on water quality. However, the Project will be required to comply with all regulatory requirements to control the discharge of stormwater pollutants:

Regulatory Requirement Hydro 1A - Construction General Permit/Stormwater Pollution Prevention Plan: All qualifying new construction projects pursuant to the Master Plan Update must comply with Provision C.6 of the Municipal Regional Permit (MRP). A Notice of Intent for permit coverage under the Construction General Permit must be filed, and a Stormwater Pollution Prevention Plan must be implemented (see additional details, above).

Regulatory Requirement Hydro 1B - Provision C.3 Requirements/Stormwater Management Plan: All new Regulated Projects pursuant to the Master Plan Update will be required to comply with Provision C.3 of the MRP, including requirements to incorporate post-construction stormwater control and low-

impact development (LID) measures. Each individual development project must meet Provision C.3 requirements capable of reducing long-term impacts of development on stormwater quality. Some combination of post-construction stormwater controls will be required to demonstrate compliance with the hydraulic design criteria of the MRP (see additional details, above).

Implementation of these regulatory requirements will minimize the risk for adverse impacts on water quality, and potential indirect impacts on harbor seal and sea lion will be less-than-significant.

Additional Mitigation Measures

No additional mitigation measures required.

Bird Strikes

Bio 6: The Project would not interfere substantially with migratory bird corridors due to bird strikes with buildings. (**Less than Significant**)

New development pursuant to the Project will result in the construction of new multi-story buildings as well as the replacement of existing structures with buildings that are likely larger, taller, and more architecturally and functionally complex. 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 (i.e., they see the glass as sky or vegetated areas). Transparent windows allow birds to perceive an unobstructed flight route through the glass (such as at corners), and the combination of transparent glass and interior vegetation (such as in planted atria) may result in attempts by birds to fly through glass to reach that vegetation.

The majority of avian collisions with buildings occur within the first 60 feet of the ground, where birds spend the majority of their time engaged in foraging, territorial defense, nesting, and roosting activities, and where vegetation is most likely to be reflected in glazed surfaces.[33] However, very tall buildings may pose a threat to birds that are migrating through the area, particularly to nocturnal migrants that may not see the buildings or that may be attracted to lights on the buildings.

Currently, terrestrial land uses and habitat conditions in and adjacent to the Project Area consist primarily of developed and landscaped uses such as buildings, parking lots and roads. Vegetation in these areas is limited in extent, and consists primarily of non-native landscaped trees and shrubs. Although a number of bird species will use such vegetation, they typically do so in low numbers. Non-native vegetation supports fewer of the resources required by native birds than native vegetation, and the structural simplicity of the vegetation (without well-developed ground cover, understory and canopy layers) further limits resources available to birds. The area to the west of the Project Area is heavily urbanized, so large numbers of birds are not expected to be flying east to west over the Project Area at altitudes low enough for bird-strike mortality to occur.

The Project Area is located along the Pacific Flyway for migratory birds, and the juxtaposition of shoreline, coastal salt marsh, seasonal wetland and open tidal aquatic habitats in the region results in large-scale movements of birds north to south along the edge of San Francisco Bay, both during long-distance movements and during daily movements between roosting and foraging habitats. The bird species with the greatest potential to collide with buildings in the Project Area would consist primarily of the common, resident, migrant or wintering wading birds, waterfowl and passerines (i.e., songbirds). The numbers of these birds moving through the site will vary by time of year and by species.

[33] City of San Francisco, 2011

By necessity, buildings developed pursuant to the Project would be within the primary "Bird Collision Zone" (i.e., within the first 60 feet above the ground). However, the Project Area is already extensively developed with numerous multi-story buildings, including areas adjacent to the shoreline. The development of new buildings at infill sites is not expected to substantially increase the risk of bird strikes as these buildings would be surrounded by existing development that essentially "screens" all or a majority of the 60-foot Bird Collision Zone. Similarly, redevelopment of existing structures is not expected to increase substantially the risk for avian collisions. Therefore, this impact is determined to be less than significant.

Mitigation Measures

No mitigation measures required.

Due to the large number of existing multi-story buildings present throughout the Project Area, and the spatial orientation of high-quality bird habitat in relation to the site, Project impacts resulting from bird collisions are not expected to rise to the CEQA standard of having a substantial adverse effect on migratory bird corridors. This would not constitute a significant impact under the CEQA.

Invasive Species

Bio 7: The Project could potentially result in adverse effects on coastal salt marsh and other sensitive habitat due to the spread of invasive and non-native plant species. However, this potential adverse effect will be reduced to less than significant levels with mitigation measures identified in this EIR. (**Less than Significant with Mitigation Measures**)

Invasive weeds can occur in all habitat types and can be difficult to eradicate. One of the characteristics of some invasive species that make them successful is that many non-native, invasive plant species produce seeds that germinate readily following disturbance. Newly disturbed areas are highly susceptible to colonization by non-native, invasive species that occur locally, or whose propagules are brought in by personnel vehicles and other equipment.

There are several non-native, invasive species currently present in the Project Area, including pampas grass and fennel. Development activities undertaken pursuant to the Project will result in a large portion of the site being subject to soil disturbance. Activities such as trampling, equipment staging, and vegetation removal are all factors that would contribute to disturbance. Areas of disturbance could serve as the source for promoting the spread of non-native species, which could degrade the ecological values of wetlands that occur within and immediately adjacent to the Study Area, and adversely affect native plants and wildlife that occur there. Additionally, movement of soil that is infested with invasive plants could spread these infestations to new areas within the Project Area. Therefore, Project construction activities could result in potentially significant impacts on adjacent sensitive habitats, including coastal salt marsh and the sensitive species it supports.

Mitigation Measures

Mitigation Measure Bio 7 - Invasive Weed Control: Prior to ground disturbing activities, the Project work areas shall be surveyed by a qualified biologist/botanist for the presence of pampas grass, fennel and other highly invasive plant species from the California Invasive Plant Council list.

a) Any invasive plants found within the area that is to be disturbed by development shall be removed and disposed of in a sanitary landfill. Alternatively, invasive plants may be disposed of in a high-temperature composting facility that can compost using methods known to kill weed seeds, taking care to prevent any seed dispersal during the process by bagging material or covering trucks transporting such material from the site.

b) Cut soils from areas infested by weeds such as pampas grass and fennel that will be reused as fill elsewhere in the Project Area will be buried under hardscape or placed in areas to be managed

with landscaping.

c) During construction activities, all seeds and straw materials used on site shall be weed-free, and all gravel and fill material shall be certified weed-free.

d) Construction vehicles and all equipment will be washed (including wheels, undercarriages and bumpers) before entering the Project Area. Vehicles will be cleaned at existing construction yards or car washes. Genentech will document that all vehicles have been washed prior to commencing work.

Resulting Level of Significance

Implementation of Mitigation Measure Bio 7, as described above, will reduce impacts from invasive weeds to a less-than-significant level.

Sensitive Natural Communities

Bio 8: The Project will not 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 Wildlife or U.S. Fish and Wildlife Service. (**Less than Significant with Regulatory Compliance**)

Riparian communities are limited in extent within the state and are considered sensitive habitats. Riparian communities are potentially present in the Study Area, but limited to the area below the top of bank along the tidal channels at the northern and southern salt marsh areas (see prior Figure 7-9). The coastal salt marsh habitat in the Study Area is also a sensitive community (see further discussion, below).

New development undertaken pursuant to the Project would not result in activities occurring within riparian habitat, and no direct impacts to riparian habitat would occur. Nevertheless, Project construction activities in close proximity could result in ground disturbance, vegetation removal and mobilization of sediment that in combination could lead to erosion of sediment into the riparian habitat. Spills may occur during vehicle and equipment refueling or because of leaks that may also adversely affect riparian habitat, if these materials were deposited or allowed to flow into these areas. These indirect effects of construction activity could be significant, but are fully addressed through regulatory requirements (see below).

Regulatory Requirements

The Project will be required to comply with all regulatory requirements to control the discharge of stormwater pollutants:

Regulatory Requirement Hydro 1A - Construction General Permit/Stormwater Pollution Prevention Plan: Qualifying new construction projects pursuant to the Master Plan Update will be required to comply with Provision C.6 of the Municipal Regional Permit (MRP). This includes filing a Notice of Intent for permit coverage under the Construction General Permit and implementation of a Stormwater Pollution Prevention Plan (see additional details, above).

Regulatory Requirement Hydro 1B - Provision C.3 Requirements/Stormwater Management Plan: All new Regulated Projects pursuant to the Master Plan Update will be required to comply with Provision C.3 of the MRP, including requirements to incorporate post-construction stormwater control and low-impact development (LID) measures. Each individual development project must meet Provision C.3 requirements capable of reducing long-term impacts of development on stormwater quality. Some combination of post-construction stormwater controls will be required to demonstrate compliance with the hydraulic design criteria of the MRP (see additional details, above).

Implementation of these regulatory requirements will minimize the risk for adverse impacts on water quality, and potential indirect impacts on sensitive natural communities, including riparian habitat, will be reduced to a less-than-significant level.

Mitigation Measures

No mitigation measures required.

The Project would not result in the temporary or permanent loss of riparian habitat. Compliance with State requirements to control the discharge of stormwater pollutants during construction under the NPDES Construction General Permit and the RWQCB required SWPPP, and post-construction measures and design features required by the MRP would avoid and minimize the risk for adverse impacts on water quality, and potential impacts on riparian habitat to a less-than-significant level.

Wetlands and Other Waters

Bio 9: The Project will not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.), waters of the U.S. and waters of the state through direct removal, filling, hydrological interruption or other means. **(Less than Significant with Regulatory Compliance)**

Wetlands - Tidal Aquatic and Coastal Salt Marsh Habitats

All tidally influenced open water and intertidal habitats of the Bay, the tidal channels at the northern and southern ends of the site, and associated wetlands and shoreline areas extending up to the mean high water (MHW) line are subject to USACE jurisdiction under the Rivers and Harbors Act. Any activities affecting these areas would potentially require a Section 10 Letter of Permission. Jurisdictional wetlands within the Study Area include:

- one area of coastal brackish marsh at the interior end of a tidal channel (not in the Project Area)
- several small patches of coastal salt marsh along the eastern edge of the Project Site
- one moderately-sized patch of coastal salt marsh at the southeastern corner of the Project Site, and
- one seasonal wetland at the northeastern corner of the Study Area (**not** in the Project Site)

However, the Project would not result in either temporary or permanent loss of these wetland habitats, as these areas are not identified in Opportunity Sites for new development.

However, tidal aquatic and wetland habitats may be indirectly affected due to increased hardscape in upland habitats that can lead to an increase in runoff, a decrease in infiltration and groundwater recharge, and possible introduction of anthropogenic contaminants such as petrochemicals, herbicides and fertilizers into regulated habitats. In addition, Project-related construction activities such as grading, paving, vegetation removal and other soil disturbances can increase the potential for soil erosion. Construction activities could increase the amount of soil and sediments entering waterways, resulting in a substantial impact on water quality. Further, spills may occur during vehicle and equipment refueling or because of leaks that may also adversely affect water quality.

Drainage Ditches

Project development may result in the temporary or permanent loss of some on-site drainage ditches. The on-site drainage ditches in the Project Area are excavated in uplands areas and are not a replacement for native drainage features (see prior Figure 7-8). In the opinion of the EIR consulting biologists (H. T. Harvey & Associates), the on-site drainage ditches are unlikely to be claimed as waters of the U.S. by the US Army Corps of Engineers under Section 404 or 401 of the Clean Water Act, and do not constitute waters of the State pursuant to Section 1600 of the California Fish and Game Code. The stormwater drainage ditches in

the Study Area were excavated in uplands for stormwater conveyance and treatment, source inputs appear to be from storm drain systems collecting runoff from developed uplands, they appear to drain to a constructed storm drain system, none of them replace native drainages, and they have been well maintained since construction.

Additional Mitigation Measures

Whereas the EIR consulting biologist's opinion is that the on-site drainage ditches do not constitute waters of the State and are unlikely to be claimed as waters of the U.S. by the US Army Corps of Engineers, this determination will ultimately need to be made by the USACE and/or the RWQCB. The following additional mitigation measure clarifies the requirement for verification of a wetlands delineation for these on-site drainage ditches:

Mitigation Measure Bio 9 – Drainage Channel Wetland Delineation: Although drainage channels within the site lack many of the habitat features usually present in jurisdictional waters of the U.S. or the State, there is some possibility these drainage ditches may be claimed as jurisdictional. Prior to any proposed fill or material alteration of on-site drainage ditches (those indicated on prior Figure 7-8), a preliminary wetlands delineation based on the criteria of most current Corps of Engineers Wetlands Delineation Manual and any regional supplements shall be conducted and submitted to USACE and RWQCB prior to issuance of any grading permits.

a) Presuming these preliminary wetland delineations find the on-site drainage ditches are not Waters of the US or of the State, and that these delineations are accepted by the respective permitting agencies, then no further federal wetlands permitting is required.

b) If the USACE and/or the RWQCB claim jurisdiction of these features, any alteration of the drainage ditches would require applicable permits and compliance with all standards and requirements of such permits.

c) The RWQCB is likely to consider these drainage ditches as required parts of the overall Campus' Stormwater Management Plan, and pursuant to subsequent Statewide General Construction Permits will likely require that the storm drainage functions of these features be replaced if they are affected.

Potential biological effects on drainage ditches, should they be claimed as jurisdictional waters by either the USACE or the RWQCB (which is considered to be not likely), would be reduced to a level of less than significant through implementation of regulatory requirements of these respective agencies, if found applicable pursuant to subsequent preliminary wetland delineations.

Environmental Corridors

Bio 10: The Project will not 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)**

For many species, the landscape is a mosaic of suitable and unsuitable habitat types. Environmental corridors are segments of land that provide a link between these different habitats while also providing cover. Development that fragments natural habitats (i.e., breaks them into smaller, disjunctive pieces) can have the effect of making habitats smaller such that they are unable to support as many individuals, and the area between habitats may become unsuitable for wildlife species to traverse.

All Project development activities are located in areas that are currently developed or that are surrounded by existing development or construction activities. The rocky shoreline adjacent to the Bay serves as the only movement pathway for terrestrial species, providing cover and foraging opportunities. Common, urban-

adapted species such as raccoons and striped skunks may use the landscaped plants along the Bay Trail to move north to south through the Project Area. Small mammals, such as mice and shrews, will also use this vegetation as cover to move between habitats. However, Project development does not extend down the rocky shoreline to the Bay. The Project's development activities would not impede animal movement along this wildlife movement pathway.

The Project Area consists of heavily disturbed habitats that are of little value to migrating wildlife. Terrestrial wildlife species that use these habitats are acclimated to existing high levels of disturbance and habitat fragmentation in the Project vicinity. To the east of the biological Study Area, the Bay provides an important movement pathway for aquatic species, connecting breeding and foraging habitats. However, the Project would not result in any loss of aquatic or marsh habitat. Aquatic species would continue to be able to move north to south through the Bay, independent of the Project.

Mitigation Measures

No mitigation measures required.

The Project would not 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, and this impact is determined to be less than significant.

Conflicts with Local Tree Protection Policies

Bio 11: The Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. **(Less than Significant with Regulatory Compliance)**

Landscaped portions of the Project Area may contain trees defined as "protected" by the South San Francisco Tree Preservation Ordinance, Title 13 Chapter 13.30. Development activities could involve removal or pruning of certain protected trees. The removal or pruning of trees protected by the City of South San Francisco Tree Preservation ordinance without required permits is considered potentially significant under CEQA.

Regulatory Requirements

Regulatory Requirement Bio 11A – Tree Removal Permit: All new development pursuant to the Project will be required to comply with City of South San Francisco Municipal Code 13.30, which prohibits the removal or pruning of protected trees without a permit. Pursuant to this regulatory requirement, Genentech will be required to retain a certified arborist to conduct pre-construction surveys of trees within the Project Area, and provide a map to the applicant and the City. Each identified protected tree that will be directly impacted by removal or pruning will require a Tree Pruning/Removal Permit pursuant to the South San Francisco Municipal Code. This permit will be submitted to the City and must be approved before building permits are issued.

Regulatory Requirement Bio 11B- Tree Replacement Planting: Replacement trees will be determined as set forth in Municipal Code Section 13.30.080, which provides that any protected trees that are removed shall be replaced as follows:

1) Replacement will be three 15-gallon size or two 24-inch box minimum size landscape trees for each tree removed as determined below. However, the director maintains the right to dictate size and species of trees in new developments.

2) Any protected tree removed without a valid permit will be replaced by three 24-inch box minimum size landscape trees of a species approved by the director for each tree so removed as determined below.

3) Replacement of a protected tree can be waived by the director if a sufficient number of trees exist on the property to meet all other requirements of the tree preservation ordinance.
4) If replacement trees cannot be planted on the property, payment of the replacement value of the tree, as determined by the International Society of Arboriculture Standards, plus the costs to the city to plant an equivalent tree elsewhere in the city, will be made to the city.

Mitigation Measures

No mitigation measures required.

Implementation of the Project has the potential to result in the removal or pruning of trees protected by the City of South San Francisco Tree Preservation ordinance, but required compliance with the Municipal Code will reduce this impact to a less than significant level.

Conflict with Habitat Conservation Plan

Bio 12: The Project will not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan or other habitat conservation plan approved by local, regional or state agencies. **(No Impact)**

The San Bruno Mountain Habitat Conservation Plan is the only Habitat Conservation Plan that has been approved in San Mateo County, but it does not cover the Project Area or the immediately surrounding vicinity. No other Natural Community Conservation Plans have been approved or are in preparation in San Mateo County.[34] The 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. Potential impacts associated with conflicts between the Project and any adopted Habitat Conservation Plans or Natural Community Conservation Plans would be less than significant.

Mitigation Measures

No mitigation measures required.

Cumulative Biological Resource Effects

The Project will not result in a cumulatively considerable contribution to significant cumulative impacts on biological resources. Biological resource impacts are largely location-specific and dependent on site-specific habitat.

The Project's potential contribution to cumulative impacts on biological resources is evaluated in the context of past, present, and reasonably foreseeable probable future development expected in the City and along the Bay shoreline. As indicated below, with implementation of applicable regulatory requirements and appropriate mitigation measures, cumulative impacts to biological resources would be less than significant, and the Project would not result in a cumulatively considerable contribution to a significant cumulative biological resources impact.

Tidal Aquatic Habitat

Habitat for Central California Coast steelhead (federally listed as threatened), green sturgeon (federally listed as threatened and a California species of special concern), and longfin smelt (state listed as threatened) occur in tidal aquatic habitats of the Bay. The Bay has been designated as Essential Fish Habitat for Pacific Coast Salmon and Coastal Pelagics, and a Fisheries Management Plan is applicable to waters of the Bay for Pacific

[34] CDFW, 2017

Groundfish. However, there are no present or reasonably foreseeable probable future development projects in the vicinity that are known to result in direct impacts to these habitat types, and all new development is subject to applicable regulatory restrictions and requirements pertaining to this habitat type. No new development undertaken pursuant to the Project would occur within tidal aquatic habitat, and the Project would not contribute to cumulative effects on this habitat type.

Coastal Salt Marshes/Native Birds

The California Ridgway's rail has been recorded in coastal salt marshes along the Bay shoreline. Other current or reasonably foreseeable development projects could potentially result in direct impacts to this habitat, but all new development is subject to applicable regulatory restrictions and requirements. New development undertaken pursuant to the Project is required to implement these regulatory requirements and mitigation measures, and the Project would not contribute to cumulative effects on this habitat type.

Brackish marsh and salt marsh habitat along the Bay provide habitat for the Alameda song sparrow and San Francisco common yellowthroat (both California species of special concern). Cumulative development that threatens these habitat types poses a potentially significant cumulative impact tot these species. However, all native bird species (including Alameda song sparrows and San Francisco common yellowthroats), are protected by the MBTA and California Fish and Game Code. All current and reasonably foreseeable development projects (including the Project) are required to implement measures to ensure compliance with the MBTA and California Fish and Game Code. Mitigation measures are identified for the Project that include seasonal avoidance of construction activities during the nesting season, pre-construction surveys for nesting birds, and establishment of construction-free buffer zones around active nests. With implementation of these mitigation measures, the Project will not contribute to cumulative effects on nesting native birds.

Wetlands and Waters of the US

Past, current or reasonably foreseeable future development projects could potentially result in direct impacts to wetlands and other waters of the U.S. However, regulatory requirements pursuant to Section 404 of the Clean Water Act, Section 401 of the Clean Water Act, the Porter-Cologne Water Quality Control Act and the Bay Plan (BCDC permits) apply to all applicable regulated projects. Implementation of these regulatory requirements, including the requirement to obtain a permit prior to discharge or fill of these habitat types, minimize the risk for adverse direct and indirect impacts on wetlands. New development undertaken pursuant to the Project is required to implement these regulatory requirements, and the Project would not contribute to cumulative effects on wetlands or other waters of the US.

Indirect Impacts Affecting Water Quality

Potentially significant cumulative impacts to multiple habitat types (including wetlands) could occur if stormwater pollutants were to be discharged into these areas. However, all present and reasonably foreseeable development projects are required to comply with regulatory requirements that control the discharge of stormwater pollutants. Those regulatory requirements that apply to all cumulative construction projects include compliance with the Construction General Permit, and preparation and implementation of a Stormwater Pollution Prevention Plan pursuant to Provision C.6 of the Municipal Regional Permit (MRP), including filing a Notice of Intent for permit coverage under the Construction General Permit. Further, all regulated cumulative development projects are required to design and implement Stormwater Management Plans to comply with applicable C.3 provisions of the MRP, including requirements to incorporate post-construction stormwater control and low-impact development (LID) measures. These regulations are designed to protect water quality from all new cumulative construction and development, including the Project.

Tree Removal

Past, present and reasonably foreseeable future development projects in the City of South San Francisco likely involve the removal or pruning of protected trees. The removal or pruning of trees protected by the City of South San Francisco Tree Preservation ordinance without required permits is considered potentially significant under CEQA. However, all cumulative development in South San Francisco is required to comply with the City of South San Francisco Municipal Code Section 13.30, which prohibits the removal or pruning of protected trees without a permit, and to provide replacement trees as set forth in Municipal Code Section 13.30.080. With on-going implementation of these regulatory requirements, cumulative tree removal throughout the City (including at the Project Site) is considered less than cumulatively considerable.

8

Cultural Resources

This chapter evaluates the potential impacts of the Project related to cultural resources. This chapter describes existing cultural resources in the Project Area and evaluates the extent to which development of the Project may cause a substantial adverse change in the significance of any historic or archaeological resource (as defined in Section 15064.5 of the CEQA Guidelines and Section 106 of the National Historic Preservation Act).

Setting information is derived from the following primary sources:

- Data extracted from records reviews conducted by the California Historic Resources Information System (CHRIS) Northwest Information Center (NWIC) for the 2002 *Britannia East Grand Project (BEG) EIR, the* 2007 *Genentech Facilities Master EIR (MEIR)*, and the 2012 *Supplemental MEIR* (SMEIR)
- *Record Search Results for the Proposed Genentech Corporate Campus 10-Year Master Plan*, California Historical Resources Information System (CHRIS) Inventory, Northwest Information Center, Sonoma State University, April 23, 2018, including base maps that reference cultural resources records and reports, historic-period maps, and literature for San Mateo County (**Appendix 8**)

Pursuant to California State Assembly Bill 52 (AB52), the City has contacted those Native American tribes who have requested CEQA consultation, providing each tribe on the City's list with a copy of this EIR's Notice of Preparation (NOP). The City did not receive requests for further consultations from any of these tribes.

Environmental Setting

Prehistoric and Historic Background [1]

Prehistoric and Ethnographic Context

The area that is now South San Francisco was inhabited by a people of Penutian linguistics who spoke the Ramaytush language, and referred to as Costanoan. The term Costanoan is derived from the Spanish word Costaiios, or "coast people," but its application as a means of identifying this population is based in linguistics. Costanoan actually designates a family of eight languages. Of these, Ramaytush was the language spoken by the estimated 1,400 people who occupied the area now designated as San Francisco and San Mateo counties. Tribal groups occupying the area from the Pacific Coast to the Diablo Range and from San Francisco to Point Sur spoke the other seven languages of the Costanoan family.

Modern descendants of the Costanoan prefer to be known as Ohlone, and members of the Ohlone Indian Tribe. They are named after the Oljon tribal group, which occupied the San Gregorio watershed in San Mateo County. Based on linguistic evidence, it has been suggested that the Costanoan ancestors of the Ohlone

[1] The material in this summary of prehistoric and historic background is largely drawn from the 2007 *Genentech Facilities Master Plan MEIR*

arrived in the San Francisco Bay area about 500 A.D., from the Sacramento-San Joaquin Delta region. Extended families lived in domed structures thatched with tule, grass, wild alfalfa, ferns or carrizo. Subterranean sweathouses were built into pits excavated in stream banks and covered with a structure against the bank.

Evidence of the success of their hunter/gatherer subsistence strategy may be seen in the number of flourishing village sites known to have existed at the time of contact with the Spanish. Estuary and marsh locales along the former bay shoreline would have offered abundant food resources to prehistoric human populations. The detritus of these sites has been found in numerous locations around the shoreline of San Francisco Bay, in the form of shellmounds--large accumulations of shell, ash, human artifacts and occasionally human remains.

Regional History

The colonizing efforts of the Spanish government first reached the San Francisco Peninsula when an expedition led by Gaspar de Portola was attempting to explore Monterey Bay. The party reached what is now the San Francisco Bay in October 1769, and though they knew they had overshot their target when they spotted the Farallons and Point Reyes, they briefly explored the region before returning south. After traveling along the San Mateo coastline, the party turned east and traveled inland to camp along San Andreas Creek near the present City of Millbrae. Captain Fernando Rivera, a member of the Portola expedition, returned with Fray Francisco Palou in 1774 to explore the region and scout prospective sites for Spanish settlement. The party camped in the San Andreas Valley. Just two years later, in the spring of 1776, Juan Bautista de Anza, Pedro Font, and others would return to explore the area once again. The Rivera and de Anza parties traveled north up the Peninsula along the route that would become known as both El Camino Real and the San Jose Road. Once the missions at San Francisco and Santa Clara were established (in 1776 and 1777) at the northern and southern ends of the Peninsula, the trail would become a well-traveled wagon road between the two centers of activity. In addition, the road would be a determining factor in the settlement patterns of newcomers and the growth of future cities and towns within this area.

The arrival of the Spanish in the San Francisco Bay Area led to the rapid demise of native California populations. Diseases, declining birth rates and the effects of the mission system served to eradicate the aboriginal life ways. Brought into the missions, the surviving Costanoans, along with former neighboring groups of Esselen, Yokuts and Miwok, were transformed from hunters and gatherers into agricultural laborers. With abandonment of the mission system and Mexican takeover in the 1840s, numerous ranchos were established. Generally, the few native Californians who remained were then forced, by necessity, to work on the ranchos. With this influx of European settlers, most of the native Ohlone village sites were destroyed or covered by buildings and roads at numerous locations around the bay shoreline.

During the Gold Rush era, silt accumulation and historic settlement effectively filled in hundreds of acres of the original bay shoreline, including portions of the Project site.

Recent Historic Context

During the late 1800s and early 1900s, the East of 101 Area was developed with heavy manufacturing activities and meatpacking plants, facilitated by rail access. By the 1930s, shipping emerged as a major industry, as South San Francisco became an adjunct facility to the Port of San Francisco. In the years following World War II, the City converted marshlands into areas usable for industrial development, drastically reshaping the shoreline and attracting light industry to the City. The area has been transforming for the past thirty years. Steel production and other heavy industries have largely been replaced by warehousing and newer research and development establishments.

Cultural Resources

Paleontological Resources

The Project Area sits partially on reclaimed Bay lands and adjacent uplands at the eastern base of San Bruno Point. The lower portions of the Project Area, including parts of South Campus, were reclaimed from the waters of the San Francisco Bay in the mid to late 1960s. This reclamation effort used compacted materials derived primarily from excavated bedrock and alluvial materials, placed over Bay Mud, which lies directly beneath the reclaimed fill material. A map cited in the 2007 MEIR illustrated the potential for the existence of paleontological resources in the general Project Area.[2] This map indicates that portions of the Project Area are underlain with bedrock components, and it is possible that unique paleontological resources exist within these bedrock components, since paleontological resources typically occur within rock formations.

However, the 2007 MEIR concluded that, "according to the Los Angeles Museum of Natural History, no vertebrate fossil localities exist on the San Francisco peninsula, thus, no unique paleontological resource or unique geologic features are anticipated to exist within the Study Area. No previously identified paleontological resources were found to be located at the MEIR Study Area." [3] The 2012 SMEIR concluded that there was "no substantial change in the circumstances" regarding paleontological resources from that described in the 2007 MEIR, and there are now no known changes in circumstances pertaining to paleontological resources in the Project Area.

Historic Resources [4]

A record and literature search of the California Historical Resources Information System (CHRIS) was conducted for this EIR in April 2018 by the Northwest Information Center at Sonoma State University. This record and literature search included the statewide Historical Resources Inventory database maintained by the Office of Historic Preservation, and the records maintained and managed under contract by twelve independent regional information centers. The record search included a review of site records, primary records, historic maps and manuscripts, the National Register of Historic Places Index (NRHP), California Register of Historic Resources (CRHR), California Historic Landmarks (CHL), California Points of Historic Interest, state and local inventories, and other pertinent historical data available at the Northwest Information Center in San Mateo County. The study area for the 2018 records search included the Project Area plus a quarter-mile radius. The record search results indicate the following about the study area.

Native American Resources

The Project Area contains one previously recorded Native American resource (site P-41-000043), and there is one additional recorded Native American resource located within one-quarter mile of the Project Area (site P-41-000042). Both of these sites were identified by N.C. Nelson around 1906 or 1907, and the source contains very limited data.[5] Nelson's publication included descriptions of multiple shellmounds in the San Francisco Bay region. Therefore, it is likely that sites P-41-000042 and P-41-000043 are shellmounds (literature cited in the 2007 MEIR also indicates that both of these resources appear to be shellmounds). However, no additional information is known about these sites (including their size or contents) and the sites were plotted by hand on a topographic map before 1909. Therefore, these site locations should be

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[2] Kleinfelder Associates, Inferred Fossil Potential from Statewide Geologic Unit Map, Jennings, 2002, cited in 2007 MEIR, p. 4.10-12.

[3] University of California Berkeley Museum of Paleontology, Paleontology Collections Data website, as cited in City of South San Francisco, Genentech Facilities Master Plan MEIR, 2007

[4] California Historical Resources Information System (CHRIS) Inventory, Northwest Information Center, Sonoma State University, *Record Search Results for the Proposed Genentech Corporate Campus 10-Year Master Plan*, April 23, 2018

[5] Nelson, N. C., *Shellmounds of the San Francisco Bay Region,* University of California Publications in American Archaeology and Ethnology Vol. 7, No. 4. Berkeley, 1909

considered approximate, and the sites may no longer exist. These sites have not been relocated since their original recordation in the early 1900s. [6]

Based on an evaluation of the environmental setting and features associated with known sites, Native American resources in this part of San Mateo County have been found in areas populated by oak, buckeye, laurel and hazelnut, as well as near a variety of plant and animal resources. Sites are also found near watercourses and bodies of water. The Project Area is located at Point San Bruno on the San Francisco Bay waterfront, lies between the Oyster Point Channel and the San Bruno Channel and is less than one mile southeast of the San Bruno Mountains. Several natural drainages to the San Francisco Bay run in proximity to the Project Area. Given the similarity of one or more of these environmental factors and the presence of previously recorded sites, there is a high potential for unrecorded or non-located Native American resources in the Project Area.

Historic Buildings or Structures

There are no historic structures currently located within the Project Area. No federal, State or local historic resource registers or lists identify any existing historic properties in the Project Area, and there are no historic structures used to support Genentech operations. All historic structures of record within the Project Area (see discussion below) have previously been removed. Although industry has played a critical role in South San Francisco's history, no industrial buildings or sites within the East of 101 area are currently designated as historic resources. Records of historic-era buildings and structures do indicate that the Project Area and surrounding ¼-mile Study Area has previously contained recorded historic sites, as indicated below:

- The NWIC records search conducted for this EIR indicates that, “the [proposed] Project Area contains one recorded historic district (P-41-000884) that potentially contains between 9 and 28 previously unrecorded buildings or structures.” This previously recorded historic district (which includes multiple buildings) was the former, historic-era 1898 WP Fuller & Company paint manufacturing plant. The WP Fuller & Company paint and coatings manufacturing business was located near Point San Bruno (at what is now the Genentech South Campus), and became “the largest paint and varnish works on the West Coast”.[7] Paint manufacturing facility resulted in extensive problems with lead contamination in the soil and in the San Bruno Channel. The O’Brien Corporation purchased the site in 1967 and remained in business through the 1990s, but then closed its operations under the oversight of DTSC and US EPA. All industrial buildings previously on that site and used in paint manufacturing associated with the 1898 W.P. Fuller & Company plant were demolished. The 2002 Britannia East Grand Project EIR (now the South Campus) found “no indications of existing historic structures associated with the former WP Fuller & Company Paint Plant.” The only buildings existing at this site in 2002 were the later-constructed O'Brien paint company’s office building and warehouse, which were not identified as historic resources and were subsequently demolished as part of the Britannia East Grand (South Campus) project.
- A second recorded historic site is the former Wildberg Bros. Refinery site, recorded at 349 Oyster Point Boulevard. This site is not within the Project Area, but instead is within the Oyster Point Specific Plan Area. In 1920, the Wildberg Bros. Company purchased a smelting plant at 349 Butler Avenue (now Oyster Point Boulevard), which operated until 1962. However, the Oyster Point Specific Plan Final EIR (dated March 2011) concluded that no structures that existed within the Oyster Point planning area at that time were “of historic age (over 50 years) or classified as historical resources.” The former Wildberg Bros. Refinery had been removed well before that time.
- The NWIC records search also notes that, “a historical inventory for San Mateo County discusses a stockyard and meat packing plant built by Gustavus Swift in the late 19th century. Though its

[6] South San Francisco, *201 Haskins Way Project Draft EIR,* October 2018, pertaining to site P-41-00002

[7] South San Francisco Historical Society, *Images of America - South San Francisco*, 2004

location is unclear from the literature, there is the possibility that this operation was located within the Project area and/or its one-quarter mile radius." It is likely that meat packing plants and/or other former industrial businesses did occupy much of the entire East of 101 Area (and likely part of the Project Area and its surroundings) during the early- and mid-1900s, but none of those former business facilities remain or are identified as historic resources.[8]

Historic Period Archaeological Resources

The Project Area contains no previously recorded historic-period archaeological resources. However, given the extent of historic-era development during the late 1800s and early 1900s in the East of 101 Area with heavy manufacturing activities, meat packing plants and other industrial development, there is high potential for unrecorded archaeological resources associated with these industrial periods within the Project Area and its one-quarter mile radius.

SSF Historic Resources Survey

According to the *South San Francisco General Plan, Open Space and Conservation Element* (1999), South San Francisco has several historic homes and commercial buildings. Most are located along Grand Avenue near the Civic Center, and around the intersection of Grand Avenue and Eucalyptus Street. The City conducted a comprehensive survey of these structures in 1986. The buildings identified in this survey are representative of an architectural period, are of local historic prominence or are well-restored examples of vernacular architecture. Many of the structures in downtown South San Francisco along Linden, Baden and Miller Avenues are among those identified as potential historic resources in the 1986 survey. Although industry played a critical role in South San Francisco's history, no industrial buildings or sites are currently designated as historic resources (OSCE 1999).

Historic Landmarks

South San Francisco possesses one national historic landmark—Sign Hill. The sign on the regional landmark, which reads "South San Francisco the Industrial City," is clearly visible to travelers on nearby freeways and to those flying into and out of San Francisco International Airport. Although the original version of the sign was installed in 1891, the letters that currently comprise the sign were installed in concrete in 1929.

Regulatory Setting

Federal

The National Historic Preservation Act of 1966

The National Historic Preservation Act of 1966 established the National Register of Historic Places (NRHP) as the official federal list of cultural resources that have been nominated by state offices for their historical significance at the local, state or national level. Properties listed in the NRHP or "determined eligible" for listing must meet certain criteria for historical significance and possess integrity of form, location and setting.

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[8] Fredricks, Darold, *Rediscovering the Peninsula*, accessed at: https://www.smdailyjournal.com/news/local/south-city-s-interesting-beginning/article_ba83387b-ae95-5fbf-8ec6-6392d50d3964.html. As indicated in this article, the South San Francisco Land and Improvement Company (SSFL & I Co) was started by Gustavus Swift of Swift Meat Company, and this company owned much of what is now South San Francisco. "The eastern part, bound on three sides by the Bay waters, was where the meat-packing plants were to be built, along with other industrial businesses later. The San Bruno Toll Road (now Airport Boulevard) was to be the separation line between the anticipated industrial developments and a platted city that was to be developed for the workers of the industries." Thus, it is likely that meat packing plants and/or other industrial businesses did occupy much of the entire East of 101 Area during the early- and mid-1900s.

Significance is determined by four aspects of American history or prehistory recognized by the NRHP Criteria, which are listed below:

- Associated with events that have made a significant contribution to the broad patterns of our history
- Associated with the lives of persons significant in our past
- Embody the distinctive characteristics of a type; period, or method of construction; represent the work of a master; possess high artistic values, represent a significant and distinguishable entity whose components may lack individual distinction
- Have yielded, or may be likely to yield, information important in prehistory or history. (See 36 CFR §60.4)

Eligible properties must meet at least one of the criteria and exhibit integrity. Historical integrity is measured by the degree to which the resource retains its historical properties and conveys its historical character, the degree to which the original fabric has been retained, and the reversibility of changes to the property.

State

The California Register of Historic Resources (CRHR)

The State Historic Preservation Office (SHPO) maintains the California Register of Historical Resources (CRHR) pursuant to Public Resources Code Section 5020 et seq. The CRHR was created to identify resources deemed worthy of preservation on a state level; it was modeled closely after the federal NRHP. Properties listed or formally designated as eligible for listing on the NRHP are automatically listed on the CRHR, as are State Landmarks and Points of Interest. The criteria are nearly identical to those of the NRHP (presented above), but focus upon resources of statewide significance. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

The criteria for eligibility of a site for inclusion on the CRHR are set forth in Section 15064.5(a)(3) of the CEQA Guidelines. Sites eligible for inclusion are defined as any resource that:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is associated with lives of persons important in our past;
- 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; or
- Has yielded, or may be likely to yield, information important in prehistory or history.

In addition, CEQA Guidelines, Section 15064.5(a) (4) states:

> *The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code Section 5020.lG) or 5024.1*

California Health and Safety Code Sections 7050.5, 7051, and 7054

These sections collectively address the illegality of interference with human burial remains, as well as the disposition of Native American burials in archaeological sites. The law protects such remains from disturbance, vandalism or inadvertent destruction, and establishes procedures to be implemented if Native

American skeletal remains are discovered during construction of a project, including the treatment of remains prior to, during and after evaluation, and reburial procedures.

California Public Resources Code Section 15064.5 (e)

This law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism or inadvertent destruction. The section establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project and establishes the Native American Heritage Commission as the entity responsible to resolve disputes regarding the disposition of such remains.

SB 18 (Government Code Sections 65352.3, 65352.4, and 65562.5)

As approved into State law in 2004, this bill includes guidelines for consulting with California Native American tribes during the preparation of a General Plan for purposes of the preservation of, or the mitigation of impacts to specified Native American places, features and objects. The bill addresses procedures for identifying the appropriate California Native American tribes, for continuing to protect the confidentiality of information concerning the specific identity, location, character, and use of those places, features and objects, and for facilitating voluntary landowner participation to preserve and protect the specific identity, location, character, and use of those places, features and objects. The bill also requires that, prior to the adoption or amendment of a city or county General Plan, the city or county conduct consultations with California Native American tribes for the purpose of preserving specified places, features, and objects that are located within the city or county's jurisdiction. The Project is not a General Plan nor an amendment to the SSF General Plan, and this regulation is therefore not applicable to the Project.

Assembly Bill 52

In September of 2014, the California Legislature passed Assembly Bill (AB) 52, which added provisions to the Public Resources Code (PRC) regarding the evaluation of impacts on tribal cultural resources under CEQA, and consultation requirements with California Native American tribes. In particular, AB52 requires lead agencies to analyze project impacts on "tribal cultural resources" separately from archeological resources. As defined under AB52, a tribal cultural resource is, "a site feature, place, cultural landscape, sacred place or object, which is of cultural value to a Tribe, and is either on or eligible for the CRHP or a local historic register, or the lead agency, at its discretion, chooses to treat the resource as a tribal cultural resource." AB 52 also requires lead agencies to engage in consultation procedures with respect to California Native American tribes (PRC Section 21080.3.1, 21080.3.2, 21082.3).

Local Regulations and Policies

The City has a Historic Preservation Commission that designates historic resources, reviews applications for altering or demolishing historic structures, disseminates information to the public concerning structures, sites and areas deemed worthy of preservation, and considers and recommends to the City Council methods for encouraging and achieving historical or architectural preservation. The City of South San Francisco's Historic Preservation Commission also maintains a Historic Resources Survey (1986), which focuses on historic buildings, architecture and sites of significance in the City. The Historic Resources Survey does not list any resources in or near the Project area, or in the entire East of 101 area.

South San Francisco General Plan

The South San Francisco General Plan serves as an outline for the City of South San Francisco's long-range physical and economic development and resource conservation that reflects the aspirations of the community. The General Plan provides a detailed analysis of key issues in South San Francisco and sets policies specifically designed to guide development within the City. The Open Space and Conservation

Element establish the goals, policies, programs, and guidelines to protect, manage and conserve natural and community resources. The following policies relate to cultural resources:

- **Policy 7.5-G-1**: Conserve historic, cultural and archeological resources for the aesthetic, educational, economic and scientific contribution they make to South San Francisco's identity and quality of life.
- **Policy 7.5-G-2**: Encourage municipal and community awareness, appreciation and support for South San Francisco's historic, cultural and archeological resources.
- **Policy 7.5-I-4**: Ensure the protection of known archeological resources in the city by requiring a records review for any development proposed in areas of known resources….The East of 101 area, which is a likely location for new development, has the potential to contain additional resources due to the extensive marshlands that existed prior to landfill activities. Adequate policies and measures for protection of known and unknown archaeological resources that can supplement CEQA requirements may need to be incorporated into plans and development activities.
- **Policy 7.5-I-5**: In accordance with State law, require the preparation of a resource mitigation plan and monitoring program by a qualified archaeologist in the event that archaeological resources are uncovered. CEQA requires the evaluation of any archaeological resource on the site of a development project. State law also protects these resources. City involvement in the identification, mitigation, and monitoring of project impacts on these resources will ensure the protection of South San Francisco's cultural heritage.

East of 101 Area Plan

- **Policy LU-28**: The City shall protect buildings, sites and land uses, which are historically significant.

Impacts and Mitigation Measures

Thresholds of Significance

Under the CEQA Guidelines, Appendix G – Environmental Checklist Form, the Project would have a significant environmental impact if it were to:

1. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5 of the CEQA Guidelines
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines
3. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature
4. Disturb any human remains, including those interred outside of formal cemeteries
5. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
    a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
    b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code

Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe

Approach to the Analysis

The Project Area is within the same study area boundaries as previously analyzed in the 2002 BEG EIR, 2007 MEIR and 2012 SMEIR. The Master Plan Update refines the boundaries of the Genentech's Campus and its smaller neighborhood campuses, and identifies potential Opportunity Sites as locations where new development or redevelopment within the Genentech Campus is likely to occur. These Opportunity Sites include certain existing surface parking lots, older and less efficient existing buildings that underutilize their site potential, infill development at locations within the Campus where vacant infill sites exist, and existing hillsides within the Campus that were not previously contemplated for new development. The majority of these potential Opportunity Sites are in the same or similar locations as were contemplated and analyzed in the previous EIRs, and the conclusions from these previous EIRs remain valid and applicable. The Genentech Campus is fully encompassed within the study areas addressed in the previous EIRs.

The analysis of the Project presented below relies upon known conditions regarding the presence, absence or probability of discovery for historic, cultural and tribal resources. There is no new information or changed circumstances related to cultural resources within the Project not previously known or identified in the previous EIRs. To the extent that Opportunity Sites have been identified that may present new or substantially more severe impacts related to cultural resources, these are specifically identified and discussed below.

Historic Resources

Cultural 1: Future development pursuant to the Project is not anticipated to cause a substantial adverse change in the significance of any known historical resources. (**Less than Significant**)

There are no identified historic structures located within the Project Area. No federal, State or local historic resource registers or lists identify any historic properties in the Project Area; there are no historic structures used to support Genentech operations and the only historic structures of record within the Project Area were removed prior to 2002. Although industry has played a critical role in South San Francisco's history, no industrial buildings or sites within the East of 101 area are currently designated as historic resources.

The Project would not require demolition or a substantial adverse change to any structure that qualifies as an historic resource. This impact would be less than significant.

Mitigation Measures

No mitigation measures are required. There is no new information or recently added historic resources, including information from recently conducted records search in April 2018 that would indicate the potential for impacts on historic resources.

Paleontological Resources

Cultural 2: Future development pursuant to the Project is not anticipated to uncover or disturb a known paleontological resource. **(Less than Significant)**

As discussed in the Setting section above, the Project Area contains no record of any previously found invertebrate or vertebrate fossils.

The Project Area is underlain by rocks of the Franciscan Complex, which are known to contain a wide range of fossils, including radiolarians, mollusks, diatoms, foraminifers and marine vertebrates.[9] However, the likelihood of encountering fossils or paleontological resources is low, given the following:

- As indicated in the Geology chapter of this EIR, much of the exposed bedrock within the Project Area is serpentine, which is formed through metamorphism. Metamorphism occurs under extremely high temperatures and pressures, which usually destroy any fossils in the parent rock.
- Sheared rocks derived primarily from serpentine and Franciscan shale and sandstone are present throughout the Project Area, but fossils are unlikely to be preserved in these sheared rocks, which have low paleontological sensitivity.
- Many portions of the Project Area contain slope debris at the surface, but such debris flows are not conducive to the preservation of scientifically significant fossils.
- Artificial fill, which has no paleontological sensitivity, makes up a large portion of the Project Area.

Although certain ground-disturbing activities such as deep foundation setting may exceed the depth of artificial fill or slope debris and may encounter rocks of the underlying Franciscan Complex, the potential to damage paleontological resources is unlikely, and considered less than significant.

Mitigation Measures

No mitigation measures are required.

Archaeological Resources

Cultural 3: During ground disturbing activities associated within the Project Area, it is possible that currently unidentified historic-period archaeological resources could be discovered and disturbed. (**Less than Significant with Mitigation**)

Given the extent of historic-era development during the late 1800s and early 1900s in the Project Area (including paint manufacturing, meat packing plants and other industrial development), there is also a high potential for unrecorded archaeological resources associated with these industrial periods to be present within the Project Area. Although the Project Area is highly developed, much of the prior development has been occupied by warehousing and distribution facilities that do not include sub-levels beneath grade. Construction activities associated with the Project have the potential to excavate and grade in areas that were previously developed, but where grading activities may not have exposed buried archaeological resources. Construction associated with the Project could result in ground disturbance associated with grading, excavating and trenching, which could damage or destroy previously unidentified, significant archaeological resources, and may uncover previously unknown and buried human remains. This impact is considered potentially significant.

Regulatory Requirements

All new development pursuant to the Project shall comply with applicable regulatory requirements related to accidental discoveries of archaeological resources found in 36 CFR 800, CEQA Guidelines Section 15064.5 and/or Public Resources Code (PRC) 21083.2.

- As part of conditions imposed for mitigation, the City may make provisions for archaeological sites discovered during construction. These procedures may include an immediate evaluation of the find (PRC 21083.2(i)).

[9] South San Francisco, 201 Haskins Way Project Draft EIR, October 2018

- Pursuant to CEQA Guidelines Section 15064.5(f), if the find is determined to be a unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of the avoidance measures or appropriate mitigation should be available.
- If human remains are discovered during any phase of construction, including disarticulated or cremated remains, all ground-disturbing activities should cease within 100 feet of the remains. California State Health and Safety Code § 7050.5 dictates that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code (PRC) § 5097.98. If the remains are determined by the County Coroner to be Native American, the NAHC shall be notified within 24 hours, and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains.

Mitigation Measures

The following mitigation measures are recommended to address potential discovery of archaeological resources:

Mitigation Measure Cultural 3A - Cultural Resources Worker Environmental Awareness Program (WEAP): A qualified archaeologist should conduct a WEAP training for all construction personnel prior to Project-related construction and ground-disturbing activities. The training should include basic information about the types of artifacts that might be encountered during construction activities, and procedures to follow in the event of a discovery.

Mitigation Measure Cultural 3B - Halt Construction Activity, Evaluate Find and Implement Mitigation: In the unlikely event of discovery of paleontological or historical archaeological resources during site preparation, excavation or other construction activity, all such activity within 25 feet of the discovery shall cease until the resources have been evaluated by a qualified professional. Historic-period archaeological resources may include stone or adobe foundations or walls, structures and remains with square nails, and refuse deposits or bottle dumps.

a) If the qualified archaeologist determines the find is not significant and that there is no potential for the find to be a tribal cultural resource, then proper recordation and identification will ensue and the project construction activity may continue without further delay.

b) If the qualified archaeologist determines the find may potentially be a tribal cultural resource, a tribal representative shall be consulted to determine whether it is in fact a tribal cultural resource (see MM Cultural 4B, below).

c) If the qualified archaeologist determines an archaeological find is significant, then the archaeologist will excavate the find in compliance with state law and keeping project delays to a minimum, and shall implement specific mitigation measures to protect these resources in accordance with sections 21083.2 and 21084.1 of the California Public Resources Code.

d) If it is determined that avoidance of the resource is not feasible, then a mitigation plan (including monitoring and data recovery) shall be prepared, with specific steps and timeframe identified. Work near the find may only resume upon completion of a mitigation plan or recovery of the resource.

Mitigation Measure Cultural 3C - In the Event of Discovery of Human Remains: In the event of a discovery of buried human remains or suspected human remains, all construction activity within 50 feet shall cease until the remains have been evaluated by the County Coroner.

a) If the County Coroner determines that an investigation into the cause of death is required, or that the remains are Native American, all work shall cease within 50 feet of the remains until appropriate arrangements are made.

b) In the event that the remains are Native American, the City shall contact the California Native American Heritage Commission (NAHC), pursuant to subdivision (c) of section 7050.5 of the California Health and Safety Code to identify the Most Likely Descendant. The Most Likely Descendant shall be consulted as to means for treating or re-interring the human remains and any associated grave goods, with appropriate dignity.

Resulting Level of Significance

In conjunction with the regulatory requirements for discoveries of archaeological resources, implementation of Mitigation Measures Culture-3A through 3E will reduce the impacts associated with possible disturbance or discovery of archaeological resources or unidentified human remains to a level of less than significant.

Tribal Cultural Resources

Cultural 4: During ground disturbing activities associated within the Project Area, it is possible that currently unidentified or non-located tribal cultural resources could be discovered and disturbed. (**Less than Significant with Mitigation**)

Data, historic-period maps and literature on file at the NWIC was reviewed in the 2007 MEIR, and supplemented by an updated 2018 NWIC records search for this EIR. Based on this information, two Native American cultural resource sites have been discovered; one in the Project Area (shellmound site P-41-000043) and one adjacent to the Project Area (shellmound sites P-41-000042). Although precise information about the locations of these shellmound sites is unavailable, the City recently issued a Draft EIR for the 201 Haskins Way project near the Project Area's South Campus, which indicates that the adjacent shellmound (P-41-000042) is recorded on that site. The approximate location for site P-41-000043 is identified as being "immediately adjacent to the project area boundaries" in the 2012 SMEIR,[10] suggesting that it is also in close proximity to site P-41-000042 near the shoreline and in or near the South Campus.

The Project Area lies within an area once occupied by the Costanoan, or Ohlone group of Native Americans. Previously discovered tribal resources in this area of San Mateo County tend to be situated near the historic margin of Bay, in tidal marshland and along creeks that drain upland terrain bordering the Bayshore plain. Similar conditions are found within the Project Area in the South and Lower Campuses. Based on an evaluation of the environmental setting and a review of features associated with known tribal resource discovery sites, there is high possibility that unrecorded tribal cultural resources exist in the Project Area, and may be discovered during Project-related construction activities in these areas.

Regulatory Requirements

AB 52 has added the following requirements to the CEQA process pursuant to Public Resources Code Section 21080.3 et.seq, as listed below:

- 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, the 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.

The City sent a copy of the Notice of Preparation for this EIR to each tribe on its consultation list (see Appendix A, Notice of Preparation).

[10] Atkins, as Appendix B: Historic Resources Records Search Results, appendix to 2012 SMEIR, letter to Mr. Gerry Beaudin, South San Francisco Department of Economic and Community Development - Planning Division, December 15, 2011

- The lead agency shall begin a consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is affiliated traditionally and culturally with the geographic area of the proposed project.
- 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 and c) significant effects. The following topics are discretionary topics of consultation: d) type of environmental review necessary, e) significance of the tribal cultural resources, f) significance of the project's impacts on tribal cultural resources, and g) if necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency.
- 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. 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.

The City has not received any responses to the Notice of Preparation for this EIR from any of the tribes on its consultation list, no requests for consultation have been received and no information about tribal cultural resources has been submitted by a California Native American tribe during this environmental review process.

- If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss whether the proposed project has a significant impact on an identified tribal cultural resource, and whether feasible alternatives or mitigation measures avoid or substantially lessen the impact on the identified tribal cultural resource.

Mitigation Measures

The following mitigation measures are recommended to address potential discovery of tribal cultural resources:

Mitigation Measure Cultural 3A - Cultural Resources Worker Environmental Awareness Program (WEAP): See details above pertaining to potential discovery of archaeological resources, which also applies to tribal cultural resources.

Mitigation Measure Cultural 3B - Halt Construction Activity, Evaluate Find and Implement Mitigation: See details above pertaining to potential discovery of archaeological resources, which also applies to tribal cultural resources.

Mitigation Measure Cultural 3C - In the Event of Discovery of Human Remains: See details above pertaining to potential discovery of archaeological resources, which also applies to tribal cultural resources.

In addition to mitigation measures applicable to all potentially discovered archaeological resources, the following mitigation measures specific to tribal cultural resources also apply:

Mitigation Measure Cultural 4A - Cultural Resources Monitoring: A qualified archaeologist shall monitor all construction-related activity expected to involve excavating, drilling or trenching at depths that may reach native sediment in those areas where tribal cultural resources are likely present (i.e., along the Project’s shoreline areas within the South and Lower Campus). Monitoring will continue for the duration of such activity or until culturally sterile sediments are reached (e.g., bedrock). The qualified archaeologist may determine to decrease or increase the monitoring efforts based on sediments observed, findings or the number of large ground-disturbing machines in operation.

Mitigation Measure Cultural 4B - In the Event of Discovery of a Tribal Resource: If a Tribal cultural resource is uncovered during construction, work should be halted within 25 feet of the discovered materials and workers shall avoid altering the materials and their context until a qualified professional archaeologist has evaluated the situation and provided appropriate recommendations. Project personnel should not collect cultural resources. Native American resources include chert or obsidian flakes, projectile points, mortars, and pestles; and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. A tribal representative shall be consulted to determine an appropriate mitigation plan (including monitoring and data recovery), with specific steps and timeframe to be stipulated. Work near the found tribal cultural resource may only resume upon completion of a mitigation plan and/or recovery of the tribal cultural resource.

Resulting Level of Significance

In conjunction with the regulatory requirements for discoveries of archaeological resources, implementation of Mitigation Measures Culture-3A through 3CE and Mitigation Measures 4a and 4B will reduce the impacts associated with possible disturbance or discovery of tribal cultural resources to a level of less than significant.

Cumulative Cultural Resource Effects

The Project, in combination with other past, present and future reasonably foreseeable projects could result in cumulatively significant cumulative impacts on archaeological and/or tribal cultural resources. Compliance with regulatory requirements and mitigation measures identified for the Project would ensure the Project would not make a cumulatively considerable contribution to cumulative cultural resource impacts. The Project will have no impact on historic architectural resources or paleontological resources, and thus will not contribute to cumulative effects on such resources.

Multiple shellmounds have been documented throughout the San Francisco Bay region, and historic archaeological resources associated with the city's historic industrial development may exist throughout the East of 101 Area. Similar to the Project, ground-disturbing activities associated with past, present and reasonably foreseeable future projects, particularly along the shorelines in the East of 101 Area, have the potential to disturb historic archaeological resources and tribal cultural resources, including other shellmound sites. These cumulative construction activities could cause a substantial adverse change in the significance of archaeological or tribal cultural resources. As with the Project, regulatory requirements and mitigation measures will be required of all present and reasonably foreseeable future projects in areas where such resources are likely to be present. With implementation of applicable regulatory requirements and mitigation measures, the Project in combination with other past, present, and future reasonably foreseeable projects would not result in significant cumulative impacts on archaeological or tribal cultural resources, and the Project would not make a cumulatively considerable contribution to significant cumulative cultural resource impacts.

9

Geology and Soils

This chapter of the EIR evaluates the potential impacts of the Project related to geology and soils. This chapter also describes the existing geology and soil conditions in and near the Project Area, and evaluates the extent to which geology and soil conditions may affect development of the Master Plan Update as proposed.

Although some of the information in the Environmental Setting draws from the 2007 Master EIR (MEIR), 2012 Supplemental MEIR (SMEIR) and 2002 Britannia East Grand Project EIR, setting information has been updated for this EIR using current data from the following sources:

- the California Geological Survey,
- the Association of Bay Area Governments (ABAG) Resilience Program,
- the United States Geological Survey (USGS),
- the General Plan of the City of South San Francisco, and
- the City of South San Francisco East of 101 Area Plan

Environmental Setting

Geology

Regional Geology

The geology of the San Francisco Bay Area includes three geologic provinces: the Salinian block, the Franciscan complex and the Great Valley sequence. The Salinian block is west of the San Andreas Fault. It is composed primarily of granitic plutonic rocks, which are similar to those found in the Sierra Nevada and are believed to be rocks of the Sierra Nevada batholith that have been displaced along the San Andreas Fault. East of the San Andreas Fault, and bounded on the west by the Hayward Fault, is the Mesozoic Franciscan complex. Franciscan rocks represent pieces of former oceanic crust that have accreted to North America by subduction and collision. These rocks are primarily deep marine sandstone and shale. Chert, marble, serpentinite and limestone are also found in the assemblage. The rocks of the Franciscan complex are prone to landslides. East of the Hayward Fault is the Great Valley Sequence. In the San Francisco Bay Area, this sequence is mainly composed of Cretaceous and Tertiary marine sedimentary rocks. Like the Franciscan assemblage, the rocks of the Great Valley Sequence are also prone to landsliding.

Local Geology/Soil Types and Characteristics

The Project Area is on the western shore of San Francisco Bay on reclaimed Bay lands and adjacent uplands at the eastern base of San Bruno Mountain. Elevations range from 182 feet above mean sea level at the top of San Bruno Hill to approximately 0 feet mean sea level at the low-lying areas in the east. The lower portion of the Project Area was reclaimed from the waters of the San Francisco Bay in the mid- to late 1960s by using compacted materials derived primarily from excavations of bedrock, alluvial material, and Bay Mud lying directly beneath the reclaimed fill material.

In this area, the bedrock (Franciscan complex) consists primarily of sandstone and shale with clay, silt and sand overlying the bedrock surface. Previous soil borings have shown that shearing has obscured bedding relations in the sandstone, and much of the shale has been sheared to gouge-like materials. Geologic units in the Project Area (see **Figure 9-1**) include a mixture of intrusive igneous rock, Mesozoic and Franciscan bedrock, Quaternary sands, Upper and Lower Tertiary sandstones and mudstones, Franciscan mélange, serpentinite, and water-saturated muds and artificial fill at the Bay shoreline edges.

Seismicity

The City of South San Francisco is located in one of the most seismically active regions in the United States, with approximately 30 known faults in the Bay Area capable of generating earthquakes. Eleven of these faults are located within 40 miles of South San Francisco. The San Andreas Fault system, the general boundary between the northward moving Pacific Plate (west of the fault) and the southward moving North American Plate (east of the fault) is the dominant fault of the region and the state of California. The fault system movement is distributed across a complex system of generally strike-slip, right lateral parallel and subparallel faults including, but not limited to, the regional San Andreas, San Gregorio, Hayward, Rogers Creek and Calaveras faults. As shown in **Figure 9-2**, the Peninsula segment of the San Andreas Fault at approximately 7 kilometers (km) to the southwest, and the Seal Cove Segment of the San Gregorio Fault, at approximately 14 km to the west-southwest, are the two closest to the Project Area. While branches of the Hillside Fault have also been mapped a very short distance southwest of the Project Area, there is no evidence that this fault has been active within geologically recent time.

Based on criteria established by the California Geological Survey (CGS), faults may be categorized as active, potentially active or inactive. Active faults, such as the San Andreas and San Gregorio, are those that show evidence of displacement within the last 11,000 years; historically active faults are those that have shown evidence of displacement during the last 200 years; potentially active faults are those that show evidence of displacement during the last 1.6 million years. Faults showing no evidence of displacement within the last 1.6 million years, such as the Hillside Fault, are considered inactive.

Historic and Future Seismicity

The severity of an earthquake generally is expressed in two ways: magnitude and intensity. The energy released, as measured on the Moment Magnitude (M_W) scale, represents the "size" of an earthquake. The Richter Magnitude (M_L) scale has been replaced in most modern building codes by the M_W scale because the M_W scale provides information that is more useful to design engineers. The intensity of an earthquake is measured by the Modified Mercalli Intensity (MMI) scale, which emphasizes the current seismic environment at a particular site and measures ground-shaking severity according to damage done to structures, changes in the earth surface, and personal accounts. Historically, seismicity for the Bay Area is associated with the strike-slip faults of the San Andreas Fault system. Fifteen earthquakes of a moment magnitude (M_W) 6.0 or greater have occurred in the Bay Area in historic times, the most recent being the 6.0 South Napa earthquake in 2014 along the West Napa Fault. With a maximum MMI of VIII (Severe), it was the largest Bay Area earthquake since the 1989 Loma Prieta earthquake.

The Loma Prieta earthquake on October 17, 1989, was the most significant earthquake since the Great San Francisco Earthquake of 1906. This M_W 6.9 earthquake occurred on the southern Santa Cruz segment of the San Andreas Fault. The cities of Los Gatos, Watsonville and Santa Cruz were hit hard with damage, as were San Francisco and Oakland. Shaking was felt throughout the Bay Area. Damage to major transportation facilities included the collapse of the I-880 Cypress structure (with the loss of 63 lives), liquefaction and settlement damage to port facilities in Oakland and the runway apron at Oakland International Airport, and temporary closure of the Oakland–Bay Bridge. As in the 1906 earthquake, the worst damage from shaking occurred at structures on unconsolidated or saturated soils.

Quaternary
Holocene

Qaf Artificial Fill

Qaf/tf Artificial fill over tidal flats

Pleistocene

Qsr Slope debris and marine fill

Cretaceous and Juraissic
Franciscan Complex and associated rocks

KJs Sandstone and shale

sp Serpintine

KJu Sheared rocks

Note: Hillside Fault determined inactive (no evidence of displacement within the last 1.6 million years)

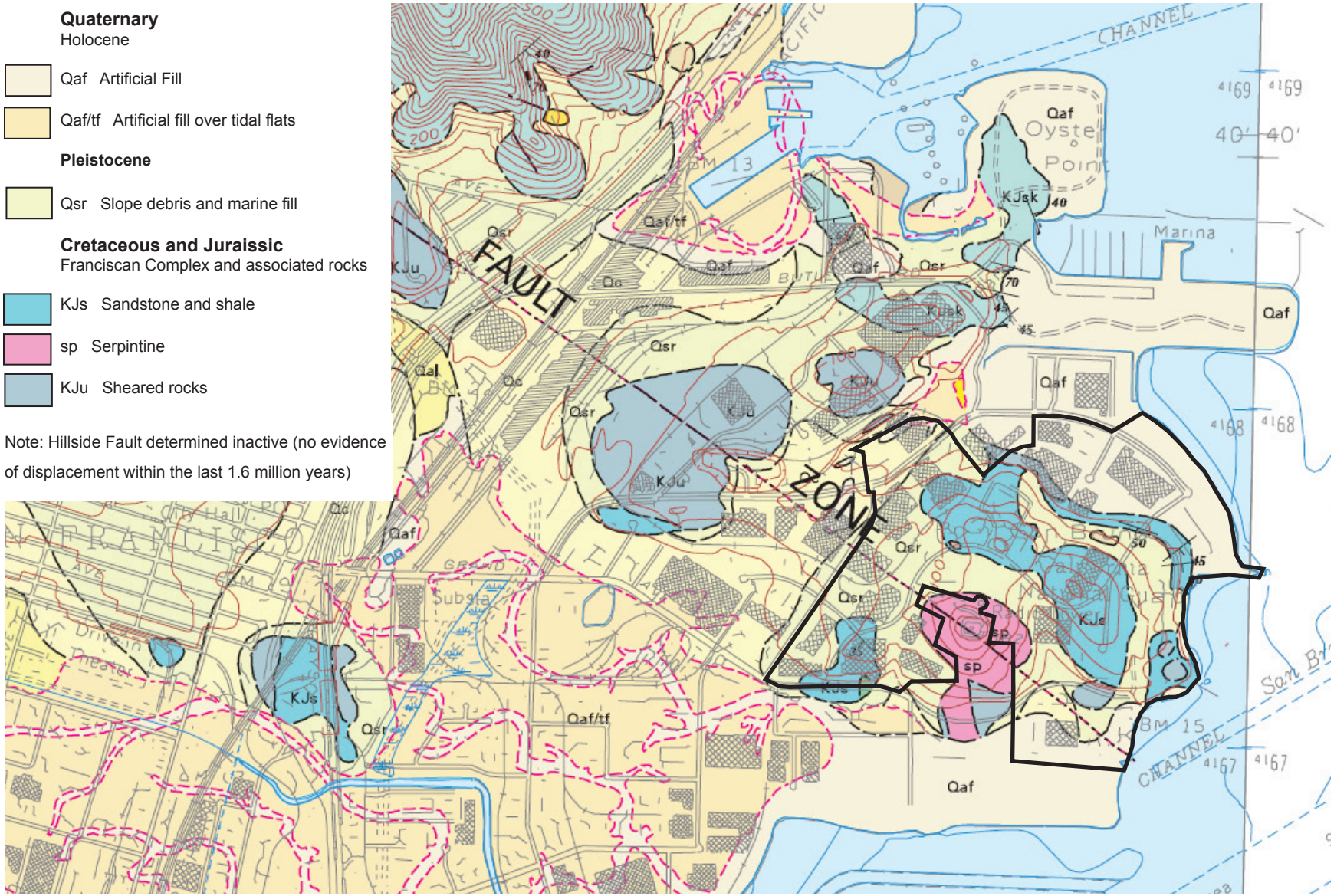
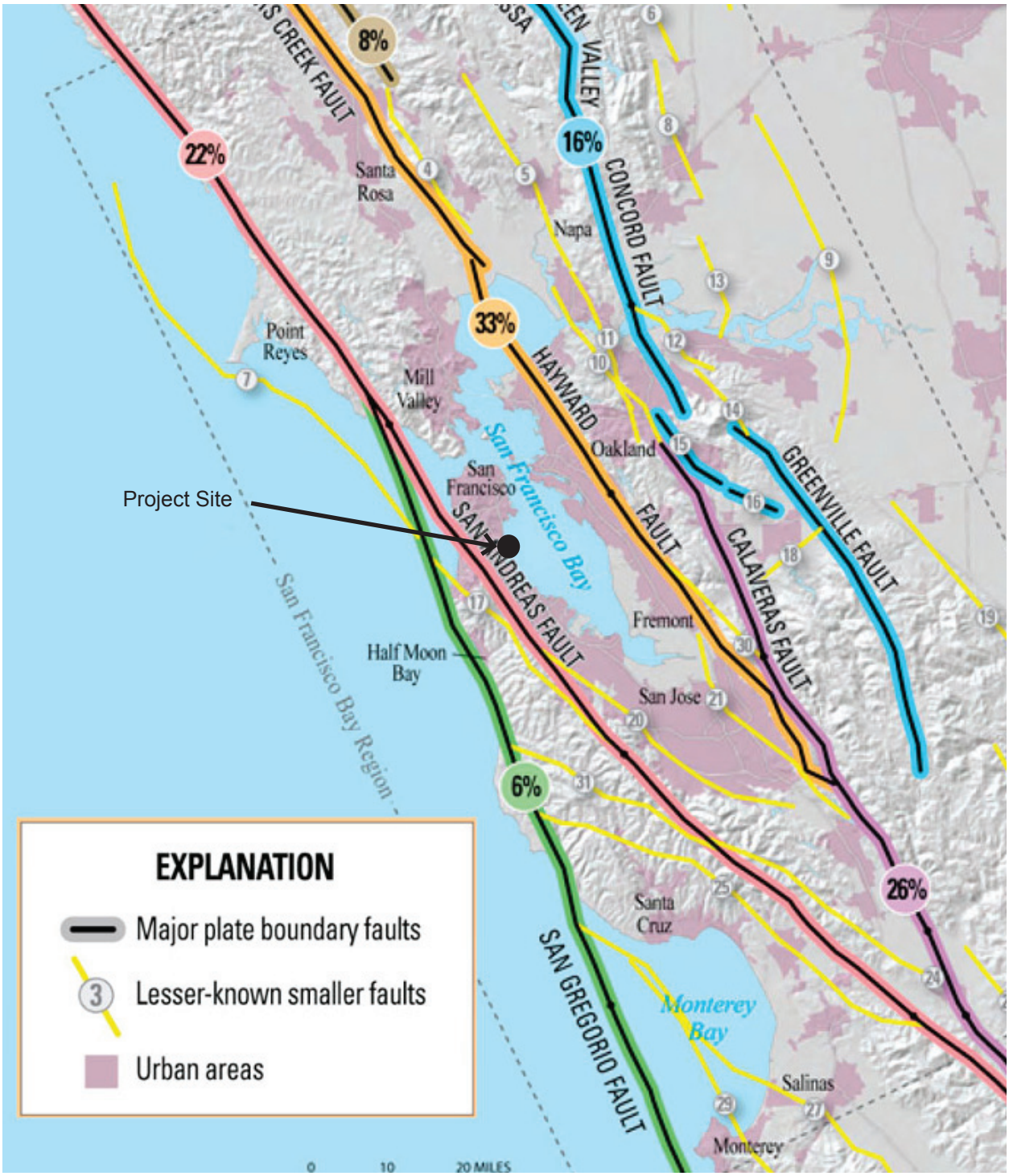


Figure 9-1
Geologic Units within the Project Area and Vicinity

Source: USGS, 1989



https://soundwaves.usgs.gov/2017/02/research.html

Figure 9-2
Regional Faulting

Source: USGS, 2017

In 2015, scientists with the USGS, CGS and the California Earthquake Authority published a new earthquake forecast model for California. The new model, referred to as the Third Uniform California Earthquake Rupture Forecast (UCERF3), provides estimates of the magnitude, location and likelihood of earthquake fault rupture throughout the state. [1] Overall, the results confirm previous findings, but include some significant changes because of model improvements. For example, compared to the previous forecast (UCERF2), the likelihood of moderate-sized earthquakes (magnitude 6.5 to 7.5) is lower, whereas that of larger events is higher. This is because of the inclusion of multi-fault ruptures, where earthquakes are no longer confined to separate, individual faults, but can occasionally rupture multiple faults simultaneously.

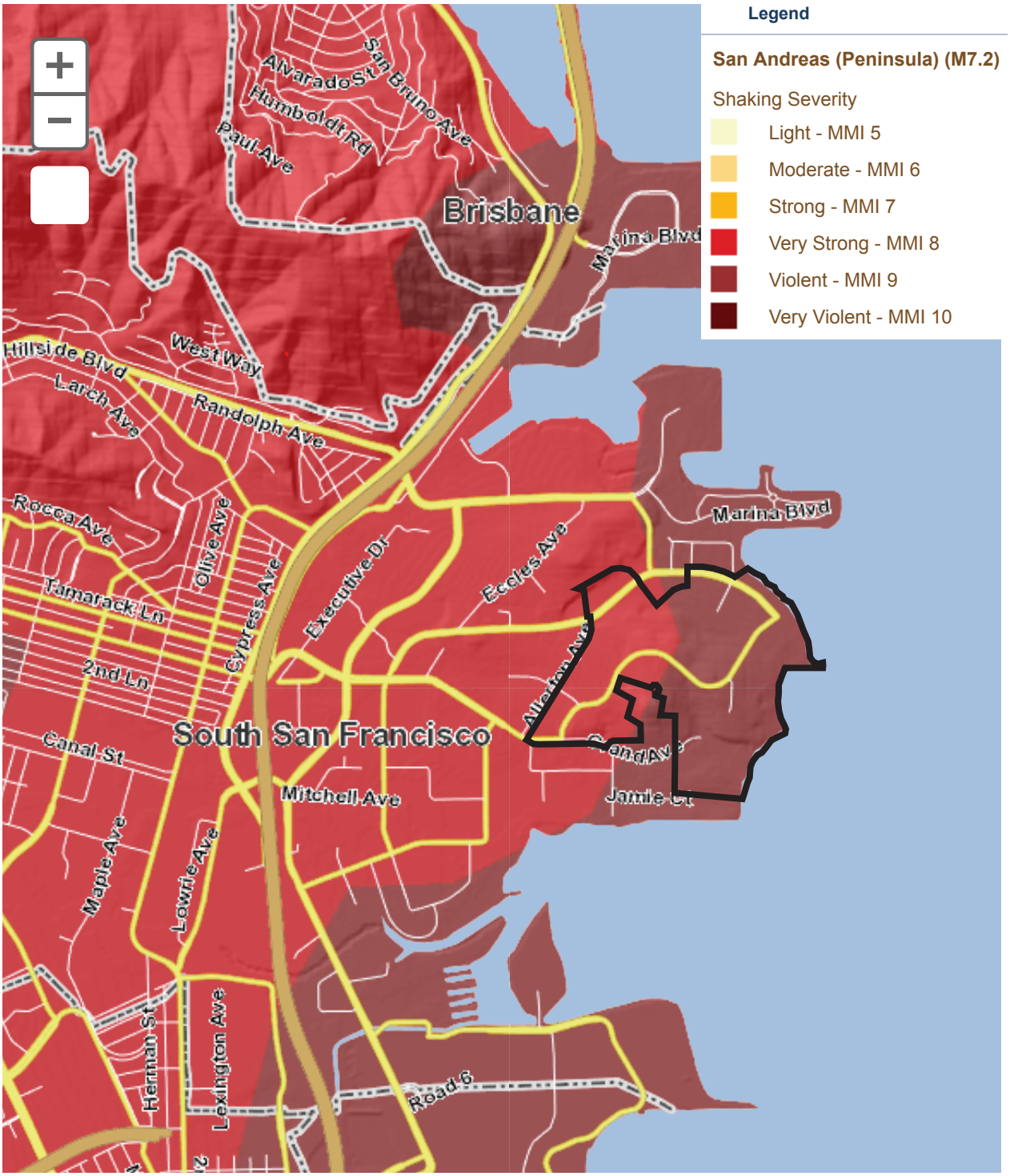
The faults in the region with the highest estimated probability of generating damaging earthquakes through year 2043 are the Hayward, Calaveras and San Andreas faults. In this 30-year period, the probability of an earthquake of magnitude 6.7 or larger occurring is 6.4 percent along the Northern San Andreas Fault (fewer than 5 miles from the Project Area at its closest point), 7.4 percent along the Calaveras Fault and 14.3 percent for the Hayward Fault.

Seismic Hazards

Groundshaking

The major cause of structural damage from earthquakes is groundshaking. The intensity of ground motion expected at a particular site depends on the magnitude of the earthquake, the distance of the site to the quake's epicenter, and the geology of the area between the epicenter and the site. Greater movement can be expected at sites on poorly consolidated materials, such as alluvium, or compressible materials such as Bay Mud or un-engineered fill. Sites near the causative fault or seismic events of extraordinary magnitude may also experience damage from groundshaking. ABAG has produced earthquake intensity maps (**Figure 9-3)** indicating that the scenario earthquake for the Peninsula Segment of the San Andreas Fault (M>7.2) would produce a "violent" shaking intensity at the eastern portion of the Project Area (based on the MMI scale). **Table 9.1** shows the shaking intensity of the most likely earthquake scenarios.

[1] USGS, UCERF3: A New Earthquake Forecast for California's Complex Fault System, March 2015. Accessed November 23, 2016, at http://pubs.usgs.gov/fs/2015/3009/pdf/fs2015-3009.pdf



http://gis.abag.ca.gov/website/Hazards/?hlyr=northSanAndreas

Figure 9-3
Seismic Shaking Severity

Source: ABAG Resilience Program, accessed 8-3-18

Table 9-1: Significant Earthquake Scenarios

Fault Name	Distance from Site (km)	Moment Magnitude (M_w)	Shaking Intensity (MMI)
San Andreas (All Northern Segments)	7	7.8	IX (Violent)
San Andreas (Peninsula Segment)	7	7.2	VIII – IX (Very Strong-Violent)*
San Gregorio	14	7.5	VIII (Very Strong)
Hayward (North & South)	24	7.0	VII (Strong)

* The level of severity is predicted at VIII west of a hypothetical line extending roughly due south from Gull Drive at Forbes Blvd, and at IX east of that line.

Source: ABAG, Resilience Program, 2016

Liquefaction

Loose sand and silt that is saturated with water can behave like a liquid when shaken by an earthquake. Earthquake waves cause water pressures to increase in the sediment and the sand grains to lose contact with each other, leading the sediment to lose strength. In the process, the soil acquires mobility sufficient to permit both the horizontal and vertical movements, if not confined. The soil can lose its ability to support structures, flow down even very gentle slopes and erupt to the ground surface to form sand boils. Many of these phenomena are accompanied by settlement of the ground surface—usually in uneven patterns that damage buildings, roads and pipelines. Soils most susceptible to liquefaction are loose, clean saturated, uniformly graded fine sands. Silty sands and clayey sands may also be susceptible to liquefaction during strong groundshaking, although to a lesser extent. Loose to medium dense sand layers can also be subjected to seismic compaction if they are above the water table.

In addition to the necessary soil conditions, the ground acceleration and duration of the earthquake must be of a sufficient level to initiate liquefaction. The ABAG Liquefaction Hazard Map (**Figure 9-4**) shows that the Project Area has a very high potential for liquefaction, specifically in the northeastern and southeastern areas of the site that consist of fill material overlying Bay Mud.

Seismically Induced Settlement

Settlement occurs in areas that are prone to different rates of ground surface sinking and densification (called differential compaction) and are underlain by sediments that differ laterally in composition or degree of existing compaction. Differential settlement can damage structures, pipelines, and other subsurface entities.

Strong groundshaking can cause soil settlement by vibrating sediment particles into more tightly compacted configurations, thereby reducing pore space. Unconsolidated, loosely packed alluvial deposits and sand are especially susceptible to this phenomenon. Poorly compacted artificial fills may experience seismically induced settlement.

Subsidence and Expansive and Collapsible Soils

Subsidence involves a sudden sinking or gradual settling and compaction of soil and other surface material with little or no horizontal motion. Expansive soils have a significant amount of clay particles that can give up water (shrink) or take on water (swell). The change in soil volume exerts stress on buildings and other loads placed on these soils. The presence of expansive soils is often associated with geologic units having marginal stability. Expansive soils can be dispersed widely, found in hillside areas as well as low-lying areas in alluvial basins. Soils testing to identify expansive characteristics and appropriate measures to address these characteristics are routinely required by grading and building codes.

accessd at: http://gis.abag.ca.gov/website/Hazards/?hlyr=liqSusceptibility

Figure 9-4
Liquefaction Susceptibility

Source: ABAG Resilience Program, accessed 8-3-18

Collapsible soils undergo a rearrangement of their grains, and a loss of cementation, resulting in substantial and rapid settlement under relatively low loads. Collapsible soils occur predominantly at the base of mountain ranges where Holocene-age alluvial fan and wash sediments have been deposited during rapid runoff events. Soils prone to collapse are commonly associated with artificial fill, wind-lain sands and silts, and alluvial fan and mudflow sediments deposited during flash floods. During an earthquake, even slight settlement of fill materials can lead to a differentially settled structure and significant repair costs. Differential settlement of structures can occur when heavily irrigated landscape areas are near a building foundation. Common problems associated with collapsible soils include tilting floors, cracking or separation in structures, sagging floors, and nonfunctional windows and doors.

The potential for subsidence and/or expansive and collapsible soils is considered high within the Project Area. This is due to the presence of significant amounts of artificial fill materials placed over soft Bay Mud, as well as the shallow water table (borings have indicated that the water table may be as shallow as 6 feet, with the potential of groundwater at near zero elevation at mean sea level).

Landsliding

Landslides are the downward sliding of a mass of earth and rock. Landsliding is a geological phenomenon that includes a wide range of ground movements, such as rock falls, deep failure of slopes, and shallow debris flows. Gravity acting on an over-steepened slope is the primary cause of landsliding. However, there are other contributing factors such as:

- erosion by rivers, glaciers, or ocean waves;
- rock and soil slopes that are weakened through saturation by snowmelt or heavy rains;
- volcanic eruptions that produce loose ash deposits, heavy rain, and/or debris flows;
- vibrations from machinery, traffic, blasting and even thunder; and
- excess weight from accumulation of rain or snow, stockpiling of rock or ore from waste piles, or from artificial structures

The strong ground motion that occurs during earthquakes is capable of inducing landslides, generally where unstable soil conditions already exist. When landslides occur, they deform and tilt the ground surface. The result can be destruction of foundations, offset of roads, and breaking of underground pipes within and along the margins of the landslide, as well as overriding of property and structures downslope.

Portions of the Project Area have slopes greater than 15 percent, underlain by weak bedrock. These areas will have a greater susceptibility to the risks associated with landsliding.

Soil Erosion

Soil erosion is the process by which soil particles are removed from a land surface by wind, water or gravity. Most natural erosion occurs at slow rates; however, the rate of erosion increases when land is cleared or altered and left in a disturbed condition. Site preparation activities associated with development can cause or accelerate erosion. Vegetation removal in previously landscaped areas could reduce soil cohesion, as well as the buffer provided by vegetation from wind, water and surface disturbance, which could render the exposed soils more susceptible to erosive forces.

Additionally, excavation or grading may result in erosion during construction activities, irrespective of whether hardscape previously existed at the construction site, because bare soils would be exposed and could be eroded by wind or water. The effects of erosion are intensified with an increase in slope (as water moves faster, it gains momentum to carry more debris), and the narrowing of runoff channels which increases the velocity of water). Surface improvements such as paved roads and buildings decrease the

potential for erosion. Once covered, soil is no longer exposed to the elements. The Project Area is developed with numerous buildings, hard pack, and paved parking lots with landscaping overfill material.

Regulatory Setting

State Regulations

Alquist-Priolo Earthquake Fault Zoning Act

The California Legislature passed the Alquist-Priolo Earthquake Fault Zoning Act in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The Act addresses only the hazard of surface fault rupture, and does not address other earthquake hazards. Local agencies must regulate most development in fault zones established by the State Geologist. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, the city or county with jurisdiction must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active or potentially active faults.

California Seismic Hazards Mapping Act

The California Seismic Hazards Mapping Act of 1990 (California Public Resources Code Sections 2690-2699.6) addresses seismic hazards other than surface rupture, such as liquefaction and seismically induced landslides. The Seismic Hazards Mapping Act specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

California Building Code

The California Building Code (CBC) has been codified in the California Code of Regulations as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction.

The 2016 CBC is based on the 2015 International Building Code published by the International Code Conference. In addition, the CBC contains necessary California amendments, which are based on reference standards obtained from various technical committees and organizations such as the American Society of Civil Engineers (ASCE), the American Institute of Steel Construction and the American Concrete Institute. ASCE Minimum Design Standards 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (flood, snow, wind, etc.) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications and various seismic coefficients that are used to determine a Seismic Design Category (SDC) for a project as described in Chapter 16 of the CBC. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E (very high seismic vulnerability and near a major fault) as well as SDC F (Hospitals, Police Stations Emergency control centers etc. in areas near major active faults). Design

specifications are then determined according to the SDC in accordance with Chapter 16 of the CBC, which provides earthquake loading specifications for every type of structure to resist the effects of earthquake motions in accordance with ASCE 7-05. Chapter 18 of the CBC covers the requirements of geotechnical investigations (Section 1803), excavation, grading, and fills (Section 1804), load bearing of soils (1805), as well as foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). Chapter 18 also describes analysis of expansive soils and the determination of the depth to groundwater table. For SDC D, E and F, Chapter 18 requires analysis of slope instability, liquefaction and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses mitigation measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground-acceleration magnitudes, and source characteristics consistent with the ground motions of the design earthquake.

California Code of Regulations Title 24 also includes the California Residential Code and California Green Building Standards Code, which have been adopted as separate documents (California Code of Regulations Title 24, Part 2.5 and 11, respectively).

Construction General Permit

The California Construction Stormwater Permit (Construction General Permit)[2], adopted by the State Water Resources Control Board, regulates construction activities that include clearing, grading, and excavation resulting in soil disturbance of at least one acre of total land area. The Construction General Permit authorizes the discharge of stormwater to surface waters from construction activities. It prohibits the discharge of materials other than stormwater and authorized non-stormwater discharges and all discharges that contain a hazardous substance in excess of reportable quantities established at 40 Code of Federal Regulations (CFR) 117.3 or 40 CFR 302.4, unless a separate National Pollutant Discharge Elimination System (NPDES) Permit has been issued to regulate those discharges.

The Construction General Permit requires that all developers of land where construction activities will occur over more than one acre do the following:

- Complete a Risk Assessment to determine pollution prevention requirements pursuant to the three Risk Levels established in the General Permit
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the Nation
- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which specifies Best Management Practices that will reduce pollution in stormwater discharges to the Best Available Technology Economically Achievable/Best Conventional Pollutant Control Technology standards
- Perform inspections and maintenance of all best management practices (BMPs)

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment, control pollutants from construction materials and address post construction runoff quantity (volume) and quality (treatment). The SWPPP must also include a discussion of the program to inspect and maintain all BMPs.

[2] General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, National Pollutant Discharge Elimination System No. CAS000002.

Local Regulations and Policies

City of South San Francisco Hazard Mitigation Plan

The City of South San Francisco adopted ABAG's Local Hazard Mitigation Plan as the Hazard Mitigation Plan (HMP) for the City by Resolution No. 65-2006, on August 16, 2006. The HMP has been designed to identify the areas where people or structures may have higher vulnerability to earthquakes, flood, wildland fires and other natural hazards. The HMP identifies policies and actions that may be implemented by the City to reduce the potential for loss of life and property damage in these areas, based on an analysis of the frequency of earthquakes, landslides, floods, and wildland fires in terms of frequency, intensity, location, history, and potential damage effects. The Plan also serves as a guide for decision-makers as they commit resources to reduce the effects of natural hazards.

City of South San Francisco General Plan

The Health and Safety Element of the City's General Plan includes a section on Geological and Seismic Hazards. This section identifies geotechnical and geologic impacts to the general City of South San Francisco area. The most recent General Plan update was completed in October 1999. The General Plan includes the requirement that new construction in South San Francisco must meet the requirements of the 1994 Uniform Building Code, and buildings of special occupancy are required by the State to meet more stringent design requirements.

City of South San Francisco Municipal Code

The CBC 2016 Edition, Vols. 1 and 2, including the California Building Standards, as modified by amendments, additions and deletions set forth in Chapter 15.08 of the South San Francisco Municipal Code, was adopted by reference as the building code of the City of South San Francisco.[3]

City of South San Francisco East of 101 Area Plan

In 1994, the City of South San Francisco developed the East of 101 Area Plan. The East of 101 Area Plan recognizes the unique character of the East of 101 Area, and seeks to guide and regulate development in a manner that protects and enhances the area's physical, economic and natural resources while also encouraging appropriate development. The East of 101 Area Plan Chapter 10, Geotechnical Safety Element sets forth specific guidelines with respect to site treatment and building design, and the unique geological hazards of the area. The East of 101 Area Plan Geotechnical Safety Element policies are as follows:

- **Policy GEO-1:** The City shall assess the need for geotechnical investigations on a project-by-project basis on sites in areas of fill shown in East of 101 Area Plan Figure 17, and shall require such investigations where needed.
- **Policy GEO-2:** Where fill remains under a proposed structure, project developers shall design and construct appropriate foundations.
- **Policy GE0-3:** Given the extensive use of the area for industrial and waste disposal purposes, investigation both by drilling and by examination of historic aerial photographs shall be conducted by project developers to determine if landfills exist under the project site prior to construction.
- **Policy GEO-4:** Project developers shall design developments on landfills and dump sites to deal safely with gas produced by the decomposition of the buried garbage. Inorganic soil capping over landfills

[3] City of South San Francisco Signature Report, November 14, 2016. Accessed at http://www.ssf.net/documentcenter/view/14621

shall be thick enough that excavation for repair of existing utilities or installation of additional utilities does not penetrate to buried garbage.

- **Policy GEO-5:** If hazardous fill, such as garbage organics, is encountered it shall be appropriately disposed by a project developer during construction. This material shall not be used for either structural fill or grading fill. However, other uses may be possible, such as landscaping around vegetation if the fill has a high organic content. If no acceptable use is found on-site, the hazardous fill should be properly disposed off-site.
- **Policy GEO-6:** Where a landfill or dump occurs under a proposed structure, project developers shall design and construct appropriate foundations.
- **Policy GEO-7:** New slopes greater than 5 feet in height, either cut in native soils or rock, or created by placing fill material, shall be designed by a geotechnical engineer and should have an appropriate factor of safety under seismic loading. If additional load is to be placed at the top of the slope, or if extending a level area at the toe of the slope requires removal of part of the slope, the proposed configuration shall be checked for an adequate factor of safety by a geotechnical engineer.
- **Policy GEO-8:** The surface of fill slopes shall be compacted during construction to reduce the likelihood of surficial sloughing. The surface of cut or fill slopes shall also be protected from erosion due to precipitation or runoff by introducing a vegetative cover on the slope or by other means. Runoff from paved or other parts of the slope shall be directed away from the slope.
- **Policy GEO-9:** Steep hillside areas in excess of 30 percent grade shall be retained in their natural state. Development of hillside sites should follow existing contours to the greatest extent possible and grading should be kept to a minimum.
- **Policy GEO-10:** In fill areas mapped on Figure 17 (in East of 101 Area Plan,) a geotechnical investigation to determine the true nature of the subsurface materials and the possible effects of liquefaction shall be conducted by the project developer before development.[4]
- **Policy GEO-11:** Development shall be required to mitigate the risk associated with liquefaction.
- **Policy GEO-12:** Structural design of buildings and infrastructure shall be conducted according to the Uniform Building Code and appropriate local codes of practice, which specify procedures and details to reduce the effects of ground shaking on structures.
- **Policy GEO-13:** Development within the preliminary boundary of the Coyote Point hazard area, as depicted on Figure 15 of the East of 101 Area Plan, shall be reviewed by a geotechnical engineer. Fault trenching may be required on individual development sites where feasible and determined necessary by the engineer. No structure for human occupancy shall occur within 50 feet of identified active faults, unless a geotechnical investigation and report determine that no active branches of that fault underlie the surface

South San Francisco General Plan Health and Safety Element

The 1999 South San Francisco General Plan Health and Safety Element contains policies designed to minimize the risks associated with development in areas of seismic hazards. As such, the South San Francisco General Plan, Health and Safety Element, has set forth specific guidelines with respect to site treatment and building design and the unique geological hazards of the area. The South San Francisco General Plan, Health and Safety Element, policies are as follows:

[4] East of 101 Area Plan, Figure 17 shows that portions of the Project site have fill over Bay mud

- **Implementing Policy 8.1-1**: Do not permit special occupancy buildings, such as hospitals, schools and other structures that are important to protecting health and safety in the community, in areas identified in Figure 8-2 of the South San Francisco General Plan, Health and Safety Element.
- **Implementing Policy 8.1-2**: Steep hillside areas (i.e., slopes in excess of 30 percent grade) should be retained in their natural state. Development of hillside sites should follow existing contours to the greatest extent possible. Grading should be kept to a minimum.

Impacts and Mitigation Measures

Thresholds of Significance

Based on the CEQA Guidelines, the Project would have a significant environmental impact if it were to:

1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
    a) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (Refer to Division of Mines and Geology Special Publication 42)
    b) Strong seismic ground shaking
    c) Seismic-related ground failure, including liquefaction
    d) Landslides
2. Result in substantial soil erosion or the loss of topsoil.
3. Be located on a geologic unit or soil that is unstable, or that would become unstable because of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.
4. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.
5. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Approach to the Analysis

The Master Plan Update identifies potential Opportunity Sites as locations where new development or redevelopment within the Genentech Campus is likely to occur. The majority of these potential Opportunity Sites are in the same or similar locations as were contemplated and analyzed in the previous EIRs, and certain Setting information regarding geologic conditions remain valid and applicable to this new analysis of the Project. The analysis of the Project presented below relies upon known geologic conditions that are present in the Project Area and as updated for this EIR. To the extent that new Opportunity Sites have been identified that present new or substantially more severe impacts related to geologic conditions, these are specifically identified and discussed below.

Seismic Hazards

Geology 1: With implementation of all applicable regulatory requirements, future development pursuant to the Project would not expose people and/or structures to potentially substantial adverse effects

resulting from strong seismic groundshaking and seismic-related ground failure. **(Less than Significant)**

The Project Area is not within an Alquist-Priolo Seismic Hazard Zone, and no known active or potentially active faults traverse the Genentech Campus. Branches of the Hillside Fault have been mapped as crossing the South Campus area, but this fault is considered inactive and not prone to earthquake-induced fault offset. Because ground rupture generally occurs only at the location of a fault, and no active faults are known to traverse the Project Area, new development pursuant to the Project is not subject to substantial risk of surface fault rupture.

The Project Area is in one of the most seismically active regions in the U.S. and could be subject to violent shaking under a scenario earthquake along the San Andreas Fault, and very strong shaking under a scenario earthquake along the Peninsula Segments of the San Andreas or on the San Gregorio Fault. Strong seismic ground shaking has the potential to induce seismic-related ground failure (e.g., liquefaction) and lateral spreading. According to ABAG Liquefaction Hazard Maps[5], the Project Area has a high potential for liquefaction, including areas of the Genentech Campus with fill material overlying Bay Mud.

These impacts would be less than significant because all new development will be required to comply with regulatory requirements that fully address seismic hazards, as described below.

Regulatory Requirements

All new development pursuant to the Project will be required to comply with all applicable regulatory requirements for seismic hazards, including but not limited to the following:

- California Seismic Hazards Mapping Act, which enables the City of South San Francisco to withhold development permits until geologic or soils investigations are conducted for specific sites, and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils
- California Building Code, which provides minimum standards for building design including but not limited to regulations governing seismically resistant construction (Chapter 16, Section 1613)
- City of South San Francisco Municipal Code - Chapter 15.08, which includes CBC standards as further modified by amendments, additions, and deletions adopted as the building code of the City of South San Francisco
- East of 101 Area Plan, Chapter 10, which sets forth policies and specific guidelines pertaining to site development and building design applicable to the unique geological hazards in the East of 101 Area, including the Project Area

Regulatory Requirement Geology 1 – Seismic Hazards: Pursuant to regulatory requirements, Genentech will be required to retain a certified licensed geotechnical engineer to prepare site-specific geotechnical studies for each new development project pursuant to the Project.

1. Required geotechnical studies shall include site-specific geotechnical recommendations demonstrating compliance with all applicable seismic-related geotechnical engineering standards.
2. Recommendations shall be incorporated into individual development project designs and construction, providing an acceptable level of protection against seismic-related hazards.

[5] Accessed July 25, 2017, at: http://gis.abag.ca.gov/website/Hazards/?hlyr=liqSusceptibility

Mitigation Measures

No mitigation measures are required.

Project compliance with the state and City's codes and policies, including those outlined in the East of 101 Area Plan and the California Building Code, and applicable provisions of the Seismic Hazards Mapping Act, would ensure potential impacts related to seismic hazards would be reduced to a less than significant level.

Landslides

Geology 2: With implementation of all applicable regulatory requirements, most future development pursuant to the Project would not expose people and structures to potentially substantial adverse effects resulting from landslides. Future development on steep hillside sites could pose increased risks of slope instability and landslide potential. **(Less than Significant with Mitigation)**

Several portions of the Project Area contain relatively steep slopes, and general construction activities such as excavation and grading may create new slopes. Improper loading of fill materials or excessive irrigation practices could induce slope instability or landsliding. New development may occur on Opportunity Sites identified for potential future development (particularly for new parking garages) that are located along the base of the existing steep hillsides that slope up to the Upper Campus (**Figure 9-5**). To accommodate these hillside structures, deep cuts into the hillside would likely need to be performed, cutting into existing slopes that exceed 30 percent grade. These types of cuts into the hillside could exacerbate slope failure and/or result in landslide conditions if not conducted in a safe manner and consistent with applicable excavation design and slope stability standards. Impacts related to the risk of landslides and slope instability on these identified hillside Opportunity Sites pursuant to the Project is considered potentially significant. Mitigation measures to specifically address these hillside Opportunity Sites are recommended, below.

Grading of hillside Opportunity Sites would be inconsistent with current East of 101 Area Plan Seismic Safety Element policies (specifically Policy Geo-9), and would not be fully consistent with General Plan Implementing Policy 8.1-2, which provide that "*Steep hillside areas (i.e., slopes in excess of 30 percent grade) should be retained in their natural state. Development of hillside sites should follow existing contours to the greatest extent possible. Grading should be kept to a minimum.*" Inconsistencies with these General Plan policies are further addressed in the Land Use chapter of this EIR (see Chapter 13: Land Use).

Figure 9-5
Potential Development Opportunities as Compared to Steeper Hillside Locations

Regulatory Requirements

All new development pursuant to the Project on non-steep Hillside Opportunity sites will be required to comply with applicable regulatory requirements for slope stability and landslide prevention. These requirements include, but are not limited to the California Seismic Hazards Mapping Act, which enables the City of South San Francisco to withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismically induced landslides and slope instability. All new development pursuant to the Project on non-step Hillside Opportunity Sites will also be required to adhere to policies of the East of 101 Area Plan Geotechnical Safety Element, which sets forth policies and specific guidelines pertaining to site development and building design applicable to the unique geological hazards in the East of 101 Area.

Regulatory Requirement Geology 2 – Landslide Hazards: Pursuant to regulatory requirements, Genentech will be required to retain a certified licensed geotechnical engineer to prepare site-specific geotechnical studies for each new development project pursuant to the Project.

1. Required geotechnical studies shall include site-specific geotechnical recommendations demonstrating compliance with all applicable excavation design and slope stability standards. The East of 101 Area Plan Geotechnical Safety Element policies (specifically Policy Geo-7 through Geo-9) are designed specifically to mitigate impacts associated with landsliding and unstable slope conditions.
2. Recommendations shall be incorporated into individual development project designs and construction, providing an acceptable level of protection against landslide hazards.

Continued adherence to the City's codes and policies would ensure the maximum practicable protection available to minimize the risks associated with landsliding for new development at those Opportunity Sites not located on steep hillsides. These codes and policies reduce potential impacts at non-hillside sites to a level of less than significant (see mitigation measures below pertaining to steep hillside slopes).

Mitigation Measures

To address the potential for significant impacts associated with development at hillside Opportunity Sites (sites with slopes of 30 percent or greater), the following additional mitigation measure is recommended:

Mitigation Measure Geology 2 - Geotechnical Requirements for Hillside Opportunity Sites: Site-specific geotechnical studies required for each new development at hillside Opportunity Sites (sites with slopes of 30 percent or greater) shall including site-specific geotechnical recommendations to address the stability of existing and proposed slopes, as well as the stability of all proposed excavations. These investigations and recommendations may include, but are not limited to the following:

a) A geologic evaluation of the bedding properties of the underlying bedrock to determine if joints or fractures may project out of the proposed excavation during construction

b) Recommendations for appropriate shoring systems to be used when making vertical cuts, including evaluation of the stability of the excavation as well as job-site safety considerations

c) Evaluation of the drainage and infiltration properties of the existing slope bank

d) Installation of horizontal drains to remove seepage

e) Construction of a buttress wall at the base of the slope to reduce the risk of damage in the case of an accidental slope failure

Resulting Level of Significance

Compliance with applicable state and local regulations, and implementation of site-specific mitigation measures to be implemented at steeply sloped hillside Opportunity Sites would minimize the risk of landslide and slope failure, and potential impacts would be reduced to a less than significant level. Inconsistencies with current East of 101 Area Plan and General Plan policies that require steep hillside areas in excess of 30 percent grade to be retained in their natural state and where grading should be kept to a minimum are further addressed in the Land Use chapter of this EIR (see Chapter 13: Land Use).

Differential Settlement and Unstable or Expansive Soils

Geology 3: With implementation of all applicable regulatory requirements, future development pursuant to the Project that may be located on a geologic unit or soil that is unstable or that could become unstable because of development, and future development that may be on expansive soil, will not create a substantial risk to life or property. **(Less than Significant)**

Soils conditions vary throughout the Project Area and include bedrock belonging to the Franciscan complex, alluvial material and Bay Mud. Because of these varying soil conditions, the potential for soil expansion also varies throughout the Project area. Areas of unsuitable soils (such as improperly compacted fill material) exist throughout the Project Area, particularly in the Lower Campus and South Campus where fill soils have previously been placed over wetlands and Bay Mud. Bay Mud is expected to settle significantly under new fill and building loads depending on the thickness of new fill, the thickness of existing fill and Bay Mud and the history of fill placement, among other factors.

New development in these areas pursuant to the Project has the potential to result in damage to building foundations, which may compromise the stability of the overlying structure, as well as to create future liquefaction, subsidence or collapse problems leading to building settlement and utility line disruption. These impacts would be less than significant because all new development will be required to comply with regulatory requirements that fully address soils-related hazards.

Regulatory Requirements

All new development pursuant to the Project will be required to comply with all applicable regulatory requirements to address soils constraints, including but not limited to the following:

- California Seismic Hazards Mapping Act, which enables the City of South San Francisco to withhold development permits until geologic or soils investigations are conducted for specific sites, and mitigation measures are incorporated into plans to reduce hazards associated with seismically unstable soils
- California Building Code, Chapters 18A and 23 (or Uniform Building Code for Zone 4), which addresses building foundations and structural support requirements, subject to structural peer review
- City of South San Francisco Municipal Code - Chapter 15.08, which includes CBC standards as further modified by amendments, additions and deletions adopted as the Building Code of the City of South San Francisco
- East of 101 Area Plan, Chapter 10: Geotechnical Safety Element, which sets forth policies and specific guidelines pertaining to site development and building design applicable to soils conditions that exist in the East of 101 Area

Regulatory Requirement Geology 3 – Soils Hazards: Pursuant to regulatory requirements, Genentech will be required to retain a certified licensed geotechnical engineer to prepare site-specific geotechnical studies for each new development project pursuant to the Project.

1. Geotechnical studies shall include site-specific geotechnical recommendations demonstrating compliance with all applicable soils-related building design requirements.
2. Site-specific recommendations may include design features (such as expansion joints, mounting foundations on concrete piles), or replacing existing soils on a project site with stable fill material such that structures can withstand soils expansion. Building pad substrates may also be applicable on soils subject to expansive potential, and weak soils may require re-engineering specifically for stability. Soil treatment programs (replacement, grouting, compaction, drainage control, etc.) may be included in excavation and construction plans, and/or piling supports that conform to implementation criteria described in the CBC, Chapters 16, 18, and A33 may need to be designed and implemented.
3. All recommendations shall be incorporated into individual development project designs and construction, providing an acceptable level of protection against soils-related hazards.

Compliance with these regulations and project-specific recommendations (as applicable) will ensure that individual development project designs and construction of foundations and structures provide adequate protection against soils-related hazards as defined in the CBC, Uniform Building Code, and the East of 101 Area Plan Geotechnical Safety Element.

Mitigation Measures

No mitigation measures are required.

Adherence to the City's Codes and policies, including any project-specific recommendations to demonstrate full compliance, would ensure the maximum practicable protection available for soils hazards, and would result in a less than significant impact.

Substantial Soil Erosion or Loss of Topsoil

Geology 4: With implementation of all applicable regulatory requirements, future development pursuant to the Project would not result in substantial soil erosion or the loss of topsoil. (**Less than Significant**)

New development pursuant to the Project could potentially generate soil erosion, primarily from site preparation activities for new development. Vegetation removal in landscaped areas could reduce soil cohesion and remove buffers from wind, water and surface disturbance, potentially rendering exposed soils susceptible to erosive forces. Excavation or grading for any subterranean buildings or parking structures may result in erosion during construction activities as bare soils become exposed. Construction-period earth-disturbing activities would be temporary, and erosion effects would depend largely on the areas excavated, the quantity of excavation and the length of time soils are subject to conditions that would be affected by erosion processes.

Substantial erosion is unlikely to occur on an operational basis, and is not considered significant.

Regulatory Requirements

Regulatory Requirement Geology 4 – Grading Regulations: Pursuant to regulatory requirements, Genentech will be required to retain a certified licensed geotechnical engineer to prepare site-specific geotechnical studies for each new development project pursuant to the Master Plan Update. Geotechnical studies shall include site-specific geotechnical recommendations demonstrating compliance with all applicable erosion control requirements, including but not limited to the following:

1. California Building Code, Chapter 18 (which regulates excavation activities and the construction

of foundations and retaining walls) and Chapter 33 (which regulates grading activities, including drainage and erosion control)

2. Bay Area Air Quality Management District Rules regarding fugitive dust, which would stabilize soils and prevent erosion through the reduction of dust generation by up to 85 percent
3. All new qualifying construction projects pursuant to the Master Plan Update will be required to comply with Provision C.6 of the Municipal Regional Permit (MRP), including filing a Notice of Intent for permit coverage under the Construction General Permit, and preparation of a Stormwater Pollution Prevention Plan (SWPPP) that demonstrates compliance with the City's Grading Ordinances and other local requirements (see further details in Regulatory Requirement Hydro 1A in the Hydrology chapter of this EIR)
4. The evaluation of potential erosion of steeper slopes is also required as part of new development design in accordance with East of 101 Area Plan Geotechnical Safety Element policies. These policy requirements specify that slopes be graded and compacted during construction to reduce the likelihood of surface slumping or erosion, and that vegetative cover be applied to protect the slope from soil erosion.

All regulatory requirements will be incorporated into individual development project's construction activities to ensure that erosion is controlled to the maximum extent feasible. Adherence to these codes and regulatory requirements would result in a less than significant erosion impact.

Mitigation Measures

No mitigation measures are required.

The Project is required to comply with City and state codes, regulations and policies, including those outlined in the East of 101 Area Plan and the California Building Code, as well as the applicable NPDES General Construction Permit requirements for construction activities, which would ensure potential impacts related to erosion would be reduced to a less than significant level.

Septic Tanks

Geology 5: Future development pursuant to the Project would be served by the existing municipal sewer system. No septic tanks or alternate waste disposal systems are proposed for development. (**No Impact**)

Sewage and wastewater generated within the Project Area is collected through the City's sewer system and is disposed of and treated at the South San Francisco/San Bruno Water Quality Control Plant. The sanitary sewer system has an interconnecting network of gravity sewers, force mains, and pump stations, which function together to bring wastewater from the Genentech Campus to the South San Francisco/San Bruno Water Quality Control Plant. Existing infrastructure is located throughout the Project Area, and any new development would connect to or expand the existing wastewater lines. No septic tanks or alternative wastewater systems are proposed, and there would be no impact.

Cumulative Geologic Effects

The geographic context for the analysis of impacts resulting from geologic hazards is generally site-specific rather than cumulative in nature. Each development site has a different set of geologic considerations that would be subject to specific site development and construction standards. As such, the potential for cumulative geologic impacts to occur is limited.

All cumulative development is required to be constructed in conformance with the provisions of applicable federal, State, county and city laws and ordinances, including but limited to the California Building Code, the

East of 101 Area Plan Geotechnical Safety Element, and City building codes. With adherence to all relevant plans, codes and regulations pertaining to building design and construction, cumulative development would provide adequate levels of safety, cumulative geologic impacts would be less than significant and the Project would not present a cumulatively considerable contribution to cumulative geologic impacts.

10

Greenhouse Gas Emissions and Climate Change

This chapter of the Genentech Master Plan Update EIR evaluates the potential impacts of the Project related to greenhouse gas (GHG) emissions and climate change. This chapter also describes the existing conditions and evaluates the extent to which climate change may affect development pursuant to the Master Plan Update as proposed, as well as the extent to which the Master Plan Update (or Project) may contribute to GHG emissions and climate change.

Although some of the information in the Environmental Setting draws from the 2012 Supplemental MEIR (SMEIR), setting and regulatory information for GHG emissions and climate change has been updated to reflect current information. Emissions estimates and analysis have been updated for this Program EIR using current data from the following sources:

- Ramboll Environ, Greenhouse Gas Technical Appendix, December 2018 (**Appendix 10A**)
- the Association of Bay Area Governments and Metropolitan Transportation Commission's *Plan Bay Area 2040*
- the City of South San Francisco's *Climate Action Plan (CAP)*, February 2014

Environmental Setting

Climate Change Overview

Greenhouse Gases

Gases that trap heat in the Earth's atmosphere are called greenhouse gases, or GHGs. These gases play a critical role in determining the Earth's surface temperature. Part of the solar radiation that would have been reflected back into space is absorbed by these gases, resulting in a warming of the atmosphere. Without natural GHGs, the Earth's surface would be about 61 degrees cooler.[1] This phenomenon is known as the greenhouse effect. However, scientists have proven that emissions from human activities such as electricity generation, vehicle emissions and even farming and forestry practices have elevated the concentration of GHGs in the atmosphere beyond naturally occurring concentrations, enhancing the greenhouse effect that contributes to the larger process of global climate change. The six primary GHGs are:

- Carbon dioxide (CO_2), emitted when solid waste, fossil fuels (oil, natural gas, and coal), and wood and wood products are burned;
- Methane (CH_4), produced through the anaerobic decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and

[1] California Climate Action Team, Report to Governor Schwarzenegger and the California Legislature, April 2006

petroleum, coal production, incomplete fossil fuel combustion, and water and wastewater treatment;

- Nitrous oxide (N_2O), typically generated as a result of soil cultivation practices, particularly the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning;
- Hydrofluorocarbons (HFCs), primarily used as refrigerants;
- Perfluorocarbons (PFCs), originally introduced as alternatives to ozone depleting substances and typically emitted as by-products of industrial and manufacturing processes; and
- Sulfur hexafluoride (SF_6), primarily used in electrical transmission and distribution.

Though there are other contributors to global warming, these six GHGs are identified explicitly by the U.S. Environmental Protection Agency (EPA) as threatening the public health and welfare of current and future generations. [2]

GHGs have varying potential to trap heat in the atmosphere, known as global warming potential (GWP), and atmospheric lifetimes. GWPs reflect how long GHGs remain in the atmosphere, on average, and how strongly they absorb energy. Gases with a higher GWP absorb more energy per pound than gases with a lower GWP, and thus contribute more to warming the Earth. In order to facilitate consideration of different greenhouse gases in comparable terms, GWP is alternatively described as carbon dioxide equivalent, or CO_2e.

Implications of Climate Change

Scientific consensus holds that human activity is increasing atmospheric GHG concentrations to levels far above what would be expected given natural variability. These gases are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes and other human activities. GHGs, such as CO_2, CH_4 and N_2O, create a "blanket" around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a naturally occurring process known as the greenhouse effect, human activities have accelerated the generation of GHGs beyond natural levels. The over-abundance of GHGs in the atmosphere has led to an unexpected warming of the earth and has already started affecting the Earth's climate system.

The Intergovernmental Panel on Climate Change's Fifth Assessment Report summarizes current scientific understanding of global climate change and projects future climate change using the most comprehensive set of recognized global climate models. As asserted in the Fifth Assessment Report, if trends remain unchanged, continued GHG emissions above current rates will induce further warming changes in the global climate system and pose even greater risks than those currently witnessed.[3]

State and Local Implications

Research suggests that because of climate change, California will experience hotter and drier conditions, reductions in winter snow, an increase in winter rains, sea level rise, significant changes to the water cycle, and an increased occurrence of extreme weather events. Such compounded impacts will affect economic systems throughout the state. The California Climate Adaptation Strategy estimates that failing to take action

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[2] US EPA, Overview of Greenhouse Gases, accessed at https://www.epa.gov/ghgemissions/overview-greenhouse-gases

[3] IPCC, 2014: Climate Change 2014: Synthesis Report, Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp. accessed at http://www.ipcc.ch/report/ar5/syr/

to address the potential impacts of climate change will lead to economic losses of "tens of billions of dollars per year in direct costs" and "expose trillions of dollars of assets to collateral risk."[4]

Extreme Heat

The State of California Climate Action Team Biennial Report[5] predicts that higher temperatures will increase in frequency. Higher temperatures can decrease the water supply through increased evaporation rates and irrigation demand, and lead to an increased incidence of wildfires. Extreme heat events also have dramatic human health impacts.

Air Quality

The warming climate is also predicted to increase ozone levels in California's major air basins, leading to upwards of 6 to 30 more days per year with ozone concentrations that exceed federal clean air standards.

Water Supply

The state's water supply is already under stress and is anticipated to shrink under even the most conservative climate change scenario. Warmer average global temperatures cause more rainfall than snowfall, making the winter snowfall season shorter and accelerating the rate at which the snowpack melts in the spring. The Sierra snowpack is estimated to experience a 25-40% reduction from its current average by 2050. With rain and snow events becoming less predictable and more variable, the rate of flooding could increase and California's ability to store and transport fresh water for consumption could decrease.

Storm Severity

Climate change models predict more intense rainfall events, more frequent or extensive runoff, and more frequent and severe flood events. Localized flood events may increase in periods of heavy rain. Although climate change is likely to lead to a drier climate overall, risks from regular, more intense rainfall events can generate more frequent and/or more severe flooding that upsets this managed balance between storage and protection. Additionally, erosion may increase and water quality may decrease because of increased rainfall amounts.

Sea Level Rise

Sea level rise occurs from rising average ocean temperatures, thermal expansion and melting of snow and ice. While many different climate change effects will affect San Mateo County, sea level rise has been extensively researched and quantified, allowing for a clearer geographic understanding of its effects. The rate and amount of sea level rise will be influenced by rising average temperatures and the speed of melting glacial ice. There is a degree of uncertainty in many projections, and the present rate of sea level rise is faster than many previous projections have estimated. Sea level rise projections for 2100 in the California 4th Climate Change Assessment (California 4th Assessment) range from 14 - 94 inches (36 centimeters - 239 centimeters) with an additional very low probability worst-case estimate that exceeds 9 feet (274 meters).[6]

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[4] California Natural Resources Agency, *2009 California Climate Adaptation Strategy*: A Report to the Governor of the State of California in Response to Executive Order S-13-2008, 2009

[5] California Climate Action Team, State of California Climate Action Team Biennial Report, 2009

[6] Griggs, G, Árvai, J, Cayan, D, DeConto, R, Fox, J, Fricker, HA, Kopp, RE, Tebaldi, C, Whiteman, EA (California Ocean Protection Council Science Advisory Team Working Group), *Rising Seas in California: An Update on Sea-Level Rise Science*, California Ocean Science Trust, April 2017. Available online at: http://www.opc.ca.gov/webmaster/ftp/pdf/docs/rising-seas-in-california-an-update-on-sea-level-rise-science.pdf

Greenhouse Gas Inventory

Bay Area Greenhouse Gas Emission Estimates and Draft Forecasts [7]

The Bay Area Air Quality Management District (BAAQMD) reported its first Bay Area regional GHG emissions inventory in 2007, for base year 2002. Since then, it has generally issued updates on a triennial basis. The 2015 update (for base year 2011), included a "business as usual GHG emission forecasts to 2030, identified the need to extend forecasts to 2050, and to represent GHG-reduction rules and policies already in place. The 2017 BAAQMD Greenhouse Gas Emission Estimates and Draft Forecasts report presents a first step toward developing an extended Bay Area GHG emissions forecast that includes existing and anticipated policies. The BAAQMD considers these 2017 estimates and forecasts to be in draft form.

Bay Area Emissions

The 2017 Emission Estimates and Draft Forecasts report (for base year 2015) identifies an emissions inventory across several different emission sectors, including transportation, industrial, electricity and cogeneration, commercial and residential , recycling and waste, agriculture and farming, and high GWP gases. The 2017 Emission Estimates and Draft Forecasts report found that the Bay Area's GHG emissions in 2015 total about 85 million metric tons of carbon dioxide-equivalents (MMTCO2e). Emissions from the seven emission sectors include:

- transportation (on-road and off-road sources), about 41%
- industrial (mostly refineries, natural gas combustion and cement plants), about 26%
- electricity and cogeneration (including both direct combustion and electricity imports), about 14%,
- commercial and residential (mostly fuel combustion for heating and cooking), about 11%
- high GWP gases, about 4%
- recycling and waste facilities, about 3% and
- agriculture and farming operations, about 1%

Forecasts

A major finding of the 2017 Emission Estimates and Draft Forecasts report is that, with committed and expected policies in place, the Bay Area is not likely to meet the goal of reducing regional GHG emissions to 1990 levels by 2020. The Bay Area's 1990 GHG emissions were about 72 $MMTCO_2e$, whereas these projections indicate that total Bay Area emission will be about 80 $MMTCO_2e$ in 2020. In contrast, State projections suggest that California, as a whole, is on track to meet its 2020 GHG goal. This is because the average rate of GHG reduction needed to meet the 2020 target is greater for the Bay Area than for California. The State's 2020 goal is 431 $MMTCO_2e$, and the latest statewide estimate (from 2014) of 2020 emissions is 442 $MMTCO_2$. To reach the 2020 goal, California as a whole must reduce its GHG emissions by about 2 to 3% over the next several years. For the Bay Area only, a 10% reduction from present day (2015) emissions is needed to reach 1990 levels.

[7] Bay Area Air Quality Management District, *Greenhouse Gas Emission Estimates and Draft Forecasts*, DRAFT v2017-Q1, March 2017

City of South San Francisco

2005 Baseline Emissions

The City of South San Francisco Climate Action Plan (CAP)[8] includes an inventory of all major sources of GHGs caused by activities in the jurisdictional boundary of the city, consistent with the methodology recommended by the California Air Resources Board (CARB),[9] ICLEI-Local Governments for Sustainability,[10] and the Bay Area Air Quality Management District (BAAQMD).[11] The Inventory analyzes the following emissions sources:

- Energy: Electricity and natural gas used by residential and nonresidential buildings in South San Francisco
- Transportation: Vehicle miles traveled (VMT) within and to/from the community by on-road vehicles, as well as trips to and from the South San Francisco BART and Caltrain commuter rail stations
- Solid Waste: Methane emissions from the decomposition of waste sent to landfills from South San Francisco
- Landfills: Direct emissions from the Oyster Point Landfill, which is no longer operational but continues to release methane emissions
- Water and Wastewater: The amount of energy required to extract, filter, move and treat all water used by, as well as the wastewater produced in South San Francisco. This sector also includes direct methane emissions caused by the treatment of South San Francisco's wastewater at the South San Francisco/San Bruno Water Quality Control Plant located within the community
- Stationary Sources: Direct emissions from large, stationary, fixed emitters of GHGs permitted by the BAAQMD
- Off-Road: Emissions from construction and lawn & garden equipment and vehicles

The 2005 community-wide baseline inventory indicates that the City of South San Francisco emitted 548,600 metric tons of carbon dioxide equivalent (MTC02e) in 2005. Energy use was the single largest source of emissions, responsible for about 47% of the community total. Emissions from transportation were the second-largest category, responsible for about 45% of community-wide emissions. Off-road emissions accounted for 5%, emissions from solid waste account for 3%, landfills 2%, and water and wastewater less than 1 %. For purposes of the CAP, stationary sources, direct landfill emissions and energy use at the Genentech Campus were excluded from this inventory, resulting in community-wide GHG emissions of 442,400 MTCO2e. Stationary sources and direct landfill emissions were excluded because they are regulated by BAAQMD and CARB. The Genentech Campus was also excluded as a stationary emitter that CARB regulates through California's Cap-and-Trade program.[12]

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8 City Of South San Francisco, *Climate Action Plan*, February 2014

9 CoolCalifornai.org, Local Government Toolkit, accessed at http://www.coolcalifornia.org/local-government

10 ICLEI _ Local Governments for Sustainability USA, 2009, City of South San Francisco 2005 Government Operations Greenhouse Gas Emissions Inventory, accessed at http://ca-southsanfrancisco.civicplus.co/DocumentsCenter/Home/View/2473

11 BAAQMD, accessed at http://www.baaqmd.gov/plans-and-climate/climate-protection/local-government-support

12 City of South San Francisco, *Climate Action Plan*, February 2014, page ES1

Emissions Forecast

The SSF CAP includes a GHG emissions forecast of future GHG emissions for the community based on anticipated changes in population, number of households, employment, driving behavior and other activities. The forecast focuses on two target years: 2020 and 2035. Year 2020 is used for consistency with the targets of AB 32, and year 2035 was chosen for consistency with SB 375. Under a business-as-usual (BAU) scenario, assuming there will be no influence on GHG emissions from local, state, or federal reduction efforts, GHG emissions are projected to grow to 11% above the 2005 baseline (to 491,310 MTCO2e) by year 2020, and to 24% above baseline (or 550,540 MTCO2e) by 2035.

An adjusted business-as-usual (ABAU) forecast was also prepared in the SSF CAP, including a number of reduction programs implemented by the State. This scenario presents a more realistic estimate of South San Francisco's future emissions. State actions assessed in the CAP include the following:

- California's Renewables Portfolio Standard (RPS): One of the most ambitious renewable energy standards in the country, RPS mandates that 33% of electricity delivered in California be generated by renewable sources like solar, wind, and geothermal by 2020.
- AB 1493 (Pavley) Vehicle Standards: California's Pavley regulations, established by AB 1493 in 2002, require new passenger vehicles to reduce tailpipe GHG emissions from 2009 to 2020.
- Executive Order S-01-07, Low Carbon Fuel Standard: Beyond including vehicle efficiency improvements through AB 1439, CARB developed a Low Carbon Fuel Standard (LCFS) to reduce the carbon intensity of transportation fuels. Under the BAAQMD's guidance, the LCFS is likely to reduce emissions by at least 7.2%.
- Title 24, Energy Efficiency Standards: Title 24 is a state standard, implemented at the local level by city and county agencies through project review, to increase energy efficiency in new buildings. The energy reductions quantified in the forecast are the mandatory improvements over the 2005 Title 24 code established in 2008.

In order to achieve the State-recommended AB 32 reduction target of 15% below 2005 emissions levels by 2020, these statewide actions are not sufficient. As indicated in the CAP, the City will need to continue implementation of existing programs and implement additional goals, policies and actions. The additional actions in the CAP build upon existing efforts and provide a diverse mix of regulatory and incentive-based programs for both new and existing development. The reduction measures also aim to reduce GHG emissions from each emission source to avoid reliance on any one strategy or sector to achieve the target.

In total, the state actions plus the GHG reduction measures identified in the CAP are forecast to reduce GHG emissions in South San Francisco by 116,040 MTC02e by 2020 (a 15% reduction below 2005 baseline emissions). Local actions are projected to contribute approximately 40% of the 2020 reductions, while state actions are projected to contribute approximately 60% of 2020 reductions. Existing programs initiated after 2005 will contribute approximately 22% of total local reductions necessary to achieve the AB 32 reduction target. Such projects include municipal energy efficiency retrofits, the City's Transportation Demand Management (TDM) program and community-wide solar installations. Additional measures created under the CAP will be implemented through new and existing programs.

In total, existing actions, state programs, and GHG reduction measures in the CAP were estimated to reduce GHG emissions in the City of South San Francisco by 116,040 MTC02e by 2020 (thus achieving the AB 32 target of a 15% emissions reduction below baseline 2005 levels by 2020), and to reduce GHG emissions by 191,540 MTC02e by 2035. Achievement of a 15% reduction in GHG emissions by 2020 will also achieve state recommendations and BAAQMD threshold requirements for developing a Qualified GHG Reduction Strategy. The CAP indicates that, through the implementation of the CAP strategies and programs, South San

Francisco's per capita GHG emissions will decrease from 4.66 MTC02e annually in 2005, to 3.49 MTC02e annually in 2020, and 3.07 MTC02e annually in 2035.[13]

The City's CAP also specifies those measures within the CAP that are applicable to new construction projects in order to demonstrate compliance with GHG emission reduction strategies, and to determine whether a project's GHG emissions are less than significant. To ensure that each new construction project complies with the CAP, the CAP Appendix includes a checklist to be submitted by applicants for each new development project.

Genentech GHG Emissions

In 2006, Genentech voluntarily joined the California Climate Action Registry and became a participant in the California Cap-and-Trade Program, and was among the first bio-pharmaceutical companies to do so.[14] Pursuant to the California Global Warming Solutions Act of 2006 (AB 32), participation in the Program requires annual reporting of GHG emissions by major sources. All GHG emissions data reports must comply with the regulatory requirements. The California Air Resources Board (CARB) implements and oversees a third-party verification program to support the mandatory GHG reporting. All GHG reports subject to the Cap-and-Trade Program must be independently verified by CARB-accredited verification bodies and verifiers. A summary of reported GHG emissions data reported under the mandatory reporting requirements is made public each year, and the data is used by the Cap-and-Trade Program and included in California Greenhouse Gas Inventory.

The following **Table 10-1** provides a year-by-year summary of GHG emissions from the Genentech South San Francisco Campus, beginning in 2010 and as reported to CARB. The data in this table represent direct stationary-source GHG emissions resulting from the combustion of fossil fuels, chemical and physical processes, vented emissions, geothermal emissions, and emissions from suppliers of carbon dioxide, and also includes CH4 and N2O emissions (converted to CO2e using global warming potentials) from biogenic fuel combustion.

Table 10-1: Genentech SSF Campus GHG Emissions Reporting Data (to California Air Resources Board)

Year	CARB Calculated Covered Emissions (metric tons CO2e)	Percent Reduction in Emissions (as compared to 2010)
2010	37,654	
2011	36,384	-3.3%
2012	35,531	-5.6%
2013	35,459	-5.8%
2014	31,224	-17.1%
2015	31,057	-17.5%
2016	31,437	-16.5%

Source: https://ww2.arb.ca.gov/our-work/programs/mandatory-greenhouse-gas-emissions-reporting/data

[13] Ibid, page ES7

[14] Genentech, Genentech 2007 Corporate Sustainability Report, page 1

The GHG emissions presented above represent emissions from those stationary-source facilities that are subject to the mandatory reporting requirements of CARB, and do not include all GHG emissions sources, such as mobile sources.

Genentech also publishes an annual Corporate Sustainability Report, which includes Genentech sustainability data of corporate-wide GHG emissions. However, data presented in the Sustainability report includes emissions from production and finish facilities in South San Francisco, Vacaville and Oceanside, California, and Hillsboro, Oregon, as well as from research, development, commercial and administrative offices at the South San Francisco headquarters and the Louisville, Kentucky distribution facility. Because this publicly available data is not specific to the Project site in SSF, it is not presented herein.

Regulatory Setting

Federal Regulations

Global Change Research Act (1990)

In 1990, Congress passed and President George H.W. Bush signed Public Law 101-606, the Global Change Research Act. The purpose of the legislation was to:

> *". . . Require the establishment of a United States Global Change Research Program aimed at understanding and responding to global change, including the cumulative effects of human activities and natural processes on the environment, to promote discussions towards international protocols in global change research, and for other purposes."*

To that end, the Global Change Research Information Office was established in 1991 (it began formal operation in 1993) to serve as a clearinghouse of information. The Act requires a report to Congress every four years on the environmental, economic, health and safety consequences of climate change; however, the first and only one of these reports to date, the National Assessment on Climate Change, was not published until 2000. In February 2004, operational responsibility for the Global Change Research Information Office shifted to the U.S. Climate Change Science Program.

GHG Emissions pursuant to the Clean Air Act (2007)

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497, the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. The Court held that the Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, Administrator Lisa Jackson signed a final action, under Section 202(a) of the Clean Air Act, finding that six key well-mixed GHGs constitute a threat to public health and welfare, and that the combined emissions from motor vehicles cause and contribute to the climate change problem.

This action was a prerequisite for implementing GHG emissions standards. Current efforts include issuing GHG emission standards for new motor vehicles, developing and implementing renewable fuel standard program regulations, proposing carbon pollution standards for new power plants, setting GHG emissions thresholds to define when permits are required for new and existing industrial facilities under the Clean Air Act, and establishing a GHG reporting program.

Energy Independence and Security Act (2007)

The Energy Independence and Security Act of 2007 were intended to move the U.S. toward greater energy independence and security. This energy bill increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in

2022. It also tightens the Corporate Average Fuel Economy standards that regulate the average fuel economy in the vehicles produced by each major automaker.

National Fuel Efficiency Policy Standards

On May 7, 2010, the U.S. Department of Transportation and EPA jointly issued national fuel efficiency and GHG emissions standards for model year 2012-2016 passenger vehicles and light duty trucks. The National Highway Traffic Safety Administration (NHTSA) issued Corporate Average Fuel Economy (CAFÉ) standards for model year 2012-2016 passenger cars and light trucks under the Energy Policy and Conservation Act and Energy Independence and Security Act and EPA issued national GHG emissions standards under the federal Clean Air Act. These joint GHG and fuel economy standards represented the first phase of the national program to improve fuel economy and reduce GHG emissions from U.S. light-duty vehicles. Starting with 2012 model year vehicles, the rules require automakers to improve fleet-wide fuel economy and reduce fleet-wide GHG emissions by approximately five percent every year. When adopted, these regulations were expected to result in a 2016 fleet average of 35.5 miles per gallon (mpg), conserve about 1.8 billion barrels of oil and reduce nearly 1 billion tons of GHG emissions over the lives of the vehicles covered.

In 2012, NHTSA established final passenger car and light truck CAFE standards for model year 2017 through model year 2021. Those CAFE standards required, on an average industry fleet-wide basis for cars and trucks combined, 40.3 to 41 mpg in model year 2021. EPA's GHG standards, which were consistent with NHTSA's CAFE standards, were projected to require 163 grams/mile of CO_2 in model year 2025.

On August 28, 2014, EPA and NHTSA finalized the new national program that would reduce GHG emissions and improve fuel economy for all new cars and trucks sold in the U.S. EPA proposed the first-ever national GHG emissions standards under the Clean Air Act, and NHTSA proposed CAFE standards under the Energy Policy and Conservation Act. This national program allows automobile manufacturers to build a single light-duty national fleet that satisfies all requirements under both federal programs and the standards of California and other states. This program is expected to increase fuel economy to the equivalent of 54.5 miles per gallon for cars and light-duty trucks by model year 2025.

In October 2016, the EPA and NHTSA, on behalf of the Department of Transportation, established rules for a comprehensive Phase 2, Heavy-Duty (HD) national program to reduce GHG emissions and fuel consumption from new on-road medium- and heavy-duty vehicles and engines. This Phase 2 program is expected to result in fuel reductions of between 71 and 83 billion gallons, and achieve GHG reductions of between 959 and 1,098 MMT, CO2eq.[15]

Promoting Energy Independence and Economic Growth (2017) [16]

On March 28, 2017, President Trump signed an Executive Order stating that it is the policy of the United States that:

> *"Executive departments and agencies (agencies) immediately review existing regulations that potentially burden the development or use of domestically produced energy resources, and appropriately suspend, revise, or rescind those that unduly burden the development of domestic energy resources beyond the degree necessary to protect the public interest or otherwise comply with the law."*

The Order requires the heads of agencies to review all existing regulations, orders, guidance documents, policies and any other similar agency actions that potentially burden the development or use of domestically produced energy resources, with particular attention to oil, natural gas, coal, and nuclear energy resources.

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[15] Federal Register / Vol. 81, No. 206 / Tuesday, October 25, 2016 / Rules and Regulations

[16] https://www.whitehouse.gov/presidential-actions/presidential-executive-order-promoting-energy-independence-economic-growth/

Such review shall not include agency actions that are mandated by law, necessary for the public interest, and consistent with the Order. This Executive Order also rescinds certain energy and climate-related Presidential and regulatory actions and reports, including:

- Executive Order 13653 of November 1, 2013 (Preparing the United States for the Impacts of Climate Change)
- the Presidential Memorandum of June 25, 2013 (Power Sector Carbon Pollution Standards)
- the Presidential Memorandum of November 3, 2015 (Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment)
- the Presidential Memorandum of September 21, 2016 (Climate Change and National Security)
- the Report of the Executive Office of the President of June 2013 (The President's Climate Action Plan), and
- the Report of the Executive Office of the President of March 2014 (Climate Action Plan Strategy to Reduce Methane Emissions)

The Order also calls on the Council on Environmental Quality to rescind its final guidance entitled "Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews" (81 Fed. Reg. 51866, August 5, 2016).

State Plans and Regulations – GHG Emissions

Assembly Bill 1493 - Pavley (2002, et.seq)

Assembly Bill (AB) 1493 (Pavley) amended Health and Safety Code sections 42823 and 43018.5 requiring CARB to develop and adopt regulations that achieve maximum feasible and cost-effective reduction of GHG emissions from passenger vehicles, light-duty trucks, and other vehicles used for noncommercial personal transportation in California. The regulations prescribed by AB 1493 of 2002 took effect on January 1, 2006, and apply only to 2009 and later model year motor vehicles.

In September 2004, pursuant to AB 1493, CARB approved regulations to reduce GHG emissions from new motor vehicles. Under the new regulations, one manufacturer fleet average emission standard is established for passenger cars and the lightest trucks, and a separate manufacturer fleet average emission standard is established for heavier trucks. The regulations took effect on January 1, 2006 and set near-term emission standards, phased in from 2009 through 2012, and mid-term emission standards, to be phased in from 2013 through 2016 (referred to as the Pavley Phase 1 rules). For model year 2017 through 2025, CARB has adopted the National Fuel Efficiency Policy standards as previously described.

Executive Order S-3-05 (June 2005)

Executive Order S-3-05 was signed on June 1, 2005. The Order recognizes California’s vulnerability to climate change, noting that increasing temperatures could potentially reduce snowpack in the Sierra Nevada, which is a primary source of the State’s water supply. Additionally, according to this Order, climate change could influence human health, coastal habitats, microclimates and agricultural yield. The Order set the GHG reduction targets for California: by 2010, reduce GHG emissions to 2000 levels; by 2020 reduce GHG emissions to 1990 levels; by 2050 reduce GHG emissions to 80 percent below 1990 levels.

The Order directs the Secretary of the California Environmental Protection Agency to coordinate oversight of efforts made to achieve these targets with other state agencies and, like all executive orders, the Order has no binding legal effect on regional agencies, which are outside of the California Executive Branch.

AB 32, California Global Warming Solutions Act of (2006, et.seq)

AB 32, the California Global Warming Solutions Act (Health and Safety Code Section 38500 et seq.), was signed in September 2006. The Act requires the reduction of statewide GHG emissions to 1990 levels by the year 2020. This change, which is estimated to be a 25 to 35 percent reduction from current emission levels, will be accomplished through an enforceable statewide cap on GHG emissions that was phased in starting in 2012. The Act also directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources and address GHG emissions from vehicles. CARB has stated that the regulatory requirements for stationary sources will be first applied to electricity power generation and utilities, petrochemical refining, cement manufacturing, and industrial/commercial combustion. The second group of target industries will include oil and gas production/distribution, transportation, landfills and other GHG-intensive industrial processes.

Climate Change Scoping Plan (2008, et.seq)

On December 11, 2008, CARB adopted its Climate Change Scoping Plan (Scoping Plan), which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations.[17] The Scoping Plan contains the main strategies California will implement to reduce CO_2e emissions by 174 million metric tons, or approximately 30 percent, from the State's projected 2020 emissions level of 596 $MMTCO_2e$ under a business as usual scenario. The Scoping Plan also breaks down the amount of GHG emissions reductions the CARB recommends for each emissions sector of the State's GHG inventory. The Scoping Plan's recommended measures were developed to reduce GHG emissions from key sources and activities while improving public health, promoting a cleaner environment, preserving natural resources, and ensuring that the impacts of the reductions are equitable and do not disproportionately impact low-income and minority communities. These measures also put the State on a path to meet the long-term goal of reducing California's GHG emissions by 2050 to 80 percent below 1990 levels.

In May 2014, ARB released the First Update to the Climate Change Scoping Plan to identify the next steps in reaching AB 32 goals and evaluate the progress that has been made between 2000 and 2012. According to the update, California was on track to meet the near-term 2020 GHG limit, and was well positioned to maintain and continue reductions beyond 2020.

On January 20, 2017, ARB released its Draft 2017 Climate Change Scoping Plan Update (2017 Draft Scoping Plan Update), which lays out the framework for achieving the 2030 reductions as established in EO B-30-15, SB 32, and AB 197 (as of this writing, the Plan has not been finalized). The 2017 Draft Scoping Plan Update identifies the GHG reductions needed by emissions sector to achieve a statewide emissions level that is 40 percent below 1990 levels before 2030. Many of the programs require statewide action, promulgated through regulation, and are outside the ability of sub-state jurisdictions to implement on their own accord. This is important to recognize in terms of GHG emissions efficiency and attaining GHG targets. The ability to attain targets will not only rely on transportation strategies, (e.g., the CTP), but also on land use strategies implemented by local cities and counties (e.g., qualified GHG reduction plans) and controls and actions tied to economy-wide changes promulgated by the State. Examples listed in the 2017 Draft Scoping Plan Update include:

- reliance on SB 350 targets of providing 50 percent of the State's electricity via renewable resources (this is largely accomplished by actions of utilities);
- attaining 18 percent reduction in carbon intensity of fuels (Low Carbon Fuel Standard);
- vehicle fleet mix that includes 4.2 million zero-emission vehicles (ZEV) by 2030 and similar changes in urban buses and light- and heavy-duty trucks;

[17] California Air Resource Board, AB 32 Scoping Plan, accessed at https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm

- regulations that reduce short-lived GHGs;
- deployment of 100,000 ZEV freight vehicles by 2030;
- reduction of refinery GHG emissions by 20 percent;
- continuation (past 2020) of the Cap- and Trade-Program; and
- reduction in VMT by implementation of SB 375 and other strategies intended to reduce VMT

Some of these programs have already been initiated and others will require legislative or regulatory action by the State. In addition, the 2017 Draft Scoping Plan states that local governments (e.g., cities and counties) play an important role in achieving the State's long-term GHG goals because they have broad influence, and sometimes-exclusive authority, over activities that enable or thwart uptake of policies that contribute to significant direct and indirect GHG emissions. These actions include community-scale planning and permitting processes, discretionary actions, local codes and ordinances, outreach and education efforts, and municipal operations. ARB states that, to achieve the 2030 target, local governments are essential partners. Their action is required to complement and support State-level actions. ARB also acknowledges that without land use decisions from local governments that allow efficient use and management of land use, longer-term targets cannot be met. ARB recommends that local jurisdictions develop sufficiently detailed and adequately supported GHG reduction plans (including climate action plans [CAPs]) that look holistically at GHG emissions and local strategies to support statewide limits.

Cap and Trade

California's cap-and-trade program was designed by the California Air Resources Board (CARB), beginning in 2013.[18] Cap and trade is a market-based approach to reduce GHG emissions and identified in the AB 32 Scoping Plan as a way to achieve California's desired reductions. Cap and Trade enables industrial emitters to reduce overall emissions by investing in cleaner fuels and energy efficiencies. Under the cap-and-trade program, enforceable limits are set on the amount of emissions that can be produced by large industrial emitters (known as a "cap"), which is gradually reduced over time. Each emitter receives permits for the emissions allowable under their cap. Emitters that do not use all their permits can auction them off to other emitters ("trade"), who can use the additional permits to exceed their cap. CARB collects revenue from the permit auctions, and uses this revenue to invest in offsetting projects that result in reductions in greenhouse gas emissions. CARB has conducted 17 quarterly cap-and trade auctions since November 2012 generating roughly $4.4 billion in state revenue.[19]

Several pieces of legislation seek to guide revenue from the cap-and-trade program toward efforts to reduce pollution in disproportionately impacted communities. One such example is the California Global Solutions Act of 2006 Greenhouse Gas Reduction Fund (AB 1532). This Act requires administering agencies to allocate funds from the cap-and-trade program to those measures that meet specific criteria, and that are implemented in areas in close proximity to sources that produce toxic levels of air pollution. Measures are to be implemented in areas with an elevated concentration of people who experience low income, high unemployment, low levels of homeownership, high costs of rent and other socioeconomic challenges.

The Climate Action Reserve[20] (previously the California Climate Action Registry or California Registry) has developed standardized GHG reduction project protocols, serving as a registry for GHG reduction projects, and tracking GHG offsets through a publicly accessible database. The California Environmental Quality Act

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[18] California Air Resources Board, Cap and trade Program, accessed at https://www.arb.ca.gov/cc/capandtrade/capandtrade.htm

[19] California Legislative Analyst's Office, The 2017-18 Budget: Cap-and-Trade, February 2017, accessed at www.lao.ca.gov/reports/2017/3553/cap-and-trade-021317.pdf

[20] Accessed at http://www.climateactionreserve.org/

(CEQA) GHG Mitigation Registry, a regional component of the Climate Action Reserve Voluntary GHG Mitigation Registry, enables companies and organizations to invest proactively in projects that will reduce greenhouse gas emissions forecasted to occur, once the projects are fully implemented. It provides a trusted and transparent resource for companies (such as Genentech), organizations, land developers, manufacturing facilities and other large projects, to reduce their carbon footprints in a responsible, consistent and accountable manner. The CEQA GHG Mitigation Registry also enables programs and projects to utilize real, permanent emissions reductions with a high level of environmental integrity. By investing in standardized and conservative quantification methodologies vetted by public and private stakeholders and approved by the Climate Action Reserve, companies and organizations can be issued high quality credits to reflect the mitigation measures implemented.[21]

Senate Bill 1368 (2006)

SB 1368, signed in September 2006, required the California Public Utilities Commission (CPUC) to establish a GHG emissions performance standard for "baseload" generation from investor owned utilities by February 1, 2007. The California Energy Commission (CEC) was required to establish a similar standard for local publicly owned utilities by June 30, 2007. The legislation further required that all electricity provided to California, including imported electricity, must be generated from plants that meet or exceed the standards set by the CPUC and the CEC. In January 2007, the CPUC adopted an interim performance standard for new long-term commitments (1,100 pounds of CO_2 per megawatt-hour), and in May 2007, the CEC approved regulations that match the CPUC standard.

Executive Order S-01-07, Low Carbon Fuels Standards (January 2007)

In January 2007, Executive Order S-01-07 established a Low-Carbon Fuel Standard. The Order calls for a statewide goal to be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 (2020 Target), and that a LCFS for transportation fuels be established for California. Further, it directs the CARB to determine if an LCFS can be adopted as a discrete early action measure pursuant to AB 32 and if so, to consider the adoption of an LCFS on the list of early action measures required to be identified by June 30, 2007, pursuant to Health and Safety Code Section 38560.5. The LCFS applies to all refiners, blenders, producers or importers (providers) of transportation fuels in California, will be measured on a full fuels cycle basis, and may be met through market-based methods by which providers exceeding the performance required by an LCFS shall receive credits that may be applied to future obligations or traded to providers not meeting the LCFS.

In June 2007, the CARB approved the LCFS as a Discrete Early Action item under AB 32 and in April 2009, the CARB approved the new rules and reference values for carbon intensity, with the new regulatory requirements taking effect in January 2011. The standards require providers of transportation fuels to report on the mix of fuels that they provide and demonstrate that they meet the LCFS intensity standards annually. This is accomplished by ensuring that the number of "credits" earned by providing fuels with a lower carbon intensity than the established baseline (or obtained from another party) is equal to or greater than the "deficits" earned from selling higher intensity fuels.

In December 2011, the U.S. District Court for the Eastern District of California issued three rulings against the LCFS including a requirement for CARB to abstain from enforcing the LCFS. In April 2012, the Ninth Circuit granted CARB's motion for a stay of the injunction while it continues to consider CARB's appeal of the lower court's decision.

[21] http://www.climateactionreserve.org/ceqa-mitigation-registry/

Senate Bill 375 (Chapter 728, Statutes of 2008)

SB 375, adopted September 30, 2008 helps meet the AB 32 goals of reducing emissions from cars and light duty trucks. SB 375 requires regional planning agencies to include a Sustainable Communities Strategy (SCS) in their Regional Transportation Plan (RTP) that demonstrates how the region could achieve GHG emissions reductions set by CARB through integrated land use and transportation planning.

Local governments retain control of land use planning authority; however, SB 375 amended CEQA (Public Resources Code § 21000 et seq.) to ease environmental review of specific types of developments that are anticipated to reduce emissions. *Plan Bay Area 2040* is the most recent integrated SCS and RTP for the San Francisco Bay Area, consistent with SB 375.

Executive Order S-13-08 (2008)

Governor Schwarzenegger signed California Executive Order S-13-08 on November 14, 2008, to address the potential impacts of global climate change, including sea level rise. The order emphasizes the need for timely planning to mitigate and adapt to the potential effects of sea level rise on the State's resources. As a result, any State agency planning construction projects in areas vulnerable to future sea level rise must evaluate and reduce the potential risks and increase resiliency, to the extent feasible. Planning must consider a range of sea level rise scenarios for 2050 and 2100.

Executive Order B-16-2012 (2012)

Executive Order B-16-2012 directs State entities to support and facilitate the rapid commercialization of zero-emission vehicles. The order outlines benchmarks for 2015, 2020, and 2025 related to establishing infrastructure to support and accommodate zero-emission vehicles, helping get zero-emission vehicles to market and on the road, and increasing their use for public transportation and public use, among others. It also establishes a goal of an 80 percent reduction of GHG emissions from the transportation sector in California as compared to 1990 levels by 2050. This Executive Order also explicitly states that it "is not intended to, and does not create any rights or benefits, substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person."

Executive Order B-30-15 (2015)

On April 20, 2015, Governor Edmund G. Brown Jr. signed Executive Order B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments such as the 28-nation European Union, which adopted the same target in October 2014. California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent under 1990 levels by 2050. This is in line with the scientifically established levels needed in the U.S. to limit global warming below 2 degrees Celsius —the warming threshold at which there will likely be major climate disruptions such as super droughts and rising sea levels according to scientific consensus. SB 32 legislatively implements the targets in this executive order.

SB 32 (2016)

On September 8, 2016, Governor Brown approved SB 32 (Pavley, Chapter 249, Statutes of 2016), which added a 2030 target to the Global Warming Solutions Act of 2006. SB 32 requires that statewide GHG emissions be reduced to 40 percent below 1990 levels by 2030. This bill was tied to passage of a companion bill, AB 197.

Assembly Bill 197

Governor Brown signed AB 197 (Garcia, Chapter 250, Statutes of 2016) on September 8, 2016. AB 197 creates a legislative committee to oversee ARB and requires ARB to take specific actions when adopting plans and regulations pursuant to SB 32 related to disadvantaged communities, identification of specific information regarding reduction measures, and information regarding existing greenhouse gases at the local level.

Senate Bill No. 100

SB 100 was approved by the Governor in September 2018. This bill revises previous legislation regarding renewable resource targets. Under this new legislation, retail sellers and local publicly owned electric utilities must procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours of those products sold to their retail end-use customers achieve 44% of retail sales by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030. This bill also states the policy goal if for eligible renewable energy resources and zero-carbon resources to supply 100% of retail sales of electricity to California end-use customers, and 100% of electricity procured to serve all state agencies by December 31, 2045.

State Plans and Regulations – Sea Level Rise

California Climate Adaptation Strategy (2009)

In response to EO S-13-08, the California Natural Resources Agency released the California Climate Adaptation Strategy in 2009.[22] The strategy proposes a comprehensive set of recommendations designed to inform and guide State agencies in their decision-making processes as they begin to develop policies to protect the State, its residents, and its resources from a range of climate change impacts, including sea level rise. The Climate Adaptation Strategy presents recommendations for seven sectors, including Ocean and Coastal Resources and Transportation and Energy Infrastructure.

Climate Adaptation Strategy recommendations specific to Ocean and Coastal Resources emphasize hazard avoidance, adaptation planning, and collaboration with local governments to address sea level rise. The Climate Adaptation Strategy directs State agencies, in general, not to plan, develop or build any new significant structure in a location requiring significant protection from sea level rise, storm surges or coastal erosion during the expected life of the structure. The strategy notes that the most risk-averse approach for minimizing the adverse effects of sea level rise and storm activities is to carefully consider new development within areas vulnerable to inundation and erosion.

The Climate Adaptation Strategy also recommends that all State agencies prepare sea level rise adaptation plans, guidance and criteria, as appropriate. The strategy directs State agencies to coordinate with any other agencies with jurisdiction over the coastal zone, (e.g., BCDC, the California Coastal Commission), local governments and regional organizations on regional adaptation planning. The Climate Adaptation Strategy also recommends that State agencies encourage local governments to adopt policies on setbacks, buffer areas, clustered coastal development and engineering solutions, among others.

State of California Sea Level Rise Guidance Document (2012 et.seq)

EO S-13-08 directs the California Natural Resources Agency, in coordination with other state agencies and the National Academy of Sciences, to assess sea level rise (SLR) for the Pacific Coast and create official sea level rise estimates for state agencies in California, Oregon and Washington. The assessment and official estimates are provided within the State of California Sea-Level Rise Guidance Document.

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[22] California Natural Resources Agency California Climate Change, *Climate Adaptation Strategy*, accessed at http://www.climatechange.ca.gov/adaptation/strategy/index.html

The State of California Sea Level Rise Interim Guidance Document contains eight recommendations for incorporating sea level rise into project planning:

- use the ranges of SLR presented in the June 2012 National Research Council report on Sea Level Rise for the Coasts of California, Oregon, and Washington as a starting place and select SLR values based on agency and context-specific considerations of risk tolerance and adaptive capacity;
- consider timeframes, adaptive capacity, and risk tolerance when selecting estimates of SLR;
- consider storms and other extreme events;
- coordinate with other state agencies when selecting values of SLR and, where appropriate and feasible, use the same projections of SLR;
- future SLR projections should not be based on linear extrapolation of historic sea level observations;
- consider changing shorelines;
- consider predictions in tectonic activity; and
- consider trends in relative local mean sea level

The interim guidance document is expected to be updated regularly, to keep pace with scientific advances associated with sea level rise.

In March 2013, the California Ocean Protection Council (OPC) presented an update to the State of California Sea Level Rise Guidance Document.[23] The purpose of the SLR Guidance was updated to include the best current science, as summarized in the final report from the National Academy of Sciences. Specifically, the 2013 update provides information and recommendations to enhance consistency across agencies in development of approaches to sea-level rise. Although the estimates of future sea level rise were intended to enhance consistency across California state agencies, the document is not intended to prescribe that all state agencies use specific or identical estimates of sea-level rise as part of their assessments or decisions. The underlying premise of the SLR Guidance is that sea level rise potentially will cause many harmful economic, ecological, physical and social impacts and that incorporating sea level rise into agency decisions can help mitigate some of these potential impacts.

State Plans and Regulations – Energy Efficiency

Title 24, California's Energy Efficiency Standards (1978, et.seq)

Known by the shorthand name of Title 24, the Building Energy Efficiency Standards were first adopted in 1976 and have been updated periodically since then. The Standards contain energy and water efficiency requirements (and indoor air quality requirements) for newly constructed buildings, additions to existing buildings, and alterations to existing buildings. Public Resources Code Sections 25402 subdivisions (a)-(b) and 25402.1 emphasize the importance of building design and construction flexibility by requiring the Energy Commission to establish performance standards, in the form of an "energy budget" in terms of the energy consumption per square foot of floor space. For this reason, the Standards include both a prescriptive option, allowing builders to comply by using methods known to be efficient, and a performance option, allowing builders complete freedom in their designs provided the building achieve the same overall efficiency as an equivalent building using the prescriptive option. Reference Appendices are adopted along with the Standards that contain data and other information that helps builders comply with the Standards.

[23] State of California Ocean Protection Council (OPC), *State of California Sea-Level Rise Guidance Document*, accessed at http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/

The 2008 update of the Standards incorporated AB 32 mandates, and advanced energy efficiency requirements to meet California's energy needs. Several State energy policy goals drive the design of the Standards, including:

- the "Loading Order," which directs California's growing demand must first be met with cost-effective energy efficiency
- "Zero Net Energy" goals for new homes by 2020 and commercial buildings by 2030
- Governor Brown's Executive Order on Green Buildings
- the Green Building Standards Code, and
- AB 32

The 2016 update to the Building Energy Efficiency Standards focuses on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The most significant efficiency improvements to the non-residential Standards include alignment with the ASHRAE 90.1 2013 national standards. New efficiency requirements for elevators and direct digital controls are included in the nonresidential Standards.

Public Resources Code Section 25402.1 also requires the Energy Commission to support the performance standards with compliance tools for builders and building designers. The Alternative Calculation Method (ACM) Approval Manual establishes requirements for input, output and calculation uniformity to demonstrate compliance with the Standards. The Standards are divided into three basic sets; 1) the basic set of mandatory requirements that apply to all buildings, 2) a set of performance standards that vary by climate zone and building type, and 3) an alternative to the performance standards that provide a checklist compliance approach.

The California Energy Commission completed a study of the environmental impacts of the 2016 Building Energy Efficiency Standards, which estimates that implementation of the 2016 Standards may reduce statewide annual electricity consumption by approximately 281 gigawatt-hours per year, electrical peak demand by 195 megawatts, and natural gas consumption by 16 million therms per year. The potential effect of these energy savings to air quality may be a net reduction in the emission of statewide greenhouse gases by 160 thousand metric tons CO2e per year.[24]

CALGreen, California Green Building Standards Code (2008 et.seq)

CALGreen was the first-in-the-nation mandatory green building standards code. A voluntary CALGreen Code was published in 2008 and had an effective date of August 2009. The first mandatory measures were adopted in the 2010 triennial code publication, which went into effect in January 2011. CALGreen was developed to: 1) reduce GHG from buildings; 2) promote environmentally responsible, cost-effective, healthier places to live and work; 3) reduce energy and water consumption; and 4) respond to the environmental directives of the administration. The reduction in GHG was mandated via executive order and the passage of the California Global Warming Solutions Act of 2006 (Assembly Bill 32). Local jurisdictions are required to adopt the CALGreen provisions. CALGreen is complimentary with California Energy Code, Title 24 Part 6, which continues to regulate energy efficiency in buildings. CALGreen references Title 24 Part 6 where relevant and several voluntary measures in the CALGreen building code require energy efficient that exceeds Title 24 Part 6 requirements by 15 or 30 percent.

[24] California Energy Commission, Initial Study / Proposed Negative Declaration For The 2016 Building Energy Efficiency Standards For Residential And Nonresidential Buildings, February 2015 accessed at : www.energy.ca.gov/2015publications/CEC-400-2015-012/CEC-400-2015-012.pdf

The initial 2008 publication identified Administration, Definitions and Green Building chapters, and established a Guide to the 2016 California Green Building Standards Code (Nonresidential) categories of planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, environmental air quality, referenced standards, installer and inspector qualifications, and appendices for residential, nonresidential and referenced standards.

The 2010 CALGreen Code established chapters for residential and non-residential mandatory measures. A 20 percent reduction of indoor water use and a 50 percent construction waste reduction were required, along with requirements for waste management plans.

The 2013 CALGreen Code clarified and expanded a number of requirements that included non-residential additions and alterations. New sections were added in the areas of water efficiency and conservation, which included a 20 percent reduction in indoor water use. References to the California Energy and Plumbing Codes were also included. Demolition and recycling requirements were further defined.

CALGreen 2016 addresses clean air vehicles and increased requirements for electric vehicle charging infrastructure. A new universal waste code section has been incorporated for additions and alterations. Organic waste was added. Water efficiency and conservation includes a new section for food waste disposers. Outdoor water use remains subject to the water-conserving measures that were amended due to the Model Water Efficient Landscape Ordinance (MWELO) emergency standards in 2015. Pursuant to Executive Order #B-29-15 addressing California's ongoing emergency drought conditions, state agencies proposed water-related emergency standards that were immediately enforceable in June 2015 and later adopted as amendments to the 2013 CALGreen Code. Those amendments have been carried over into the 2016 CALGreen Code.

Regional Regulations and Policies

BAAQMD Guidance on CEQA Guidelines and Thresholds of Significance

On June 2, 2010, the BAAQMD Board of Directors unanimously adopted thresholds of significance to assist in the review of projects under the California Environmental Quality Act. These Thresholds are designed to establish the level at which the District believed air pollution emissions would cause significant environmental impacts under CEQA, and were included in the Air District's updated CEQA Guidelines (updated May 2012). The Thresholds are advisory and may be followed by local agencies at their own discretion.

The Thresholds were challenged in court and following litigation, all of the Thresholds were upheld. However, in an opinion issued on December 17, 2015, the California Supreme Court held that CEQA does not generally require an analysis of the impacts of locating development in areas subject to environmental hazards unless the project would exacerbate existing environmental hazards. The Supreme Court also found that CEQA requires the analysis of exposing people to environmental hazards in specific circumstances, including the location of development near airports, schools near sources of toxic contamination, and certain exemptions for infill and workforce housing. The Supreme Court also held that public agencies remain free to conduct this analysis regardless of whether it is required by CEQA. In view of the Supreme Court's opinion, local agencies may rely on Thresholds designed to reflect the impact of locating development near areas of toxic air contamination where such an analysis is required by CEQA, or if the agency determines that such an analysis would assist in making a decision about the project. However, the Thresholds are not mandatory and agencies should apply them only after determining that they reflect an appropriate measure of a project's impacts. The Guidelines for implementation of the Thresholds are for information purposes only to assist local agencies. Recommendations in the Guidelines are advisory and should be followed by local governments at their own discretion. These Guidelines may inform environmental review for development projects in the Bay Area, but do not commit local governments or the Air District to any specific course of

regulatory action. The Air District published a new version of the Guidelines dated May 2017, which includes revisions made to address the Supreme Court's opinion.

The Air District is currently initiating an update to its current CEQA Guidelines and thresholds of significance. There have been substantive changes to the data and assumptions underlying the analytical methodologies, thresholds and mitigation strategies since the last update of the CEQA Guidelines in June 2010 (revised May 2017). In addition, the risks to public health and air quality posed by global climate change have been brought into significantly increased focus and prominence, and the State of California has taken strong legislative and programmatic action to achieve greenhouse gas reductions beyond 2020. Furthermore, substantial court decisions related to CEQA litigation have occurred since 2010. Accordingly, the Air District is initiating an update to reflect new or revised requirements in the State CEQA Guidelines, recent court decisions, improved analytical methodologies and new mitigation strategies. This update is needed to ensure new land-use projects do not interfere with the Bay Area's ability to attain or maintain health-based federal and State ambient air quality standards, and to meet goals for greenhouse gas reduction pursuant to 2050 climate stabilization science. The Air District intends to review current thresholds of significance criteria and establish new significance criteria where needed. [25]

Climate Action Plans

San Mateo County Energy Strategy 2012

The San Mateo County Energy Strategy 2012 was created by the County of San Mateo Utilities and Sustainability Task Force, with support from the County of San Mateo, the City/County Association of Governments of San Mateo County (C/CAG) and the Bay Area Air Quality Management District (BAAQMD). Energy Strategy 2012 is a guidance document that identifies general energy reduction strategies appropriate for San Mateo County, regional organizations and municipalities. Most goals, strategies, and actions focus on reducing municipal energy use, several actions aim to reduce community energy use. After releasing the document, C/CAG provided additional educational materials to cities and the County and provided incentives to promote the completion of government operation inventories for cities in the county.

San Mateo County Energy Watch

San Mateo County Energy Watch is a partnership between C/CAG and PG&E, with the goal of reducing energy usage through energy efficiency in San Mateo County cities and unincorporated areas. San Mateo County Energy Watch provides energy efficiency services to public agencies, nonprofits, small businesses and residential customers. As part of the Energy Watch program, PG&E and the BAAQMD have provided support to C/CAG to develop the Regionally Integrated Climate Action Planning Suite (RICAPS). The County provides standardized tool kits for cities and towns in San Mateo County to create climate action plans. Tool kits include inventory tools, suggestions for quantified reduction measures, and language for Climate Action Plans.

San Bruno/South San Francisco Community-Based Transportation Plan

Completed in early 2012, the CBTP looks at the transportation needs of the community and recommends steps to address these needs. The CBTP provides a framework for transportation providers and various agencies to work together to better understand the transportation needs of low-income populations. Key strategies in the plan include improving transit stops and amenities, improving transit affordability, and improving access and connectivity to transit stops. Targeting the eastern portion of South San Francisco, the CBTP also informs broader community-wide strategies.

[25] http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

San Mateo County Energy Efficiency Climate Action Plan

In June 2013, an Energy Efficiency Climate Action Plan (EECAP) was adopted for San Mateo County, outlining policies, implementation strategies, and supporting actions to exceed the State's GHG reduction target of 15% below 2005 emissions levels by the year 2020. The EECAP identifies specific measures on how the County can achieve its GHG reduction target of 17% below 2005 emissions levels by the year 2020. The plan also includes a forecast and GHG reduction strategies to 2035.

Local Regulations and Policies

City of South San Francisco Climate Action Plan

Adopted on February 13, 2014, the City's Climate Action Plan builds upon existing environmental preservation, public health and energy-saving efforts by providing goals, policies and programs to reduce GHG emissions, adapt to climate change, and support the goals of AB 32 and SB 375.[26] The GHG emission reduction measures included in the CAP include a mix of regulatory and incentive-based programs for both new and existing development that aim to reduce GHG emissions from all sources, to avoid reliance on any one strategy or sector to achieve the target. The two categories of GHG reduction policies in the CAP are existing activities, and additional CAP measures. Existing activities are projects and programs that will result in future GHG reductions, and that were enacted prior to the creation of the 2013 CAP, but after the 2005 baseline year. Such projects include municipal energy efficiency retrofits, the City's Transportation Demand Management (TDM) program and community-wide solar installations. CAP measures are to be implemented through new and existing programs.

The CAP is structured around strategy areas addressing:

- Alternative transportation, land use and parking, alternative-fuel vehicles, and off-road vehicles and equipment
- Energy efficiency, energy conservation and renewable energy
- Waste minimization
- Water and wastewater conservation, and
- Municipal operations

Each strategy area has corresponding reduction measures and supporting actions necessary for implementation. Existing actions, state programs and GHG reduction measures in the CAP are estimated to reduce GHG emissions in the City of South San Francisco by 116,040 MTC02e by year 2020, thereby achieving the AB 32 target of a 15% emissions reduction below baseline 2005 levels. CAP measures are also expected to reduce GHG emission by 191,540 MTC02e by year 2035, thereby achieving the SB 32 target of a 40% emissions reduction below baseline 2005 levels.

Mobile Sources

To help reduce traffic, air pollution and GHG emissions, and to provide greater commuting alternatives for its working community, the City of South San Francisco requires implementation of Transportation Demand Management (TDM) programs. The TDM guidelines reduce daily vehicle trips per day by requiring that all projects that generate greater than 100 daily trips achieve a minimum of 28% to 40% alternative mode use (depending on land use type and FAR) by employees. Employers are required to develop and implement a TDM plan with requisite carpooling, shuttle and biking options as well as providing public transit, biking and walking incentives to employees. Annual reports on each TDM plan's implementation levels are submitted to

[26] City of South San Francisco, *Climate Action Plan*, February 2014

the City to ensure compliance. The TDM program is supported by a number of other efforts, including the Community-Based Transportation Plan. The CAP estimates that reductions in GHG emissions will be achieved through ongoing implementation of its TDM program, amounting to approximately 4,210 MTC02e by year 2020.

Other measures of the CAP that are expected to result in reductions in GHG emissions include expanding the use of alternative-fuel vehicles, expanding active transportation alternatives by providing infrastructure and enhancing connectivity for bicycle and pedestrian access, and supporting expansion of public and private transit programs to reduce employee commutes. Individual actions and programs pursuant to these mobile source-based emission reductions include:

- Adopting policies that support alternative-fuel vehicle infrastructure such as bio-fuels and electric vehicle charging stations
- Revising parking design guidelines to include designated spaces for electric vehicles, carpool vehicles, and other low emissions vehicles
- Expanding facilities for vehicle sharing at transit nodes and at business and commercial destinations
- Requiring new large-scale non-residential developments to provide a conduit for future electric vehicle charging installations, and encouraging installation of conduits or electric vehicle charging stations for all new development
- Partnering with the Peninsula Alliance and other regional partners to implement the Bicycle Master Plan and the 2012 San Bruno/South San Francisco Community-Based Bicycle Transportation Plan to expand bicycle facilities and increase bicycle mode share
- Revising the existing traffic impact fee for development east of US 101 to fund the bicycle and pedestrian improvements for the portions of the city identified in the Bicycle and Pedestrian Master Plans
- Following adoption of a "complete streets" policy in 2012 for transportation consistent with the C/CAG criteria for One Bay Area funding opportunities, establish citywide design standards to incorporate all modes of transportation (public transit, bicycle, pedestrian, and automobile) into "complete streets" designs
- Promoting local bike-share or bike rental programs in key activity areas such as downtown to expand the use of bicycles for employee commutes, integrating with regional efforts and collaborating with private employers such as Genentech
- Collaborating with the Peninsula Alliance, BART, SamTrans, Caltrain, other transit agencies, and neighboring jurisdictions to improve transit service connections and frequency
- Working with businesses to support and expand shuttle connections to transit.
- Continuing to enforce the City's Transportation Demand Management (TDM) program to require employers to demonstrate achieved mode share and to continually adjust their programs to meet the requisite goals
- Partnering with local businesses to expand private shuttle programs for employee commutes, share local lessons learned, and connect businesses to shuttle resources
- Implementing programs and encouraging employers to provide additional voluntary subsidies or incentives

Energy Efficiency

Energy used in local homes and businesses in South San Francisco is generally provided by Pacific Gas and Electric (PG&E). PG&E generates energy from a mix of non-renewable, fossil-fuel based sources, such as coal and natural gas, and renewable sources such as biomass, geothermal, hydroelectric, and wind. Energy efficiency and conservation in daily actions can reduce GHG emissions by reducing the amount of electricity or natural gas that PG&E needs to generate, obtain and transmit. Energy efficiency measures for industry sectors include partnerships with companies and businesses to identify high-energy uses, and implementation of retrofits programs tailored to industry practices and facilities.

Measures of the CAP that are expected to result in reductions in GHG emissions through efficiency, energy conservation and renewable energy reductions include:

- Provide incentives (e.g., priority or expedited permit processing) to encourage new development to exceed Title 24 energy efficiency standards, and promote utility-sponsored and statewide incentives for energy efficiency in new construction and remodels
- Work with developers of multi-family properties and nonprofit groups to maximize energy efficiency in new construction
- Encourage the use of CALGreen energy efficiency measures as a preferred mitigation for CAP streamlining
- Encourage the use of energy-efficient or smart-grid-integrated appliances in new development
- Work with PG&E to implement smart grid technology in non-residential properties
- Encourage all non-residential properties to provide buyers or tenants with the previous year's energy use by documenting use through the EPA's EnergyStar Portfolio Manager
- Adopt energy efficiency streamlining provisions that encourage energy retrofits, such as an online building permit application with minimal criteria and review
- Create a special business designation to recognize businesses that complete energy efficiency improvements, and encourage businesses to disclose annual energy use for recognition of the highest efficiencies gained
- Provide self-auditing forms during the tenant improvement process that target buildings 10 years old or older, providing recommendations of potential retro commissioning, retrofits, and deep retrofit opportunities
- Require nonresidential alterations or additions of at least 5,000 square feet or greater in size to comply with minimum CALGreen requirements
- Encourage the use of smart grid, energy-efficient, or Energy Star appliances in new development
- Work with utilities and third-party service providers to encourage new and replacement boilers and water heaters to exceed minimum efficiency standards
- Actively engage the nonresidential sector and work with PG&E to implement deep retrofits and retro commissioning in the existing non-residential building stock
- Promote free and low-cost programs, such as Rightlights, which provides no-cost energy assessments in addition to energy-efficient lighting, refrigeration, and other energy-saving improvements
- Require the construction of any new non-residential conditioned space 5,000 square feet or more, or the conversion of unconditioned space 5,000 square feet or more, to meet a minimum of 50% of modeled building electricity needs with on-site renewable energy sources, or to participate in a power purchase agreement to offset a minimum of 50% of modeled building electricity use, or to

comply with CALGreen Tier 2 energy efficiency requirements to exceed mandatory energy efficiency requirements by 20% or more

- Require all new development to install conduit to accommodate wiring for solar
- Promote on-site renewable energy or distributed generation energy systems in new and existing residential and nonresidential projects. Encourage developers of multi-family and mixed-use projects to provide options for on-site renewable electricity or install distributed generation energy systems, similar to the statewide Homebuyer Solar program
- Update the City's discretionary review guidelines to recommend the use of on-site renewable energy facilities for residential development as a preferred mitigation measure for environmental review and to meet a substantial amount of energy needs with on-site renewable energy systems, including solar photovoltaics or solar water heaters
- Promote the State's CSI-Thermal program, which provides rebates to utility customers who install solar thermal systems to replace water-heating systems powered by electricity or natural gas
- Participate in regional programs to facilitate the bulk purchase of alternative energy equipment (e.g., solar panels through SunShares or similar programs) to defray the cost of installation for interested businesses, institutions, and residents
- Continue to encourage installation of renewable energy systems through the City's participation in PACE and Energy Upgrade programs

Indirect Emissions from Water Use and Wastewater Treatment

Water consumption requires energy to pump, treat, distribute, collect and discharge water as it is used by the community, which results in greenhouse gas emissions. Greenhouse gas emissions also occur as a direct process from wastewater treatment. Conservation and efficient use of outdoor water are the focus of strategies to reduce GHG emissions from these uses. Measures of the CAP that are expected to result in reductions in GHG emissions through water conservation, reclamation and recycling include:

- Continue to support implementation of the Urban Water Management Plan to reduce potable water use by at least 20%
- Revitalize implementation and enforcement of the Water Efficient Landscape Ordinance
- Work with water providers to support the installation of smart water meters on all water accounts in the city
- Create water policies for the stormwater management strategy that seek to capture storm runoff (e.g., bio-swale, rainwater collection, and irrigation programs)
- Continue to implement the City's Water Efficient Landscape Guidelines
- Continue to pursue long-term opportunities to implement the Recycled Water Project in collaboration with the City of San Bruno, the San Francisco Public Utilities Commission, and the California Water Service Company (Cal Water)

Solid Waste Treatment

By reducing the amount of waste sent to landfills, GHG emissions associated with waste disposal can be cut significantly. CAP measures seek to divert waste away from a landfill through increased recycling and the creation of a citywide composting program, and promotion of the capture and use of methane emissions to generate alternative energy. The CAP includes measures to increase recycling and reuse of materials to achieve a 75% diversion of landfilled waste by year 2020, including continued enforcement of the existing

construction and demolition recycling ordinance, requiring 100% of inert waste and 65% of non-inert waste to be recycled from all eligible projects.

Landscaping

Measures of the CAP that will result in reductions in GHG emissions from off-road vehicles and landscape equipment include:

- support for the BAAQMD voluntary exchange program
- exchange and rebate programs for garden equipment
- information on limiting idling time and electric, non-powered, and other energy-efficient lawn and garden equipment in public education efforts, and
- working with applicants through the CEQA review process to reduce construction equipment emissions by encouraging the use of alternatively powered or grid-connected equipment

Impacts and Mitigation Measures

Thresholds of Significance

Section 15064.4 of the CEQA Guidelines emphasizes the lead agency's discretion to determine the appropriate methodologies and thresholds of significance for GHG emissions, consistent with the manner in which other impact areas are handled in CEQA. Appendix G of the CEQA Guidelines does not prescribe specific thresholds, but rather suggests evaluating whether a project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant adverse impact on the environment, or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs

CEQA Guidelines section 15064.4(b) states that, in evaluating the significance of impacts from GHG emissions, the lead agency should consider the following factors, among others:

- the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting
- whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project, and
- the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions

Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of GHG emissions.

The BAAQMD presents its suggested thresholds of significance, along with methods for evaluating compliance, in its 2017 CEQA Guidelines. The 2017 Guidelines recognize that "[n]o single project could generate enough GHG emissions to noticeably change the global average temperature," and that the relevant inquiry for CEQA purposes is whether a project's GHG emissions would be "cumulatively considerable." [27] Accordingly, BAAQMD has set up separate GHG significance thresholds for permitted

[27] The 2017 BAAQMD Guidelines, pageD-1 notes that, "BAAQMD's approach to developing a Threshold of Significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move us towards climate stabilization."

stationary sources and other, non-permitted operational emissions. Project emissions are not deemed "cumulatively considerable" or significant under CEQA if they fall below these thresholds, as described below.

Stationary Source Thresholds

In evaluating the potential significance of GHG emissions from the Project, future GHG emissions from stationary sources that are subject to California's Cap-and-Trade program and Air District-permitted stationary sources associated with the Project are evaluated separately from other non-permitted operational emissions, and compared to separate GHG significance thresholds, in line with the 2017 BAAQMD Guidelines.

Cap-and-Trade Threshold

Pursuant to AB 32, the California ARB has adopted a Climate Change Scoping Plan that outlines the State's strategy to achieve year 2020 GHG emissions limits. One of the key elements of the Scoping Plan is development of a California Cap-and-Trade program that links with other partner programs to create a regional market system, and that caps sources contributing to the majority of California's GHG emissions. The Cap-and-Trade program is a market-based approach to reduce GHG emissions that enables large-scale GHG emitters to reduce their overall emissions by investing in offsetting cleaner fuels and energy efficiencies. CARB uses revenue from these investments to sponsor offsetting projects that result in reductions in GHG emissions. The Cap-and-Trade program addresses specific types of stationary source emission that are subject to cap limits, and allows for purchase and/or trade of emissions credits. The following threshold applies to GHG emissions covered under Cap-and-Trade regulations:

1. Those Project-related GHG emissions from stationary sources subject to the California ARB Cap-and-Trade program are not cumulatively considerable contributions to global climate change and are not considered significant - Emissions that comply with the Cap-and-Trade program are excluded from analysis of GHG emissions against a numerical stationary source threshold.

Permitted Stationary Source Emissions Threshold

The 2017 BAAQMD Guidelines set a GHG significance threshold of 10,000 metric tons (MT) CO2e/year for permitted stationary-source projects. Permitted stationary sources are those processes and equipment that require an Air District permit to operate. Future Air District-permitted GHG emissions associated with the Project would not be deemed cumulatively considerable in and of themselves, if they remain below the following threshold:

2. The Project's contribution to global climate change would be considered cumulatively considerable if its permitted stationary source emissions of GHG were to exceed 10,000 MT CO2e/year.

Thresholds for Other Operational Emissions

Operational GHG emissions associated with the Project, but not subject to the Cap-and-Trade program and not associated with a permitted stationary source are measured against land use-based significance thresholds. BAAQMD Guidelines establish three independent thresholds of significance for evaluating the potential significance of these operational GHG emissions. These thresholds are based on: 1) a determination of compliance with a qualified GHG Reduction Strategy; 2) mass emissions of carbon dioxide equivalent (CO2e) per year; and/or 3) a GHG emissions efficiency threshold based on emissions per service population.

Compliance with Qualified GHG Reduction Strategy

A portion of the operational GHG emissions associated with the Project will be consistent with a Qualified GHG Reduction Strategy (i.e., the City of South San Francisco Climate Action Plan (CAP), as more fully described in the Regulatory Setting, above). The CAP is intended, in part, to streamline project-level approval

processes for those projects that demonstrate consistency with the CAP, and contains a list of emission reduction measures that project sponsors may apply to their projects to demonstrate this consistency. Although the CAP specifically excludes energy use at the Genentech Campus, direct landfill emissions and emissions covered under Genentech Cap-and-Trade rules, the CAP inventory does includes Genentech GHG emissions from solid waste disposal, water usage and treatment, landscaping, and mobile sources. These categories of emissions are therefore subject to the reduction measures specified in the CAP. The following threshold applies to such GHG emissions:

3. Those Project-related GHG emissions that are fully covered under the City's Qualified GHG Reduction Strategy (i.e., the CAP) do not represent a cumulatively considerable contribution to global climate change and are not considered significant - Emissions that comply with the CAP are excluded from analysis of GHG emissions against a numerical land use-based threshold.

Numerical GHG Significance Thresholds

The remaining GHG emissions attributable to the Project that are not subject to the Cap-and-Trade program, are not from a permitted stationary source, and are not covered under the CAP, are measured against numerical significance thresholds. The numerical efficiency metric thresholds used in this EIR represent the amount of GHG reductions required from land use-based projects needed to help achieve the state GHG emission targets by year 2020 as defined under AB 32, and to help achieve the state GHG emission targets by year 2030 as defined under SB 32 and EO B-30-15.

Emission Threshold Pursuant to AB 32

The GHG reduction target established for the state pursuant to AB 32 is defined as the reduction of statewide emissions necessary to re-achieve 1990 GHG emissions levels from the land use sector, by year 2020 (taking into account the difference in projected 2020 statewide population and employment levels). In its CEQA Guidelines (2017)[28], BAAQMD calculated a district-level GHG project significance efficiency threshold for individual land use projects by dividing the AB 32 GHG target for land use development in California (after accounting for all regulatory measures included in the AB 32 Scoping Plan), by California's estimated 2020 population and employment levels. The resulting GHG threshold attributes a "fair share" of the "gap" in GHG emission reductions necessary to meet the year 2020 target to each proposed development project in BAAQMD's jurisdiction. See BAAQMD CEQA Guidelines (2017), pp. D-22, D-27, D-28. Moreover, BAAQMD determined that this approach would allow the Bay Area to meet its specific areawide goal of 1.6 million metric tons/year GHG reductions in order to meet 2020 GHG targets. See BAAQMD CEQA Guidelines, p. D-28. Accordingly, if a new project will have GHG emissions at or below 4.6 metric tons/year GHG emissions per service population, BAAQMD has concluded that the project will allow the District to meet its 1.6 million metric tons/year GHG reduction target. Based on this BAAQMD methodology, the following threshold applies to the Project's land use-based GHG emissions for year 2020:

4. The Project's contribution to global climate change is considered cumulatively considerable if its land use-based GHG emissions exceed an efficiency threshold of 4.6 MT of CO2e per service population (project jobs + project residents) at year 2020.

Emissions Threshold Pursuant to SB 32/Executive Order B-30-15

Recently enacted SB 32 addresses GHG emissions reduction goals through 2030. To estimate a significance level for land use projects extending beyond 2020 (like the Project), it is necessary to extrapolate the 2020-based threshold (above) established in the BAAQMD CEQA Guidelines to account for the trajectory of anticipated land use related reductions required to meet the state's 2030 GHG reduction target. The GHG reduction target established for the state pursuant to SB 32 and EO-B-30-15 is defined as the reduction of

[28] BAAQMD, California Environmental Quality Act: Air Quality Guidelines, May 2017. Accessed at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

statewide emissions necessary to achieve a 40% reduction from the 1990 baseline year GHG emissions levels, by year 2030 (taking into account the difference in projected 2020 statewide population and employment levels). Applying the same BAAQMD methodology described above for assessing consistency with the District's areawide 2020 GHG reduction goals, the following threshold applies to the Project's land use-based GHG emissions for year 2030:

5. The Project's contribution to global climate change is considered cumulatively considerable if its land use-based GHG emissions exceed an efficiency threshold of 2.7 MT of CO2e per service population (project jobs + project residents) at year 2030.

Methodology

The analysis of future GHG emissions resulting from construction and operation of the Project has been prepared consistent with guidelines and methodologies as prescribed by the Bay Area Air Quality Management District (BAAQMD), the California Air Resources Board (ARB) and the US Environmental Protection Agency (US EPA), as described above. Consistent with CEQA requirements, this GHG analysis evaluates anticipated emissions of GHGs from both construction and operational activities (including traffic generated from the Project), and compares the anticipated operational emissions to the significance thresholds indicated above. Although there are no significance thresholds for construction-related GHG emissions, the Project's construction emissions are quantified for informational purposes. For each category of emissions type, emissions are estimated based on data for the Project, as presented in detail in **Appendix 10A**.

Stationary Source Emissions Subject to Cap-and-Trade

GHG 1: The Project's stationary source emissions will not conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of GHGs. Specifically, the Project will comply with the CARB Cap-and-Trade program, which is a method to achieve statewide reduction goals as set forth in AB 32. (**Less than Significant with Regulatory Requirements**)

This following analysis assumes that the Project will include a net addition of the following stationary sources of GHG emissions that are specifically covered under the CARB Cap-and-Trade program:

- Miscellaneous natural gas use,
- A combined heat and power plant (CHP – or co-generation facility), and
- Four new natural gas-fired boilers (boilers with maximum heat capacity greater than 10 million Btu/hr)

Cap and Trade Program

The California ARB has adopted a Climate Change Scoping Plan, which outlines the State's strategy to achieve the 2020 GHG limit set by AB 32. This Scoping Plan includes a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California, improve the environment, reduce dependence on oil, diversify energy sources, save energy, create new jobs and enhance public health. One of the key elements of the Scoping Plan is development of a California Cap-and-Trade program that links with other partner programs to create a regional market system, and that caps sources contributing the majority of California's GHG emissions.

California's Cap-and-Trade program was designed by the California ARB as a market-based approach to reduce GHG emissions. Cap and Trade enables industrial emitters to reduce overall emissions by investing in cleaner fuels and energy efficiencies. Under the Cap-and-Trade program, enforceable limits are set on the amount of emissions that can be produced by large industrial emitters (known as a "cap"), and each emitter receives permits for the emissions allowable under their cap. California holds quarterly sales (or auctions) of

emissions allowances from a permit reserve (the Allowance Price Containment Reserve), and emitters that do not use all their permit cap can auction their reserves to other emitters (i.e., "trade"), who can use the additional permits to exceed their cap.[29]

CARB collects revenue from the permit auctions, and uses this revenue to invest in offsetting projects that result in reductions in greenhouse gas emissions. The Climate Action Reserve (previously the California Climate Action Registry or California Registry) has developed standardized GHG reduction project protocols, serving as a registry for GHG reduction projects, and tracking GHG offsets. By investing in standardized and conservative quantification methodologies vetted by public and private stakeholders and approved by the Climate Action Reserve, companies and organizations can be issued credits to reflect the offset mitigation value of their investments.

Since 2006, Genentech has been a voluntary partner in the California Climate Action Registry/Climate Action Reserve, and was among the first bio-pharmaceutical companies to do so. As such, Genentech has received permits for its emission levels allowed under their cap, may purchase additional emissions allowances from the permit reserve or from the unused reserves of other emitters, and/or may auction its unused permit reserves to other emitters.

Covered Emissions

The types of GHG emissions that are covered under the Cap-and-Trade program include direct stationary-source GHG emissions that result from the combustion of fossil fuels, chemical and physical processes, vented emissions, geothermal emissions, and emissions from suppliers of carbon dioxide and CH4 and N2O emissions from biogenic fuel combustion. The Project will result in an increase in these "covered" Cap-and-Trade emissions as a result in increased use of natural gas, the addition of up to four new natural gas-fired boilers and the potential construction of a combined heat and power plant (CHP). These Cap-and-Trade covered emissions attributable to the Project are as described below and summarized in **Table 10-2**.

Natural Gas Usage

GHG emissions from increased natural gas use from permit-exempt boilers (boilers with maximum heat capacity of less than 10 million British thermal units per hour [MMBtu/hr]) was calculated based on projected increases in natural gas usage attributed to the Project, and emission factors from the Federal Mandatory Greenhouse Gas Reporting Regulation.

Combined Heat and Power Plant

Combustion GHG emissions from the CHP are estimated based on the emission factors from the Federal Mandatory Greenhouse Gas Reporting Regulation. Emissions from the CHP plant are included in the analysis to provide a conservative estimate of potential emission sources, but Genentech has not committed to installing a CHP plant as part of the Project.

Miura Boilers

Combustion GHG emissions from the four new Miura boilers are estimated based on the emission factors for these sources, as derived from the Federal Mandatory Greenhouse Gas Reporting Regulation.

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[29] On January 1, 2014, the California Cap-and-Trade Program and Québec Cap-and-Trade System officially linked, which enabled the mutual acceptance of compliance instruments issued by each jurisdiction, and the jurisdictions to hold joint auctions of greenhouse gas (GHG) allowances. As part of California's Cap-and-Trade Program and the Québec Cap-and-Trade System, the California Air Resources Board (CARB) and Québec's Ministry of Sustainable Development, Environment and the Fight against Climate Change (MDDELCC) will hold joint GHG allowance auctions to allow market participants to acquire GHG allowances.

Table 10-2: Emission Sources Covered by Cap-and-Trade

Emissions Category	GHG (MTCO2e)
Misc. Natural Gas Combustion (see Appendix 10A, Table GHG-8)	17,320 [1]
CHP (see Appendix 10A, Table GHG-7	33,734
Miura Boilers (see Appendix 10A, Table GHG-6)	21,831
Total:	**72,885**

Source: Ramboll Environ, Appendix 10A, Table GHG-16, December 2017

Notes:

1. This source category includes emissions from smaller boilers as well as other miscellaneous sources of natural gas use.

Regulatory Requirements

Stationary source emissions are regulated through the Cap-and-Trade program.

Regulatory Requirement GHG 1 – Cap and Trade: Genentech is committed to minimizing emissions from stationary sources and continuing participation in the Cap-and-Trade program. Pursuant to this program, Genentech must meet the requirements by ensuring permits (through increased cap or trade) are obtained for incremental growth in these types of stationary source emissions. The Cap-and-Trade allowances must meet or exceed stationary source emission levels as reported to CARB pursuant to mandatory GHG reporting requirements. Compliance with the Cap-and-Trade program can be verified through publicly accessible data maintained by the California Air Resources Board, which includes statewide and facility-specific information on emissions reporting, offsets and allocations, and facility compliance with the Cap and Trade Program[30].

Reliance on the Cap-and-Trade program to address these specific types of stationary source emissions is consistent with the City's Climate Action Plan (CAP), which indicates that emissions from such stationary sources are most effectively addressed and regulated by the BAAQMD, or by federal and state programs. The volume of emissions resulting from energy use at Genentech facilities subject to the Cap-and-Trade program was specifically excluded from the City's GHG inventory and forecast for the following reasons:

- These facilities are subject to air quality and emissions standards set by the US Environmental Protection Agency (EPA), CARB and the BAAQMD. The CAP's approach of excluding energy use from sources that are outside of the City's jurisdictional control is consistent with ICLEI's Draft Community-Wide Protocol.
- The Cap-and-Trade program provides multiple avenues for compliance, including options that will be shaped by market factors and the preferences of the individual participating entities. The City is therefore limited in its ability to estimate how facilities subject to Cap-and-Trade will comply with the program. The inclusion of such facilities, lacking an accurate reflection of how Cap-and-Trade will reduce GHG emissions, would make it difficult for South San Francisco to set an achievable GHG reduction target that matches the AB 32 goal, or to use the CAP for future CEQA tiering or streamlining.
- The Cap-and-Trade program is a method to achieve statewide reduction goals set forth in AB 32. Excluding emissions from facilities subject to the cap-and-trade program does not conflict with the overall AB 32 reduction target, but instead allows the City to focus on the emissions sectors that are otherwise not as directly influenced by AB 32.

[30] Accessed at https://ww3.arb.ca.gov/cc/capandtrade/public_info.pdf

- Excluding energy used at facilities regulated by Cap-and-Trade (e.g., Genentech) more accurately reflects the electricity and natural gas use from non-residential customers in South San Francisco, and allows the City to focus on actions that are within its control.[31]

Mitigation Measures

No further mitigation is required.

Permitted Stationary Source Emissions

GHG 2: The Project's stationary source emissions that are not otherwise addressed under the Cap-and-Trade program will not exceed 10,000 MT of CO2e per year, and thus will not contribute to global climate change at a level that is considered cumulatively considerable. (**Less than Significant**)

The Project's anticipated new emergency generators are stationary emissions sources that are individually permitted by the BAAQMD and are not covered under Genentech's Cap-and-Trade Program, and therefore are evaluated under the 10,000-MT CO2e threshold.

Emergency Generators

Currently, the Project area has 57 total emergency generators serving the existing approximately 4.7 million square feet of building space within the Campus. Assuming that new emergency generator needs will be proportional to new building space, this analysis conservatively anticipates the eventual need for an additional net increase of 52 emergency generators to serve the approximately 4.3 million square feet of building space as proposed pursuant to the Project. Equipment specifications for the 2-MW Model 3516C Caterpillar generator have been used in this analysis, as this model generator has been used as representative for the Project because this model has been permitted for the last three generators installed at the Campus. Based on the detailed calculation presented in the GHG Appendix to this EIR, **Table 10-3** shows the estimated GHG emissions attributed to new emergency generators pursuant to the Project.

Table 10-3: Operational GHG Emissions from New Emergency Generators

GHG Emissions Per Emergency Generator (MTCO2e/yr)	Number of Generators	Total Net New Emissions (MTCO2e/yr)
42	52	2,200
	Stationary Source Emissions Threshold:	10,000
	Exceed Threshold:	**No**

Source: Ramboll Environ, Appendix 10A, Table GHG-5, December 2017

CO2e emission factor obtained from the U.S. Energy Information Administration: http://www.eia.gov/tools/faqs/faq.cfm?id=307&t=11

Mitigation Measures

No mitigation measures are required. GHG emissions from those permitted stationary sources not covered under Genentech's Cap-and-Trade rules (i.e., emergency generators) do not exceed the stationary source threshold.

[31] City of South San Francisco, *Climate Action Plan,* Appendix C (page 123), February 2014

Operational Emissions Fully Covered under the SSF CAP

GHG 3: The Project's operational emissions will not conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of GHGs. Specifically, the Project is consistent with the City's Qualified GHG Reduction Strategy (i.e., the SSF Climate Action Program, or CAP). Those operational-related GHG emissions that are fully covered under the SSF CAP do not represent a cumulatively considerable contribution to global climate change, and emissions that comply with the CAP are excluded from analysis of GHG emissions against the numerical land use-based threshold. (**Less than Significant**)

Under the BAAQMD Guidelines, operational GHG emissions that comply with a Qualified GHG Reduction Strategy are deemed less than significant under CEQA. As indicated in the South San Francisco Climate Action Plan (CAP, page 25), the SSF CAP follows both the State and BAAQMD CEQA Guidelines by incorporating the standard elements of a Qualified GHG Reduction Strategy. Appendix C of the SSF CAP provides further, detailed information demonstrating that the SSF CAP meets the requirements and criteria for a Qualified GHG Reduction Strategy. Because the SSF CAP satisfies the requirements of a Qualified GHG Reduction Strategy, the CAP allows the City to determine that future development projects have a less than significant impact on GHG emissions, provided such projects comply with the CAP.

As demonstrated below, a portion of the Project's operational GHG emissions are fully consistent with the City of South San Francisco's CAP. Although the CAP specifically excluded energy use and stationary source emissions at the Genentech Campus from its inventory, the CAP inventory does include Genentech's GHG emissions from indirect operational source including mobile sources, water and wastewater use, and solid waste disposal. These categories of emissions are subject to reduction measures as specified in the CAP. GHG emission sources of the Project that are covered by, and in compliance with the CAP are discussed below, and summarized in **Table 10-4**.

Mobile Sources

GHG emissions from the Project's additional employee and vendor vehicle trips were calculated based on the increase in traffic as presented in the Traffic and Transportation chapter of this EIR. The Project's traffic-related mobile source emissions were evaluated using the emission factors from EMFAC 2014 for the vehicle fleet mix in San Mateo County.

Water and Wastewater Use

Indirect GHG emissions from water use include indirect emissions from electricity used to deliver and treat water, and emissions from wastewater treatment. Water supply emissions were calculated by multiplying the projected increase in water use attributed to the Project, by CalEEMod's default values for water electricity intensity for Northern California. This product results in the quantity of electricity required to deliver and treat water supplied to Genentech. This value is then multiplied by the PG&E electricity emission factor to calculate the associated GHG emissions.

Similarly, GHG emissions associated with electricity consumption for wastewater treatment are calculated first by multiplying the Project's projected increase in wastewater flows by CalEEMod's default values for waste electricity intensity for San Mateo County and by the PG&E electricity emission factor. Additional GHG emissions that occur at the wastewater treatment facility were also added.

Solid Waste Disposal

GHG emissions from waste disposal include CO2 and CH4 emissions from waste decomposition at the landfill. These emissions were estimated using emission factors from CalEEMod, and projected increases in waste generation for the Project.

Table 10-4: Emission Sources Covered by the South San Francisco Climate Action Plan

Emissions Category	Net New GHG (MTCO2e)
Mobile Sources (see Appendix 10A, Table GHG-14f and -14g)	25,229
Indirect Water Use (see Appendix 10A, Table GHG-11)	50
Wastewater Treatment (see Appendix 10A, Table GHG-12)[1]	146
Solid Waste Disposal (see Appendix 10A, Table GHG-13)	424
Landscaping	0.1
Total:	**25,849**

Source: Ramboll Environ, Appendix 10A, Table GHG-16, December 2017

Notes:

1. Emissions obtained from CalEEMod run using land use information shown in Table GHG-1

These indirect operational emissions, which are covered by the City's CAP, are excluded from those types of emissions evaluated against the numerical land use-based thresholds (see Impacts GHG-4 and GHG-5, below), and are deemed not significant under CEQA.

Consistency with South San Francisco Climate Action Plan

Beginning in 2004, Genentech has established company-wide sustainability goals pursuant to its privately developed Sustainability Strategic Plan. Genentech's sustainability goals address each of the key areas included in the SSF CAP, including mobile source reductions, water and wastewater use, waste to landfill and other key sustainability program areas. These sustainability goals have been developed in multi-year cycles, including the now-current goals for year 2015 through 2020. These goals have evolved over time to track performance and achievement, to build upon prior successes and overcome setbacks, and to respond to science-based models that accurately capture Genentech's overall environmental footprint.[32]

A brief summary of these sustainability goals, Genentech's efforts towards their achievement, and a comparison to CAP implementation measures and programs, is provided below.

TDM and Other Mobile Source Emission Reductions

Starting in 2006, Genentech began implementation of a TDM program (known as "gRide"), that includes initiatives such as GenenBus commuter service, local shuttles and private ferry service, and transit subsidies and incentives, accompanied by comprehensive marketing and communications. The original goal of Genentech's gRide TDM program was to increase the percentage of employees using transit, rideshare, walking and bicycling to more than 25%, consistent with the City of South San Francisco's TDM goal in effect at that time. As of the Fall 2017 annual survey,[33] approximately 42% of Genentech employees now commute by modes other than driving alone, greater than the currently effective 30% City requirement (for projects in the Business and Technology park district at FARs of between 0.51 and 0.69). This GHG analysis relies on the Project commitment to limit net new AM peak hour trips pursuant to a Trip Cap equal to the total number of AM peak hour single-occupant vehicle trips as assumed in the 2007 MEIR, while exceeding building space and employee assumptions of that 2007 MEIR. To accomplish this Trip Cap, Genentech has established a goal of achieving a 50 percent TDM trip reduction rate by buildout of the Master Plan Update. Genentech will need

[32] Genentech, Sustainability Goals and Performance, accessed at: https://www.gene.com/good/sustainability/goals-and-performance

[33] Genentech Annual Report for 2017, Attachment 1, *South San Francisco Campus Mode Share and Parking Report*, Fall 106 Survey, prepared by Nelson|Nygaard, May 2017

to grow its current TDM program in capacity and use commensurate with new development, and expand capacity and use of TDM programs to achieve this Campus-wide alternative mode split. The Master Plan Update also includes a proposed Trip Cap to limit Project-generated vehicle trips during the AM peak hour. Both the TDM rate and the Trip Cap will exceed the mobile source GHG emission reductions assumed pursuant to the City's CAP.

The strategies included in Genentech's updated TDM Plan are designed to build upon the success of existing programs, provide for improvement where needed, and to offer options for new measures that further increase employee travel choice and improve the user experience. The following is a brief summary of proposed TDM strategies:

- GenenBus: Genentech will continue to operate commuter GenenBus routes for employees who live throughout the San Francisco Bay Area, connecting employees from Alameda, Contra Costa, Marin, Santa Clara, San Francisco, San Mateo and Solano Countries to the South San Francisco Campus
- DNA Shuttle Service: Genentech will continue to operate the intra-campus DNA Shuttle routes for employees to travel between Campus buildings, parking facilities and GenenBus stops
- Ferry Service: Genentech has initiated, and will continue to offer a standalone ferry service to markets unserved by public ferry operators, using private high-speed vessels to provide exclusive ferry service for commuting employees
- Transit Subsidy: Genentech will continue to offer a reimbursement program to cover certain employee out of pocket costs for riding public transit to work
- Carpool and Vanpool Incentives: Genentech will continue to offer cash incentive to employees who drive carpools or vanpools to Campus, and carpools and vanpools qualify for preferred parking. Genentech will continue to provide ride-matching services to ease the burden of locating carpool partners by connecting employees who live and work near each other and have similar work hours
- Car Share: Genentech may pursue implementation of car sharing programs that allow for on-demand access to a shared fleet of vehicles on an as-needed basis, potentially working with third-party vendors for on-site placement of car share vehicles
- Guaranteed Ride Home Program: Genentech will continue to offer a Guaranteed Ride Home program to provide a way for employees who commute to work by transit, carpool, vanpool, biking or walking, to travel home when an unexpected need arises
- Flexible Work Arrangements: Genentech employees will continue to have flexibility in their daily work schedules, including working a compressed workweek, telecommuting and other flexible work arrangements
- Biking and Walking Incentives: Genentech will continue to provide incentives to employees who choose to walk or bike to work. The purpose of the incentive is to dissuade drive alone commuting and promote active modes
- On-Site Bicycle Facilities: Genentech buildings will continue to provide locker rooms and showers to serve bicycle commuters who wish to shower or change upon arriving at work
- Bicycle Network Improvements: Genentech will work with the City of South San Francisco to identify and potentially help fund important bikeway improvements
- Preferential Parking for Electric and Alternative-fueled Vehicles: Genentech will continue to offer preferred parking for vehicle types that reduce GHG emissions as compared to traditional autos

Mobile source reductions of GHG emissions are fully addressed in the CAP (primarily through required implementation of TDM measures). The Project's TDM program is in full compliance with (and exceeds) the

GHG emission reduction strategies of the SSF CAP, and the Project will therefore have a less than significant impact on GHG emissions from mobile sources.

Water Conservation

Since 2004, Genentech has been committed to improving its water use efficiency, particularly through efficiencies in its manufacturing operations. Significant production efficiencies have been achieved through technological advancements in manufacturing and purification processes, and these advancements were largely responsible for substantial water use efficiencies (e.g., a reduction in manufacturing water use by 87% per kg of product, between 2009 and 2014). The current water conservation goal presented in Genentech's Sustainability Plan is for a 20% overall water reduction by year 2020, as compared to water use levels in 2010. This is consistent with Measure 6.1 in the 2014 SSF CAP, which calls for a reduction in potable water use by at least 20%. The SSF CAP notes that this goal will be reached through a combination of project-level qualitative measures consistent with SSF's Urban Water Management Plan.[34] Some of the individual projects pursuant to both Genentech's water conservation goal and water conservation measures in the SSF CAP include:

- Irrigation Savings: Campus-wide include letting lawns go 'gold', prioritizing native, drought tolerant planting for newly landscaped areas, replacing some existing turfed areas with native, drought tolerant plants, and using high-efficiency drip and spray irrigation system with weather controls.
- Corporate Awareness Initiatives: Genentech's Strategic Plan will continue to include water conservation awareness initiatives such as establishment of an annual water awareness month, posted water conservation information on websites, direct communications to employees about how they can reduce water use, and continued participation in the "Connect the Drops" campaign in support of more sustainable management of water resources throughout California.
- Recycling Programs and Projects: Genentech will continue its commitment to use of, or preparation for use of, recycled water for a variety of non-potable water needs. Example on-going recycling projects on the Campus include use greywater from showers and sinks for use in irrigation and toilets, and installation of recycled water distribution lines (i.e., "purple pipes") throughout the Campus to enable reclaimed water to be transported for internal reuse as it may become available in the future.
- Pilot Programs for Industrial Reuse of Recycled Water: Genentech anticipates continuation of pilot programs and solutions to reuse and recycle water internally (for example, as make-up water in cooling towers), and expects that the expansion of such solutions will drive significant water savings.
- Regional Wastewater Recapture: One of the more promising recycling projects that Genentech is currently exploring involves tapping into the regional wastewater outfall main line that delivers treated wastewater from the treatment plant to its ultimate disposal outfall in the Bay. This high-pressure main line runs through the center of the Campus, and carries all the treated wastewater exiting from the City's treatment plant. Under this idea, Genentech may be able to siphon off a portion of this treated effluent prior to its disposal in the Bay, provide additional on-site treatment (or "polishing") of this wastewater flow, and use this treated effluent in its industrial applications at the Campus. If Genentech is successful in designing such a project, and it can be demonstrated to be feasible, cost-efficient and environmentally sound, this project would have the benefits of not only substantially reducing potable water demands needed for on-site industrial applications, but would also commensurately reduce the amount of effluent disposal into the Bay.

[34] California Water Service, 2015 Urban Water Management Plan: South San Francisco District, June 2016. Accessed at: https://www.calwater.com/docs/uwmp2015/bay/South_San_Francisco/2015_Urban_Water_Management_Plan_Final_(SSF).pdf

Indirect GHG emissions attributed to water use and wastewater treatment are fully addressed in the SSF 2014 CAP. Genentech is now, and will continue to implement numerous projects that will achieve water savings and commensurately result in wastewater treatment and disposal savings. The Project's water conservation and water recycling programs are in full compliance with the GHG emission reduction strategies of the SSF CAP, and the Project will therefore have a less than significant impact related to indirect GHG emissions from water use and wastewater treatment.

Solid Waste Disposal

Genentech also remains committed to reducing waste generation and reducing its waste-to-landfill stream by minimizing consumption and looking for new opportunities for reuse and recycling. For its biotechnology-based waste materials, Genentech's Green Bio-Pharma program focuses on reducing the environmental impact generated by its lab operations by creating recycling initiatives for non-standard materials, and sourcing more environmentally-friendly chemicals. The current waste reduction goal presented in Genentech's Sustainability Plan is to target an 80% absolute reduction in waste to landfill per employee by 2020, as compared to 2010 levels. Some of the individual projects pursuant to this goal include:

- Increased Recycling and Composting: Most landfill reduction achievements have come from increased recycling and composting efforts. The amount of food waste now composted has dramatically increased, with employee-based waste assessment and monitoring efforts;
- Reduction and Reuse: Genentech strives to minimize the amount of materials brought into Campus and to maximize reuse. A key example in the dining process includes a team of employees tasked with right-sizing food purchases for cafeteria and catering operations, and streamlining process for donating surplus food to people in need.
- Green Bio-Pharma: The Genentech Green Bio-Pharma program has had substantial success in programs to provide off-site recycling of materials used in manufacturing processes. Program elements include diverting bioprocess lab waste (i.e., containers, lids and other plastic products) from landfills by providing for their reuse on Campus, and adding disposal containers and reminder signage at lab space benches for recycling of nitrile gloves. Genentech also holds lab supply "sidewalk sales", where excess and/or waste equipment and supplies are offered to schools and nonprofits, diverting such waste from landfill.

Genentech expects to meet its 10-year goal of 80% absolute reduction in waste to landfill per employee by 2020. Indirect GHG emissions attributed to waste disposal are fully addressed in the SSF 2014 CAP. Genentech's goal is consistent with Measure 5.1 of the SSF CAP, which aims to increase the recycling and reuse of materials to achieve a 75% of landfilled waste by 2020. Genentech is now, and will continue to implement numerous projects that will reduce waste generation and landfill requirements. The Project's waste diversion programs are in full compliance with the GHG emission reduction strategies of the SSF CAP, and the Project will therefore have a less than significant impact related to indirect GHG emissions from waste disposal.

Mitigation Measures

No mitigation is required. The Project's indirect, operational GHG emissions attributable to mobile sources, water use, wastewater treatment and waste disposal are fully addressed in the City of South San Francisco's Climate Action Plan (a Qualified GHG Reduction Strategy). The CAP allows the City to determine that future development projects will have a less than significant impact on CAP-related GHG emissions if they comply with CAP GHG reduction measures.

Other Operational GHG Emissions by Year 2020

GHG 4: The Project will not generate land use-based GHG emissions, other than those emissions addressed pursuant to the City CAP, that exceed the efficiency threshold of 4.6 MT of CO2e per year per service population (Project jobs) at year 2020. The Project's land use-based GHG emissions would not contribute significantly to global climate change, and this impact is considered less than cumulatively considerable. (**Less than Significant**)

As more fully described above (under Impacts GHG-1 through GHG-3, above), certain operational emissions of the Project are excluded from the types of emissions evaluated against numerical land use-based thresholds. The types of GHG emissions excluded from this analysis include all emissions otherwise addressed under Genentech's participation in CARB's Cap-and-Trade program, all stationary sources evaluated under the permitted stationary-source threshold and all emissions otherwise addressed under the South San Francisco Climate Action Plan.

The types of GHG emissions that remain, and that are compared to the land use-based threshold of 4.6 MT of CO2e per year, include emissions from indirect electricity use, and emissions from process use of CO2 and HFC gas. Emissions from these sources in excess of the 4.6 MT of CO2e per year threshold could potentially impede attainment of statewide GHG reduction targets for 2020 established under AB 32.

Indirect Electricity Emissions

The Project includes use of increased electricity that will not cause direct emissions on-site, but will cause increased GHG emissions to be emitted at utility plants to produce the electricity that is used by the Project. The Project's electricity use was calculated by scaling known existing (as of 2016) electricity use by land use type within the current Campus, up to the total for all land uses as projected pursuant to the Project, as shown in **Table 10-5**, below.

Table 10-5: Project's Net Increase in Electricity Use

Land Use Type	Square feet	Electrical Demand (kW hours per SF)	Project's Net Increase in Electricity Demand
Labs / R&D	1,564,000	50	78,200,000
Office	2,424,000	12	29,088,000
Amenity	305,000	15	4,575,000
Total:			**111,863,000**

Source: Ramboll Environ, Appendix 10A, Table GHG-10, December 2017

The increased electricity demand associated with the Project was then multiplied by PG&E's CO2 emission factors for energy production at year 2020, to calculate the associated GHG emissions.

HFC and CO2 Process Gas Usage

The Project is expected to generate additional GHG emissions from HFC use in air conditioning, cooling and fire suppression equipment, and from CO2 in process gas usage. Project HFC and CO2 process gas usage was calculated by scaling known GHG emissions attributed to existing (as of 2016) laboratory land use, up to the total laboratory land uses as projected pursuant to the Project. CalEEMod default values for CH4 and N2O emission factors were then applied to the increased HFC and CO2 use.

Total GHG Emissions from Land Use Sources

For each of these land use-based GHG emissions categories above, emissions are estimated based on data for the Project, as shown in **Table 10-6**, below. Construction emissions amortized over the project lifetime (assumed at 40 years, consistent with Genentech's historical data and future projections for building operational lifespans) are included to compare the "worst-case" annual emissions to the applicable GHG emissions threshold.

Table 10-6: Net New Emission Sources, Compared to the Year 2020 Land Use Threshold

Emission Category	Net New GHG (MTCO2e/yr)
Construction (see Appendix 10A, Table GHG-16)	1,321
Indirect Electricity (see Appendix 10A, Table GHG-10)	14,845
HFC Gas Use (see Appendix 10A, Table GHG-15)	960
Process CO2 Gas Use (see Appendix 10A, Table GHG-15)	552
Total	**17,678**
Service Population (net new jobs, no residential)	15,070
MTCO2e per Service Population	1.17
2020 Threshold (MTCO2e/yr/service Population)	4.60
Exceed Threshold?	**No**

Notes:

The Project Description, Table 3-7 projects the total net new employment pursuant to the Project at approximately 15,000 jobs (12,550 seated workers, or headcount + 2,470 consultants, service workers and visitors

Source: Ramboll Environ, Appendix 10A, Table GHG-16, December 2017

Potential Emission Reductions of the Project

The total GHG emissions resulting from indirect electrical sources and process gas use as presented in Table 10-6 above are considered conservative or "worst-case" emission values as they are based on a projection of current (2016) use factors per land use type, and applied to the Project's increase in these land uses. However, pursuant to Genentech's current sustainability goals, Genentech is targeting a voluntary 30% absolute reduction in CO2 emissions from on-site energy use as compared to 2010 levels. Some of the individual initiatives pursuant to this goal include the following.

Green Building Design

Genentech's latest buildings have implemented sustainability ideas and strategies from a variety of sources, including:

- development of a Sustainability Design Checklist based on LEED4 NC (New Construction) to guide the identification of sustainable design areas for evaluation and implementation
- becoming an early partner in the U.S. Green Building Council Northern California Building Health Initiative
- participating in the Department of Energy's Facility for Low Energy Experiments in Buildings (FLEXLAB) program
- achieving LEED Gold certification that recognizes best-in-class green building practices, and

- using WELL Certification, which is the first building standard to focus on the health, productivity, and wellness of the people in the buildings by evaluating various aspects of a healthy building

The most recent building additions to the Campus demonstrate Genentech's commitment to a sustainable campus environment that enhances health, comfort and performance, while minimizing resource consumption. The Master Plan Update anticipates that every new building and Campus improvement will:

- be designed to respect the integrity and biodiversity of natural systems on the Campus
- employ architectural design methods aimed at controlling solar gain, including the use of solar shading devices, white roofing materials and building orientation
- utilize high recycled-content building materials and integrate energy-efficient and water-conserving systems
- utilize landscape with native and drought-tolerant plants
- include bio-swales or similar measures to control rainwater runoff
- be located on sites served by existing infrastructure; and
- will take into account opportunities to support public and alternative transportation modes

Not every new building to be constructed pursuant to the Project will have the same opportunities to integrate sustainability into their design, construction and operation. However, these initiatives demonstrate Genentech's commitment to sustainable, green building design and sustainable campus environments that enhance health, comfort and performance.

Directive for Substances of Concern

This Genentech (Roche) Directive provides a common basis for complying with international and national regulations and conventions, and the gradual phasing-out of concerned substances adversely affecting the ozone layer and the climate. Genentech's Directive K6 requires eliminating the use of substances that have a negative impact on the environment caused by ozone depletion, global warming or persistence in the atmosphere with potential long-term negative effects. For Genentech, the K6 Directive requires that use of all chlorofluorocarbons (CFCs) and hydro-chlorofluorocarbons (HCFCs) be eliminated by 2018, and use of all hydrofluorocarbons (HFCs) be eliminated by 2022.

Onsite Solar Program

Genentech has initiated a solar panel installation program for the Campus that has the potential to generate over 6 million watts of power during peak production. During sunny hours, this system of solar panels could potentially provide up to 25% of on-Campus power needs. The program involves installation of more than 16,000 solar power panels throughout the Campus, covering approximately 277,000 square feet of roof area. The solar panels system could produce up to 9.7 million kWh annually, and as many as 36 electric car charging-stations could be connected to this system.

Site Utility Project

Genentech has initiated construction of a Site Utility Project that incorporates the latest technologies and high-efficiency system designs for industrial cooling and building air conditioning. This Site Utility Project includes installation of a Campus-wide looped pipe system for refrigerated water distribution, installation of new industrial chillers, and replacement of air conditioning equipment in all buildings on Campus. The environmental performance goal of the project targets a 50% reduction in energy used to produce refrigeration components of process cooling and air conditioning throughout all Campus buildings. The project design optimizes use of the latest available engineering technologies to result in significant

sustainability benefits. The first new chiller has been installed, meeting expectations of performance. Construction of the entire project is anticipated to run through 2019.

Combined Heat and Power (CHP) Plant

Genentech is exploring an option of installing a new combined heat and power (CHP) plant on Campus. Potentially, this CHP would be a cogeneration plant that would use a natural gas power station to generate electricity for Campus use and, rather than releasing by-product heat from this facility into the environment, use the residual process to heat water needed for industrial manufacturing and lab operations efficiently. Such a facility would increase use of natural gas (as analyzed above), but could substantially reduce direct electrical consumption at the Campus (perhaps by as much as 70 million kw/year), and offset a substantial portion of the electrical demands of new Campus growth.

Mitigation Measures

No mitigation is required. As indicated in Table 10-6, even under conservative assumptions regarding energy demand and process gas use, the Project would not exceed the service-based efficiency threshold for land use-based GHG emissions by year 2020. Operation of the Project would not exceed the threshold for GHG emissions per service population, and would result in a less than significant impact. Further, Genentech is now implementing numerous voluntary initiatives that will further reduce climate change emissions and result in significant energy savings.

Other Operational GHG Emissions by Year 2030

GHG 5: The Project will not generate land use-based GHG emissions, other than those emissions addressed pursuant to the City CAP, that exceed the efficiency threshold of 2.7 MT of CO2e per year per service population at year 2030. The Project's land use-based GHG emissions would not contribute significantly to global climate change, and this impact is considered less than cumulatively considerable. (**Less than Significant**)

As described above (under Impacts GHG-1 through GHG-3 above), certain operational emissions of the Project are excluded from the types of emissions evaluated against numerical land use-based thresholds. The types of GHG emissions excluded from this analysis include all emissions otherwise addressed under Genentech's participation in CARB's Cap-and-Trade program, all stationary sources evaluated under the permitted stationary-source threshold and all emissions otherwise addressed under the South San Francisco Climate Action Plan.

The types of GHG emissions that remain, and that are compared to the year 2030 land use-based threshold of 2.7 MT of CO2e per year per service population include emissions from indirect electricity use and emissions from process use of CO2 and HFC gas. Emissions in excess of the 2.7 MT of CO2e per year thresholds could impede attainment of statewide GHG reduction targets for 2030 established under SB 32 and Executive Order B-30-15 (i.e., a 40% reduction below 1990 levels by 2030, taking into account the difference in projected 2030 statewide population and employment levels).

To estimate a significance level for land use projects extending beyond 2020 (like the Project), it is necessary to extrapolate the 2020-based thresholds to account for the trajectory of anticipated land use related GHG emissions reductions that are needed to meet the state's adopted 2030 GHG goals. SB 32 addresses GHG emissions reduction goals through 2030, and long-term goals for 2030 have been articulated in EO B-30-15. Achieving SB 32 and EO B-30-15 GHG emissions reduction goals will require systemic changes in how energy is produced and consumed through all sectors of the economy. The mix of technologies, strategies and policy choices that the State will ultimately choose to implement toward achievement of the year 2030 goal is not readily ascertainable at this time. Therefore, accounting of future GHG emissions from an individual development project cannot reflect the scope and scale of reductions that may occur as the State transitions

toward new regulations designed to achieve the new long-term goals. Furthermore, in absence of a definitive State plan to achieve these long-term goals, it is difficult to identify the "fair share" of reductions to be applied at the local level or to the Project.

The 2030 threshold used in this EIR is derived from the GHG reduction goal established under SB 32 and EO B-30-15 (i.e., a 40 percent reduction below 1990 levels by 2030, taking into account the 1990 emissions levels and the projected 2030 statewide population and employment levels).[35] Emissions in excess of the 2030 threshold of 2.7 MT of CO2e per year per service population could impede attainment of statewide GHG reduction targets for 2030 established under SB 32. The 2030 assessment conservatively assumes full Project build-out by 2030.

Table 10-7 compares the incremental GHG emissions at the assumed full buildout year (of 2030), as compared to the threshold of 2.7 MT of CO2e per year per service population.

Table 10-7: Net New Emission Sources Compared to the Year 2030 Land Use Threshold

Emission Category	Net New GHG (MTCO2e/yr)
Construction (see Appendix 10A, Table GHG-16)	1,321
Indirect Electricity (see Appendix 10A, Table GHG-10)	14,845
HFC Gas Use (see Appendix 10A, Table GHG-15)	960
Process CO2 Gas Use (see Appendix 10A, Table GHG-15)	552
Total	**17,678**
Service Population (net new jobs, no residential)	15,070 [1]
MTCO2e per Service Population	1.17
2030 Threshold (MTCO2e/yr/service Population)	2.70
Exceed Threshold?	**No**

Notes:

The Project Description, Table 3-7 projects the total net new employment pursuant to the Project at approximately 15,000 jobs (12,550 seated workers, or headcount + 2,470 consultants, service workers and visitors

Source: Ramboll Environ, Appendix 10A, Table GHG-16, December 2017

The total GHG emissions resulting from indirect electrical sources and process gas use as presented in Table 10-7 above are considered conservative or "worst-case" emission values. Genentech is targeting a voluntary 30% absolute reduction in CO2 emissions from on-site energy use, as compared to 2010 levels, and these energy reductions are not included in the emissions estimates.

Mitigation Measures

No mitigation required. As indicated in Table 10-7, even under conservative assumptions, the Project would not exceed the service-based efficiency threshold for land use-based GHG emissions by year 2030. Operation of the Project would not exceed the threshold for GHG emissions per service population, and would result in a less than significant impact.

[35] The detailed derivation of this threshold is provided in Appendix 10A, Table GHG-2.

Construction-Related GHG Emissions

This EIR evaluates anticipated mass emissions of GHGs from construction activities. Although there are no construction-related CEQA significance thresholds for GHG emissions, the Project's construction emissions are amortized over the project lifetime (assumed to be 40 years, consistent with Genentech's historical data and future projections for building operational lifespans) and added to the annualized operational GHG emissions for comparison to significance thresholds as shown in Tables 10-6 and 10-7.

Construction Emissions

GHG emissions from construction include emissions from off-road equipment (primarily diesel-fueled) and on-road vehicles. Methodologies for calculating each type of construction-related emissions are presented below, with detail provided in **Appendix 10A** - Table GHG-3: Emissions Calculations Methodology.

Off-Road Diesel Equipment

California Emissions Estimator Model (CalEEMod®)[36] was used to generate an inventory of construction equipment including details on the equipment type, quantity, construction dates and hours of operation anticipated for each piece of equipment for each construction phase. CalEEMod® generated the construction equipment inventories based on the Project's assumed construction area. CalEEMod uses ARB's 2011 Off-Road Equipment Model (OFFROAD 2011) methodology to estimate emissions from this equipment inventory. OFFROAD 2011 incorporates statewide survey data to develop emission factors based on the fleet average for each year of operation. The OFFROAD 2011 model also identifies default horsepower and load factors for each type of equipment, which are included in CalEEMod.

On-Road Vehicles

ARB's Emission Factor model (EMFAC 2014)[37] was used to estimate emissions from construction-period haul trucks, vendor trucks and commuting worker vehicles. EMFAC 2014 is an emission inventory model developed to determine emission rates from motor vehicles operating on highways, freeways and local roads in California and is commonly used by ARB to project changes in future emissions from on-road mobile sources. EMFAC 2014, incorporates regional motor vehicle data, information and estimates regarding the distribution of vehicle miles traveled (VMT) by speed, and number of starts per day.

- GHG emission from on-road haul trucks were calculated using emission factors from EMFAC 2014 and the total number of trips. Consistent with CalEEMod defaults, a 20-mile one-way trip length is assumed. The total number of hauling truck trips is estimated based on the total number of demolition and excavation soil quantities. To estimate the soil import/export quantities for the Project, two separate excavation rates (one for projects on steep terrain, and another for projects on flat terrain) were used, based on soil excavation data form prior Genentech projects in the Project area.
- GHG emission factors for vendor trucks were obtained from EMFAC 2014. The total vendor truck trips are estimated by CalEEMod default assumptions of a 7.3-mile, one-way trip length.
- GHG emission factors for commuting worker vehicles are also generated with EMFAC 2014 based on vehicle weight class and default assumptions of a 12.4-mile trip length.

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[36] California Air Pollution Control Officers Association (CAPCOA), 2016, California Emissions Estimator Model (CalEEMod®). Available online at http://www.caleemod.com/

[37] California Air Resources Board (ARB). 2014. Mobile Source Emission Inventory - EMFAC2014, Available at https://www.arb.ca.gov/msei/categories.htm#onroad_motor_vehicles

- On-road N2O emissions are converted to GHG emissions in accordance with EMFAC-derived emission factors.

Total Construction-related GHGs

GHG emissions for the construction phases of the Project are estimated at approximately 52,900 metric tons CO2e, as shown in **Table 10-8**.

Table 10-8: Construction-Related GHG Emissions

Emission Category	Total GHG (MTCO2e)
Demolition	748
Site Preparation	221
Grading	4,497
Construction	46,977
Paving	271
Architectural Coating	186
Total	**52,900**

Source: Ramboll Environ, Appendix 10B, CalEEMod Version: CalEEMod.2016.3.1, aggregate of all construction-related on-site and off-site GHG emission, December 2017

Mitigation Measures

No mitigation is required. There is no CEQA threshold of significance for GHG emissions from construction-related activities. Nevertheless, the Project shall implement the following Basic construction mitigation measures as listed in Mitigation Measure Air-1B, which directly reduce GHG emissions:

- Idling times shall be minimized, either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]).
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

Cumulative GHG Emissions

Analysis of the Project's climate change impacts as discussed above provides an analysis of the Project's contribution to cumulatively significant global impacts through its individual emission of GHGs. The cumulative impacts of the Project with respect to the issue of climate change are therefore captured in the project-level analysis (Impacts GHG-1 through Construction Emissions) and no further cumulative analysis is necessary.

11

Hazards and Hazardous Materials

This chapter of the EIR evaluates the potential impacts of Project-related hazardous materials and other hazards of CEQA concern. This chapter describes past on-site and nearby off-site storage and release of hazardous materials (including the presence and former presence of underground storage tanks), potential generation and discovery of hazardous materials and waste during Project construction activities, use of hazardous materials at the Project area, and potential future generation and disposal of hazardous materials and/or hazardous wastes. The chapter also describes the environmental and regulatory setting that is applicable to health and safety regarding hazards and hazardous materials. Potential impacts are discussed and evaluated, and appropriate mitigation measures are identified, as necessary.

Setting information is derived from the following primary sources:

- Environmental Data Resources, Inc. (EDR) was contracted to provide an electronic search of databases maintained by various federal and State regulatory agencies, containing records of environmental permits, records of properties generating, handling or storing hazardous materials, records of properties impacted by regulated compounds, and records of properties under investigation by the government for alleged violations of hazardous material regulations. The EDR Database Search Report is included in **Appendix 11A**.
- Historical topographic maps, Sanborn Maps, and historic aerial photographs were also reviewed during this study (including the review of this same information as presented in the prior 2007 MEIR), in an attempt to identify past site and vicinity property uses that may indicate a possible recognized environmental condition.
- Hazardous materials files and documents available from state, regional and local agencies were reviewed via the California Department of Toxic Substances Control (DTSC) EnviroStor website, and the California Regional Water Resources Control Board (SWRCB), San Francisco Bay Area Region GeoTracker website.
- Relevant information regarding hazardous materials use and disposal as contained in the prior 2007 MEIR and the 2012 SMEIR.

This chapter does not include information obtained by any interviews with previous or current property owners or occupants, does not include a site reconnaissance visit for individual sites within the Project area and does not include a City Directory Report or an Environmental Lien Search.

Definition of Hazardous Materials and Waste

A hazardous material is defined as “any material that, because of quantity, concentration or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment, if released into the workplace or the environment.”[1] The term “hazardous materials” refers to both hazardous substances and hazardous wastes. By convention, most hazardous materials are thought to

[1] State of California Health and Safety Code, Chapter 6.95, Section 25501(o)

be hazardous chemicals, but certain radioactive and biohazardous materials are also considered hazardous. Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such, or if it is toxic, ignitable, corrosive, or reactive, radioactive or bioactive. By statutory definition, biohazardous materials include biohazardous laboratory wastes and biologic specimens such as human or animal tissue (as defined by Section 117635 of the California Health and Safety Code).

Historical industrial or commercial activities on a site may have resulted in spills or leaks of hazardous materials to the ground, resulting in soil and/or groundwater contamination. Hazardous materials may also be present in building materials, which can be released during building demolition activities. If improperly handled, hazardous materials and wastes can cause public health hazards when released to the soil, groundwater or air. The four basic exposure pathways through which an individual can be exposed to a hazardous material include inhalation, ingestion, bodily contact and injection. Exposure can occur from an accidental release of hazardous materials during transportation, storage or handling. Disturbance of contaminated soils during construction can also cause exposures to workers, the public or the environment through stockpiling, handling or transportation of soils.

A hazardous waste, for the purpose of this EIR, is any hazardous material that is abandoned, discarded or recycled, as defined in the State of California Health and Safety Code (Chapter 6.95, Section 25125). In addition, hazardous wastes may be generated by actions that change the composition of previously non-hazardous materials.

The transportation, use and disposal of hazardous materials, as well as the potential releases of hazardous waste to the environment, are closely regulated through many state and federal laws, as further described in the Regulatory Setting of this chapter.

Environmental Setting

This section describes the environmental setting that is applicable to health and safety regarding hazards and hazardous materials associated with the Project area.

Genentech's Use of and Disposal of Hazardous Materials

Genentech engages in the research, development, manufacture and marketing of biotechnology products for serious or life-threatening diseases including commercialization of those products. Research at Genentech focuses primarily on three areas of medicine: oncology, immunology, and tissue growth and repair.

Hazardous materials used by Genentech principally relate to research, development and manufacturing of biotechnology products, and could include the following:

- Solvents used for cleaning, extraction, or other laboratory and production activities
- Reagents (chemical starting materials)
- Chemical reaction products, which may have unknown compositions
- Radioisotopes (radioactive elements used to stimulate or trace chemical reactions)
- Infectious agents, including bacteria, viruses and other medical wastes
- Test samples (e.g., specimens such as blood, tissue, soil or water), prior to use in a testing procedure
- Waste water neutralization chemicals
- Chemicals used to clean process equipment

Genentech manufacturing processes use recombinant DNA (rDNA) technology to grow medicinal proteins from cells. Depending on the size and complexity of the protein, the manufacturing process uses biological

materials. Because of the low environmental and health risk associated with manufacturing proteins with biological materials, there are no regulatory requirements to manage biological wastes from the manufacturing process in a particular manner. Waste effluents containing biological materials at Genentech facilities are currently inactivated through either heat or chemical processes.

Genentech's small molecule and antibody conjugation research and development activities (which are common in the biopharma sector), frequently involve newly developed chemicals for which there is limited research and data regarding hazardous properties and effects. Genentech takes a conservative approach by managing these substances as toxic, even if they have not been proven toxic. Genentech incorporates specific containment and ventilation design features into laboratories intended for small molecule or antibody conjugate research, and provides appropriate personal protective equipment for lab workers in these areas.

Maintenance of the Genentech Campus, as well as future construction activities, also requires the use of hazardous materials. Examples of hazardous materials typically used for vehicle, grounds and building maintenance, or used on construction sites include:

- Fuels (gasoline and diesel)
- Oils and lubricants
- Antifreeze
- Cleaners, which may include solvents and corrosives in addition to soaps and detergents
- Paints and paint thinners (latex)
- Refrigerants
- Pesticides and herbicides

The following describes those hazardous materials used at the Project area in three broad categories: general chemicals, radioactive materials and biohazardous materials.

General Chemicals

Many chemical materials, some hazardous, are used for research and production activities, as well as facilities maintenance during the course of daily operations at Genentech. Virtually all of the buildings on the Genentech Campus contain commercial products (e.g., cleaners, copier toners, etc.) that could be considered "hazardous materials" under regulatory definitions. Non-household-type hazardous materials used in research laboratories include chemical re-agents and solvents.

Process equipment may be cleaned using chemicals such as potassium hydroxide and phosphoric acid. On-site wastewater neutralization systems may use sulfuric acid and sodium hydroxide. Diesel fuel is used across the Genentech Campus for emergency power generators. For certain product lines, Genentech uses tetra methyl ammonium chloride (TMAC) in the medicinal protein extraction process. Some forms of TMAC waste streams are considered to be hazardous in California, but not by other jurisdictions. Genentech also uses alcohol-based solvent products, primarily in analytical research equipment and for cleaning purposes. These products include alcohol wipes solution (70 percent alcohol/30 percent water) and reagent alcohol. The solvent types represented are ethanol, methanol and isopropanol.

Maintenance units, including grounds, custodian services, and pest management use a wide variety of commercial products formulated with hazardous materials. These include fuels, cleaners and degreasers, solvents, paints, lubricants, pesticides and herbicides, adhesives, and sealers.

Radioactive Materials

Radioactive substances contain atoms that spontaneously emit radiation from the transformation of unstable atomic nuclei, which result in chemically different substances that may or may not be radioactive. Radioactive atoms are called “radionuclides” or “radioisotopes”. Because radioactive materials emit ionizing radiation, their presence can be detected easily. Researchers and healthcare professionals take advantage of this easy detectability by using radioactive materials to study various biochemical functions in animals and humans. Radiopharmaceuticals (radioisotopes or drugs containing radioisotopes) are also used in medicine and research. Limited types and quantities of radioisotopes are also used in research laboratories. All radioisotopes used on the Project site are stored in sealed containers designed to prevent release of radioactive materials to the environment.

Exposure to ionizing radiation can result in adverse human health effects that range from short-term mild symptoms (such as sunburn) to serious illness or death, depending upon the amount and concentration of the radioactive source and the duration of the exposure. The extent to which exposure would result in any adverse effects depends on the radioisotope and the amount and duration of exposure.

Genentech collects, prepares and packages all radioactive waste for appropriate shipment and disposal. For wastes that contain longer-lived radionuclides, the final disposal depends on the hazard class of the low-level radioactive waste (LLRW). Genentech generates radioactive waste classified as Class A waste. Class A is waste that is usually segregated from other waste classes at the disposal site. Genentech uses a licensed radioactive waste-broker to transport all radioactive waste to licensed disposal facilities. The two primary disposal facilities used by Genentech are the Energy Solutions facility in Salt Lake City, Utah and the Pecos facility located in Richland, Washington.

Biohazardous Materials

Genentech has developed programs, practices and procedures for monitoring, routine inspection, reporting, and waste management to reduce community and worker exposure to potential hazards associated with medical wastes and biological hazards. Activities that could create biohazardous aerosols are conducted in biosafety cabinets, which filter all released air to remove biohazardous materials. Biosafety cabinets are tested annually in accordance with regulatory requirements. The Medical Waste Management Act generally permits biohazardous waste to be stored onsite for up to seven days, or, for such waste stored at temperatures below 32 degrees Fahrenheit, up to 90 days (or longer with the written approval of the enforcement agency), and requires that such waste be properly packaged and labeled. Medical waste may also be rendered noninfectious through steam sterilization. Genentech does not store biohazardous waste onsite for more than seven days, incinerates the majority of its medical waste and ensures that any remaining residues are properly transported by a medical waste transporter for disposal at appropriate disposal facilities. On those occasions when Genentech sends its medical waste to an autoclave for steam sterilization, the waste is ground up and then is similarly transported and appropriately disposed.

Disposal of Hazardous Materials Generated On-Site

The Genentech Campus is registered with the US EPA as a generator of hazardous waste. Genentech does not store (for longer than 90 days) or dispose of hazardous chemical waste on-site. In most cases, hazardous wastes are collected in appropriate, properly labeled containers and separated from incompatible wastes and materials at or near the places where it is generated. From these locations, the hazardous wastes are removed to central waste accumulation areas where they may be further segregated. Wastes are packaged and labeled properly, which includes segregating incompatible materials and placing them in appropriate sealed containers. Hazardous wastes are further segregated by type and consolidated before a licensed hauler transports them from the Genentech Campus to appropriately permitted and regulated off-site facilities for incineration, treatment, recycling or disposal.

Hazardous Materials that May be Encountered during Demolition or Construction

Based on the historical industrial use of the entire East of 101 Area, it is possible that soil and/or groundwater contaminated with petroleum hydrocarbons, metals, solvents, or other industrial materials that have not been previously discovered, could be encountered during Project construction activities. Redevelopment within the Project area could include demolition of certain existing older structures that may have been constructed with hazardous building materials. These materials include lead-based paint, asbestos and polychlorinated biphenyls (PCBs). If disturbed, they could present a potential hazard to workers or the public.

Lead-Based Paint

Prior to the U.S. Environmental Protection Agency (USEPA) ban in 1978, lead-based paint was commonly used on interior and exterior surfaces of buildings throughout the United States. Through such disturbances as sanding and scraping activities, renovation work or gradual wear and tear, old peeling paint, or paint dust particulates have been found to contaminate surface soils or cause lead dust to migrate and affect indoor air quality. Exposure to residual lead can cause severe adverse health effects, especially in children.

Asbestos

Asbestos is a naturally occurring fibrous material that was extensively used as a fireproofing and insulating agent in building construction materials before such uses were banned by the USEPA in the 1970s. Asbestos was commonly used for insulation of heating ducts as well as ceiling and floor tiles to name a few typical types of materials. Similar to lead-based paint, when contained within the building materials, asbestos fibers present no significant health risk, but once the fibers are disturbed, they become airborne and create potential exposure pathways. The fibers are very small and cannot be seen with the naked eye. Once they are inhaled, they can become lodged in the lungs potentially causing lung disease or other pulmonary complications.

PCBs

PCBs are organic oils that were formerly used primarily as insulators in many types of electrical equipment including transformers and capacitors. After PCBs were determined to be a carcinogen in the mid to late 1970s, the USEPA banned PCB use in most new equipment and began a program to phase out certain existing PCB-containing equipment. Fluorescent lighting ballasts manufactured after January 1, 1978, do not contain PCBs and are required to have a label clearly stating that PCBs are not present in the unit.

Mercury

Elemental mercury is an insoluble, liquid inorganic metal. It is commonly used in laboratory and medical equipment such as thermometers and manometers (used for measuring pressure). Other uses include electrical equipment and some water pumps. Mercury liquid evaporates very slowly if exposed to air. At certain levels of exposure, mercury vapors are toxic and can cause kidney and liver damage. It is possible that elemental mercury may be present in research laboratory sink traps, in cupboard floor spaces, or in sewer pipes, if there have been any historical accidental spills or releases prior to the adoption of more stringent environmental regulations pertaining to hazardous waste disposal. If such spills or releases had occurred, exposure could result in the event of building renovation or demolition.

Contaminated Imported Fill Material

The Project Area is located on portions of South San Francisco which were historically wetlands and marshes associated with the Bay. Fill material was used to fill in these areas and provide stable land for construction. However, older fill materials may contain previously undocumented contaminants of concern (COCs). These COCs may be related to previously conducted site operations exclusive to the land on which they were

collected, or may be indicative of issues with the fill material used. Development activities within the Project area may encounter contaminated fill material during construction activities.

Other Concerns

Other environmental concerns that may be discovered or encountered during construction activities within the Project area include undocumented contamination from leaking, unknown underground storage tanks, and naturally occurring asbestos present in serpentine rock that exists in the Project Area.

Known Hazardous Sites

Definition of "Cortese List" Properties

In California, regulatory databases listing hazardous materials sites provided by numerous federal, state and local agencies are consolidated in the "Cortese List" pursuant to Government Code Section 65962.5. The Cortese List is located on the California Environmental Protection Agency's (Cal EPA) website and is a compilation of the following lists:

- The DTSC portion of the Hazardous Waste and Substances Sites List, available on the DTSC EnviroStor database;
- The SWRCB/RWQCB portion of List, including leaking underground storage tanks (LUSTs), underground storage tanks (UST), and Spills, Leaks, Investigations and Cleanup (SLIC) sites as listed on the SWRCB GeoTracker database;
- Solid waste disposal sites identified by SWRCB with waste constituents above hazardous waste levels outside the waste management unit;
- "Active" Cease and Desist Order (CDO) and Cleanup and Abatement Order (CAO) sites from the SWRCB; and
- Hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, as identified by DTSC and listed on the EnviroStor database.

The databases cited above identify sites with suspected and confirmed releases of hazardous materials to the subsurface soil and/or groundwater. The reporting and status of these sites change as identification, monitoring and cleanup of hazardous sites progress. Typically, sites are "closed" once it has been demonstrated that existing site uses combined with the levels of identified contamination present no significant risk to human health or the environment. These databases are updated periodically and would need to be revisited prior to construction pursuant to the Project.

Cortese List Sites within the Project Site

Open Sites

Open or active sites are those sites where an investigation and/or remediation is currently in progress, and where the SWRCB, RWQCB and/or DTSC are still actively involved, either as lead agency or in a support capacity. The only existing "Open" site within the Project Site is the O'Brien Corporation site (SWRCB Case #SL18341761) located at 450 East Grand Avenue (South Campus) - Cleanup Program Site with cleanup status "Open – Inactive" as of February 2017.[2] Additional detail about this site is provided in the impact analysis regarding Cortese List Sites in the analysis below.

[2] The O'Brien Corporation site at 450 East Grand Avenue was also listed under DTSC Case #CAD005130455 - DTSC Site Type: HAZ WASTE – RCRA. However, that DTSC case has a status of "Closed" since 1994.

Closed Sites

Typically, sites are identified as closed once it has been demonstrated that existing site uses, combined with the levels of identified contamination, present no significant risk to human health or the environment. Sites identified as "No Further Action" or "Case Closed" indicates that DTSC or the SWRCB has determined that, after an investigation, the property does not pose a problem to public health or the environment. Closed sites and sites requiring no further action within the Project Site include the following:

- The Tornberg Enterprises site at 1776 DNA Way (SWRCB Case #T0608100552) was a LUST Cleanup Site.[3] Cleanup was completed, and the case was closed as of 1992.
- The Alquest Property Corporation site at 342 Allerton Avenue (SWRCB Case #T0608100674) was a LUST Cleanup Site. Cleanup was completed, and the case was closed as of 1994.
- The Alquest Property Corporation site at 410 Allerton Avenue (SWRCB Case #T0608100015) was a LUST Cleanup Site. Cleanup was completed and the case was closed as of 1994.
- The Hasbro site at 500 Forbes Boulevard (SWRCB Case #T0608177492) was a LUST Cleanup Site. Cleanup was completed, and the case was closed in 1999.
- Genentech's Building 8, with a designated address at 1 DNA Way (SWRCB Case #T10000001481) was a SWRCB Cleanup Program Site.[4] Cleanup was completed, and the case was closed as of 2010.
- Genentech's facility located at 451 DNA Way (SWRCB Case #SL0608122130) was a SWRCB Cleanup Program Site. Cleanup was completed, and the case was closed in 2003.
- The SF AAA Battery 40 Site (DTSC Case #80000705) is located in Mid-Campus had a prior military evaluation, and now has a status of "No Further Action" as of 2011.

Cortese List Sites Adjacent to the Project Area

Open Sites

The Haskins Jamie Court site (SWRCB Case #SL1821a600) located at 500 Jamie Court is a separate but related site near the on-Campus O'Brien Corporation site. The Jamie Haskins Court site is a Cleanup Program Site with a status of "Open - Site Assessment" as of January 2000, and is adjacent to the O'Brien site. According to the SWRCB case file, when the former O'Brien site was operational, discharge from that facility affected the adjacent San Bruno channel. The Haskins Jamie Court property was created in the late 1960s and early 1970s by filling in a portion of the affected channel, also using questionable fill material. In the past, owners of both sites have worked together to clean up the channel. The Haskins Jamie Court site and the O'Brien Site are considered separate sites, with separate environmental records and separate ownership responsibilities.

Other open sites near or adjacent to the Project Site include properties identified as "Inactive - Action Required" (a non-active site where, through a Preliminary Endangerment Assessment (PEA) or other evaluation, removal or remedial action or further extensive investigation is required), and "Inactive - Needs Evaluation" (a non-active site where a PEA or other evaluation is still required).

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[3] Leaking Underground Storage Tank (LUST) Cleanup Sites includes all Underground Storage Tank (UST) sites that have had an unauthorized release (i.e. leak or spill) of a hazardous substance, usually fuel hydrocarbons, and are being (or have been) cleaned up.

[4] Cleanup Program Sites includes all "non-federally owned" sites that are regulated under the State Water Resources Control Board's Site Cleanup Program. Cleanup Program Sites are varied and include, but are not limited to pesticide and fertilizer facilities, rail yards, ports, equipment supply facilities, metals facilities, industrial manufacturing and maintenance sites, dry cleaners, bulk transfer facilities, refineries, mine sites, landfills, RCRA/CERCLA cleanups, and some brownfields.

- The Stelling Property at 485 Cabot (SWRCB T0608116637) is a Cleanup Program Site with status of "Open-Remediation", located approximately 0.5 miles west of the Project Site. This site has an on-going monitoring well program, and a Remedial Action Plan was approved for this site by the San Mateo County Groundwater Protection Program in December 2017. Progress towards remediation is expected to limit on-going plume migration "in a timely manner."[5]
- The ARE San Francisco No. 12 site at 249 East Grand Avenue (SWRCB Case #T10000001104) is approximately 0.3 miles to the west of the Project site. The site is a Cleanup Program Site with a status of "Open-Inactive" as of May 2015. According to the 2010 Site Assessment Report for this case, an abandoned fuel pipeline was discovered and removed in 2008, but oil appears to have impacted the surrounding soils at various locations along the length of the pipeline. The primary impacts appear to be limited to the approximately 500 linear feet of the former pipeline adjacent to and including the City-owned East Grand Avenue roadway and sidewalk.[6]
- Monfredini Property located at 477 Forbes (SWRCB Case #T0608100774) is a LUST Cleanup Site with status "Open-Site Assessment" as of September 2017. Monitoring wells are in place, and as of November 2018, the SFRWQCB issued a letter to the property owners requiring submittal of a Remedial Action Workplan to remove petroleum hydrocarbon contamination, facilitate site cleanup and achieve case closure status.

Other Recorded Sites

The United Parcel Service site located at 657 Forbes Boulevard (across Forbes from the Project Site) has an underground storage tank (UST) permitted by San Mateo County Environmental Health (SWRCB Facility ID: 41-000-017735).

Closed Sites

The Envirostor and Geotracker websites list a number of additional closed sites, or site with no further action required, that are in relatively close proximity to the Project Site. Their "Closed" or "NFA" status generally indicates that the cases on these properties present no significant risk to human health or the environment under current land uses. These properties include:

- United Parcel Service (SWRCB Case #T0608100560), located at 657 Forbes, South San Francisco - LUST Cleanup Site completed - Case closed as of 2000
- Yellow Freight System (SWRCB Case #T0608100628) located at 201 Haskins, South San Francisco - LUST Cleanup Site completed - Case closed as of 2002
- Dennis X Ray Co (DTSC Case Cal000073292) located at 301 Allerton Ave., South San Francisco - DTSC Site Type "HAZ WASTE – Standardized", Case closed as of 1999
- Cortana Corporation (SWRCB Case #T0608100172) located at 468 Littlefield, South San Francisco - LUST Cleanup Site completed - Case closed as of 1993
- Georgia Pacific (SWRCB Case #T0608100233) located at 249 East Grand Avenue, South San Francisco - LUST Cleanup Site completed - Case closed as of 1998; and Georgia Pacific (SWRCB Case #SL0608128898) also located at 249 East Grand Avenue - Cleanup Program Site completed - Case closed as of 2009

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5 http://geotracker.waterboards.ca.gov/view_documents?global_id=T0608116637&enforcement_id=6344065&temptable=ENFORCEMENT

6 http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000001104

- Columbus Salami Inc. (SWRCB Case #T0608100167) located at 429 Cabot, South San Francisco - LUST Cleanup Site completed - Case closed as of 1991
- Gallo Sales Co. (SWRCB Case #T0608100228) located at 440 Forbes, South San Francisco - LUST Cleanup Site completed - Case closed as of 2012
- California Water Service Company, Reservoir #1 (SWRCB Case #T10000002807) located at Grandview Drive, South San Francisco - Cleanup Program Site completed - Case closed as of 2012
- Stelling Property (SWRCB Case #T0608116637) located at 485 Cabot, South San Francisco – LUST Cleanup completed –Case closed as of 2014

EDR Report Summary

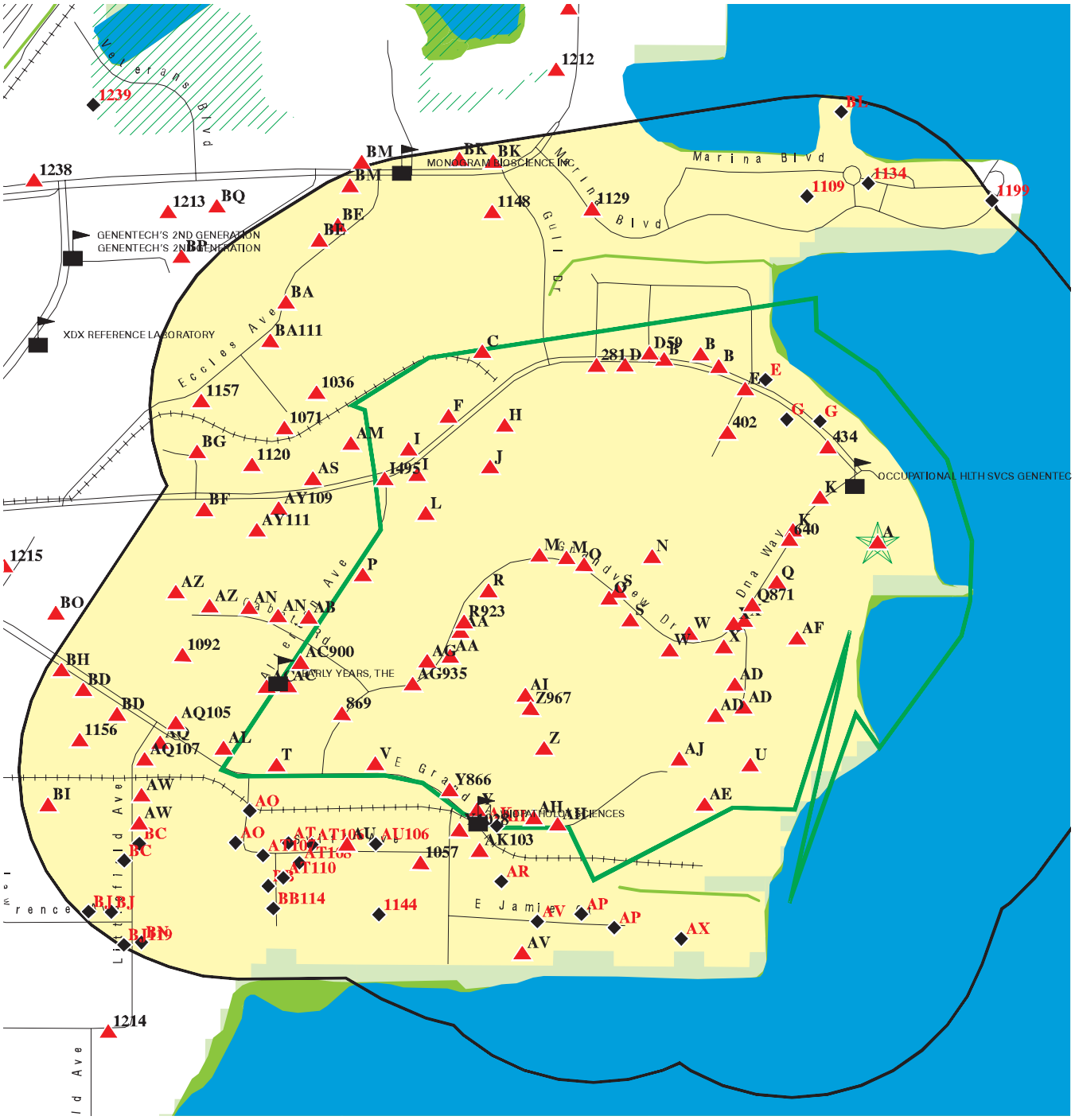
An Environmental Data Resources records check was conducted in December of 2017 (EDR report). The report meets the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) and the ASTM Standard Practice for Environmental Site Assessments (E 1527-13). The records check was completed based on the address of 1 DNA Way, and records were obtained for the entire boundary of the Project Site, as well as properties within the surrounding area within a one-half mile of the Project Site boundary (see **Figure 11-1**). The various record types that apply to the Project and/or its surroundings are briefly described below.

Federal Lists

No mapped sites were found in the EDR search of available ("reasonably ascertainable ") government records either on the Project Site or within the search radius around the Project Site for listings on the Federal National Priorities List, the Proposed National Priority List sites or the Federal Superfund Liens sites.

The Resource Conservation and Recovery Act Corrective Action Activity list (RCRA CORRACT) is a list of nationally defined corrective action events that have occurred for every handler of hazardous material or hazardous waste that has had corrective action activity. The O'Brien site within the Project Site is included on this list. The RCRA Large Quantity Generators (LQGs) list includes those sites that generate, transport, store, treat and/or dispose of large quantities of hazardous waste. LQGs generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. The RCRA Small Quantity Generators (SQGs) list includes those sites that generate, transport, store, treat and/or dispose of small quantities of hazardous waste. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

The federal Emergency Response Notification System (ERNS) list includes those sites as reported by the US EPA as having a reported release of oil or hazardous substance.



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

Figure 11-1
Map of Environmental Records

Source: EDR Report, December 2017

State Lists

The California Response list (CA RESPONSE) identifies those sites with a confirmed release of hazardous substances, and where DTSC is or has been involved in remediation (either in a lead or oversight capacity). These confirmed release sites are generally high-priority and high potential risk. A review of the CA RESPONSE list as provided by EDR reveals that there are no such sites on or in the immediate vicinity of the Project Site, but that there are three such sites within approximately 1 mile of the Project Site.

The California Department of Toxic Substances Control (DTSC) Site Mitigation and Brownfields Reuse Program manages DTCS's EnviroStor database list (ENVIROSTOR). This list identifies sites that have known contamination, or sites for which there may be reasons to investigate further. The database includes sites also listed as National Priorities List, State Response, Voluntary Cleanup and School sites. EnviroStor site information generally identifies formerly contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. One property (the O'Brien Corporation site as described above under "Cortese List" properties) is within the Project Site and included on this list.

The SWRCB maintains a data management system for sites that impact or have the potential to impact water quality (Geotracker), with an emphasis on groundwater. The Geotracker database includes Leaking Underground Storage Tank (CA LUST) sites and Cleanup Program Sites (formerly known as Spills, Leaks, Investigations and Cleanups [CA SLIC] sites). The SWRCB also maintains a separate database of sites with hazardous substance storage, such as sites that contain underground storage tanks (CA USTs) regulated under RCRA, as well as aboveground storage tanks and locations with petroleum storage tanks (CA AST).

Voluntary cleanup sites (CA VCP) is a list of properties that contain a low threat level from either confirmed or unconfirmed releases, and where the project proponents (or property owners) have requested that DTSC oversee investigation and/or cleanup activities.

Additional Records

Both the US EPA and the California Office of Emergency Services maintain records of emergency release reports. The Hazardous Materials Incident Report System (HMIRS) contains hazardous material spill incidents as reported to the Department of Transportation and maintained on the US EPA database, and the California Hazardous Material Incident Report System (CHMIRS) contains information of reported hazardous material incidents (i.e., accidental releases or spills) as reported to the California Office of Emergency Services.

San Mateo County maintains a list (CA San Mateo Co. BI) of all businesses that have filed a Hazardous Materials Business Plan, or that have been locally listed as a hazardous waste generator or that contain underground storage tanks.

The CA HAZNET data is extracted from copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000-1,000,000 annually, representing approximately 350,000-500,000 shipments.

The Facility Index System list (FINDS) contains both facility information and "pointers" to other sources of information that contain more detail. These other sources of information include the Aerometric Information Retrieval System, the Federal Insecticide Fungicide Rodenticide Act, Enforcement Dockets used to manage and track information on civil judicial enforcement cases for all environmental statutes, the federal Underground Injection Control program, and the Chemicals in Commerce Information System. The Enforcement and Compliance History Online (ECHO) list provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide. The list of Formerly Used Defense Sites Properties (FUDS) includes properties where the US Army Corps of Engineers has, or is actively working to take necessary cleanup actions.

There are several record types no longer maintained, but still included in the EDR report. These include the California Historic list (CA HIST) of both known and potential hazardous substance sites (which has been replaced by ENVIROSTOR), and the Statewide Environmental Evaluation and Planning System (CA SWEEPS UST) list of underground storage tank listing.

Summary of Listed Records

Table 11-1 provides a summary of the EDR records check results, identifying those properties within the Project Site as well as outside the boundaries of the Project Site that are identified on these records. It should be noted that many individual properties or sites may be included on multiple records types, and that certain record types may have changed over time (e.g., a listed SQG may now be listed as a LQG,) and/or a previous UST may have been removed and replaced by an AST).

Table 11-1: Summary of EDR Records Search Results

Record Type	Within Project Site	Within 1/8 Mile of Project Site	Within ¼ Mile of Project Site	Within ½ Mile of Project Site
Federal				
Federal National Priorities List Sites	0	0	0	0
RCRA CORRACT Sites	1	0	0	1
RCRA Large Quantity Generators	8	10	3	-
RCRA Small Quantity Generators	7	7	17	-
Federal ERNS List	4	10	-	-
State				
Cal RESPONSE Sites	0	0	1	1
Envirostor Sites	1	2	2	5
CA LUST	6	8	9	26
CA SLIC	2	4	2	9
CA AST	9	6	5	-
CA UST	0	1	1	-
Voluntary Cleanup	0	0	1	-
Additional Records				
HMIRS and CHMIRS	29	695 (1)	-	-
FINDS	63	8	-	-
ECHO	20	5	-	-
San Mateo Co. BI	51	48	57	-
Others, not listed (2)				

Notes:

1. The majority of these incident reports all relate to the UPS facility at 657 Forbes Blvd., and include incident reports that occurred throughout the region from the vehicle fleet housed at this location
2. "Others" include but are not limited to CA SWEEPS, Hist UST Sites, CA HAZNET, FUDS, etc.

Source: EDR Report (12/07/17), as amended to more accurately reflect those sites that are/are not within the Project Site boundaries

According to these records, there are seven existing above ground storage tanks within the Project site, primarily storing petroleum products.

Hazard vs. Risk[7]

Workers and the general public health are potentially at risk whenever hazardous materials have been used, or where an exposure to such materials could occur due to the presence of unidentified fill materials or historic uses of a site. Inherent in the Setting and analyses presented in this chapter of the EIR are the concepts of the "hazard" associated with these materials, and the "risk" they pose to human health and the environment. Exposure to some chemical substances may harm internal organs or systems in the human body, ranging from temporary effects to permanent disability or death. Hazardous materials that result in adverse effects are generally considered “toxic.” Other chemical materials, however, may be corrosive or react with other substances to form other hazardous materials, but they are not considered toxic because organs or systems are not adversely affected. Because toxic materials can result in adverse health effects, they are considered hazardous materials, but not all hazardous materials are necessarily “toxic”. For purposes of the information and analyses presented in this chapter of the EIR, the terms hazardous substances or hazardous materials are used interchangeably and include materials that are considered toxic.

Acute vs. Chronic Health Effect

Whether a person exposed to a hazardous substance would suffer adverse health effects depends upon a complex interaction of factors. These factors include the exposure pathway, the amount of material to which the person is exposed, the physical form (e.g., liquid, vapor) and characteristics (e.g., toxicity) of the material, the frequency and duration of exposure, and the individual's unique biological characteristics (such as age, gender, weight, and general health). Adverse health effects from exposure to hazardous materials may be short-term (acute) or long-term (chronic). Acute effects can include damage to organs or systems in the body, and possibly death. Chronic effects, which may result from long-term exposure to a hazardous material, can also include organ or systemic damage, but chronic effects of particular concern include birth defects, genetic damage and cancer. In the case of pathogenic (disease-causing) organisms or biohazardous materials, for transmission to humans to occur, the pathogen must be present in sufficiently high numbers to cause infection, and contact with the organism must occur.

Other Hazard and Hazardous Materials Issues

Schools and Daycare Facilities

CEQA establishes special requirements for certain projects near schools to ensure that potential health impacts resulting from exposure to hazardous materials, wastes, and substances will be carefully examined and disclosed in a negative declaration or EIR, and that the lead agency will consult with other agencies in this regard.

There are no schools located within or near the Project Area, or within the entire East of 101 area. There are four daycare centers located within the East of 101 area, including: [8]

- Gateway Child Development Center at 559 Gateway Boulevard
- Genentech’s Cabot 2nd Generation at 342 Allerton
- Genentech’s 2nd Generation at 444 Allerton Ave

[7] City of South San Francisco, Genentech Facilities Master Plan EIR, 2007

[8] Genentech’s 2nd Generation childcare facility at 850 Gateway Boulevard was closed with opening of the new Genentech childcare facility at 342 Allerton

- Early Years Preschool at 371 Allerton Avenue

Airports

Aviation safety hazards can result if projects are located near airports. The public airport located nearest to the Project Area is San Francisco International Airport (SFO), located approximately 1.5 miles south of the Project area. There are no private airstrips in the vicinity.

Wildland Fires

The California Department of Forestry and Fire Protection (CAL FIRE) is required by law to map areas of significant fire hazard based on fuels, terrain, weather and other relevant factors (PRC 4201-4204 and Govt. Code 51175-89). Factors that increase an area's susceptibility to fire hazards include slope, vegetation type and condition, and atmospheric conditions. The CAL FIRE San Mateo County Fire Hazard Severity Zone Map does not identify any very high or high zones of fire hazard severity in the Project Area.

Regulatory Setting

Adoption of and development pursuant to the Project is subject to government health and safety regulations applicable to the transportation, use, and disposal of hazardous materials. This section provides an overview of the health and safety regulatory framework that is applicable to the Project Area.

Federal

Hazardous Materials Management

The primary federal agencies with responsibility for hazardous materials management include the USEPA, U.S. Department of Labor Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation (DOT). Federal laws, regulations and responsible agencies are summarized below and are discussed in detail in this section.

The Emergency Planning and Community Right to Know Act of 1986 imposes requirements to ensure that hazardous materials are properly handled, used, stored, and disposed of and to prevent or mitigate injury to human health or the environment in the event that materials are accidently released.

Hazardous Materials Site Listings

The National Priorities List (NPL) is a compilation of over 1,200 sites for priority cleanup under the Federal Superfund Program. The Proposed National Priorities List identifies sites considered for NPL listing. The Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) system contains data on potentially hazardous waste sites that have been reported to the USEPA by California. CERCLIS contains sites that are proposed or are on the NPL, and sites that are in the screening and assessment phase.

Hazardous Waste Handling

Under the Resource Conservation and Recovery Act (RCRA), the US EPA regulates the generation, transportation, treatment, storage and disposal of hazardous waste. The Hazardous and Solid Waste Act amended RCRA in 1984. The amendments specifically prohibit the use of certain techniques for the disposal of hazardous waste.

Hazardous Materials Transportation

The US Department of Transportation (DOT) has the regulatory responsibility for the safe transportation of hazardous materials. The DOT regulations govern all means of transportation except packages shipped by mail (49 CFR). The US Postal Service (USPS) regulations govern the transportation of hazardous materials shipped by mail.

Occupational Safety

The Occupational Safety and Health Act of 1970 (Fed/OSHA) sets standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries (29 CFR).

Structural and Building Components

The Toxic Substances Control Act (TSCA) regulates the use and management of PCBs in electrical equipment, and sets forth detailed safeguards to be followed during the disposal of such items. The US EPA monitors and regulates hazardous materials used as building components and their effects on human health.

State and local agencies often have either parallel or more stringent regulations than federal agencies. In most cases, state law mirrors or overlaps federal law and enforcement of these laws is the responsibility of the state or of a local agency to which enforcement powers are delegated. For these reasons, the requirements of the law and its enforcement are discussed under either the state or local agency section.

Aviation Safety and Aviation Hazards

As more fully described in the Land Use chapter, the Project Area is subject to Federal Aviation Regulations and the San Francisco International Airport Land Use Compatibility Plan (ALUCP), which provides further policies and regulations pertaining to land use that may affect, or be affected by airport operations. As indicated in the Land Use chapter, the Project Area is not located within an ALUCP-designated Safety Compatibility zone. These zones are established to restrict development of land uses that could pose particular hazards to the public or to vulnerable populations in case of an aircraft accident. The Project Area is located outside of the area subject to airport operations-related noise contours, but is subject to Federal Aviation Regulations that provide guidance for the height of objects that may affect normal aviation operations or that could create a safety hazard for aircraft.

State of California

Primary state agencies with jurisdiction over hazardous chemical materials management are the Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (RWQCB). Additional state agencies are also involved in hazardous materials management. These agencies include Cal/OSHA (which is part of the Department of Industrial Relations), State Office of Emergency Services (OES), California Air Resources Board (CARB), Bay Area Air Quality Management District (BAAQMD), California Department of Transportation (Caltrans), California Highway Patrol (CHP), State Office of Environmental Health Hazard Assessment (OEHHA) and the California Integrated Waste Management Board (CIWMB).

In January 1996, the California Environmental Protection Agency (Cal EPA) adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program). The program has six elements:

- hazardous waste generators and hazardous waste on-site treatment;
- underground storage tanks;
- aboveground storage tanks;
- hazardous materials release response plans and inventories;

- risk management and prevention programs; and
- Unified Fire Code, hazardous materials management plans, and inventories

The Unified Program is implemented at the local level. The Certified Unified Program Agency (CUPA) is the local agency that is responsible for the implementation of the Unified Program. In South San Francisco, the San Mateo County Department of Environmental Health (SMCDEH) is the designated CUPA.

Hazardous Materials Management

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that any business that handles hazardous materials prepare a business plan, which must include the following:

- details, including floor plans, of the facility and business conducted at the site;
- an inventory of hazardous materials that are handled or stored on site;
- an emergency response plan; and
- a training program for safety and emergency response for new employees, with annual refresher courses

The California Hazardous Materials Incident Report System (CHMIRS) provides information regarding spills and other incidents gathered from the California Office of Emergency Services.

Hazardous Waste Handling

The DTSC regulates the generation, transportation, treatment, storage and disposal of hazardous waste. State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment. Laws and regulations require hazardous materials users to store these materials appropriately and to train employees to manage them safely.

Under the federal Resource Conservation and Recovery Act of 1976 (RCRA), individual states may implement their own hazardous waste programs in lieu of RCRA, as long as the state program is at least as stringent as federal RCRA requirements. In California, the DTSC regulates the generation, transportation, treatment, storage and disposal of hazardous waste. The hazardous waste regulations establish criteria for identifying, packaging and labeling hazardous wastes; prescribe management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

Hazardous Materials Transportation

The State of California has adopted DOT regulations for the intrastate movement of hazardous materials. State regulations are contained in Title 26 of the California Code of Regulations (CCR), which includes requirements applicable to the transportation of hazardous waste originating in the State and passing through the State. The two state agencies that have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans).

Occupational Safety

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations in California. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in

Title 29 of the CFR. Cal/OSHA standards are sometimes, but not always, more stringent than federal regulations.

Cal/OSHA Title 8 regulations concerning the use of hazardous materials in the workplace require employee safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention planning. Cal/OSHA enforces regulations for hazard communication programs, which contain training and information requirements, including procedures for identifying and labeling hazardous substances, and communicating hazard information relating to hazardous substances and their handling. The hazard communication program also requires that Materials Safety Data Sheets (MSDS) be available to employees, and that employee information and training programs be documented. These regulations also require preparation of emergency action plans (escape and evacuation procedures, rescue and medical duties, alarm systems, and training in emergency evacuation).

Cal/OSHA (8 CCR), like Fed/OSHA (29 CFR), includes extensive, detailed requirements for worker protection applicable to any activity that could disturb asbestos-containing materials, including maintenance, renovation, and demolition. These regulations are also designed to ensure that persons working near the maintenance, renovation or demolition activity are not exposed to asbestos.

Emergency Response

California has developed an emergency response plan to coordinate emergency services provided by federal, state and local government and private agencies. Responding to hazardous materials incidents is one part of this plan. The plan is administered by the State Office of Emergency Services (OES), which coordinates the responses of other agencies, including Cal EPA, CHP, CDFG, the San Francisco Bay RWQCB and the South San Francisco Fire Department (SSFFD). The SSFFD provides first response capabilities, if needed, for hazardous materials emergencies within the Project Area.

Genentech will continue to implement the plan at the Project area, in cooperation with the South San Francisco Fire Department.

Structural and Building Components

Adoption and development pursuant to the Project could include demolition of structures, which due to their age, may contain asbestos, PCBs, or lead and lead-based paint. In addition, removal of existing aboveground tanks or USTs may be required.

Asbestos

State laws, including the Clean Air Act, regulate asbestos as a hazardous air pollutant, which subjects it to regulation by BAAQMD under its Regulation 11, Rule 2. OSHA also regulates asbestos as a potential worker safety hazard. These regulations:

- prohibit emissions of asbestos from asbestos-related manufacturing, demolition, or construction activities
- require medical examinations and monitoring of employees engaged in activities that could disturb asbestos
- specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers, and
- require notice to federal and local governmental agencies prior to beginning renovation or demolition that could disturb asbestos

Asbestos represents a human health risk when asbestos fibers become airborne (friable) and are inhaled into the lungs. The BAAQMD is vested by the California legislature with authority to regulate airborne pollutants,

including asbestos, through both inspection and law enforcement, and is to be notified ten days in advance of any proposed demolition or abatement work. Cal/OSHA regulates the removal of asbestos to ensure the health and safety of workers, and Cal/OSHA must be notified in advance of any asbestos abatement activities.

Polychlorinated Biphenyls (PCBs)

PCBs are organic oils that were formerly placed in many types of electrical equipment and in fluorescent lighting ballasts. PCBs are highly persistent in the environment and are toxic. In 1979, the USEPA banned the use of PCBs in most new electrical equipment and began a program to phase out certain existing PCB-containing equipment. The use and management of PCBs in electrical equipment is regulated pursuant to the Toxic Substances Control Act (40 CFR). Fluorescent lighting ballasts that contain PCBs, regardless of size and quantity, are regulated as hazardous waste and must be transported and disposed of as hazardous waste.

Lead and Lead-Based Paint

The CCR, Title 22, considers waste soil with concentrations of lead to be hazardous if it exceeds a total concentration of 1,000 ppm and a soluble concentration of 5 ppm. Both the federal and California OSHAs regulate all worker exposure during construction activities that involve lead based paint. The Interim Final Rule found in 29 CFR Part 1926.62 covers construction work where employees may be exposed to lead during such activities as demolition, removal, surface preparation for re-painting, renovation, clean up and routine maintenance. The OSHA-specified method of compliance includes respiratory protection, protective clothing, housekeeping, hygiene facilities, medical surveillance, training, etc.

Additional Regulatory Setting Specific to Biomedical Facilities

Microbiological, Biomedical and Animal Laboratories

The United States Department of Health and Human Services (USDHHS), Centers for Disease Control and Prevention, and National Institutes of Health prescribe containment and handling practices for use in microbiological, biomedical and animal laboratories. All Genentech laboratories follow the mandated hygienic practices. Based on the potential for transmitting biological agents, the rate of transmission of these agents, and the quality and concentrations of biological agents produced at a laboratory, Biosafety Levels are defined for four tiers of relative hazards. Bio-safety Level 1 is for the least hazardous biological agents, and Bio-safety Level 4 is for the most hazardous biological agents. Biosafety Levels for infectious agents are based on the characteristics of the agent (virulence, ability to cause disease, routes of exposure, biological stability and communicability), the quantity and concentration of the agent, the procedures to be followed in the laboratory, and the availability of therapeutic measures and vaccines.

Federal and state laws, such as the Animal Welfare Act, specify standards for record keeping and the registration, handling, care, treatment and transportation of animals. Such laws are enforced by the U.S. Department of Agriculture and the California Department of Health Services (DHS).

Genentech programs, practices and procedures for monitoring, routine inspection, reporting and waste management have been developed to reduce potential community and worker exposure to hazards associated with the use of animals in research.

Medical wastes must be managed as a biohazardous material, in accordance with Section 117635 of the California Health and Safety Code. The management of biohazardous materials must comply with USDHHS guidelines and DHS regulations pertaining to such materials. Biohazardous medical waste is generally regulated in the same manner as hazardous waste, except that special provisions apply to storage, disinfection, containment and transportation. The DHS Medical Waste Management Program enforces the Medical Waste Management Act and related regulations.

Radioactive Materials Regulations

The Atomic Energy Act (42U.S.C. Sections 2011- 2259) (AEA) ensures the proper management of source, special nuclear, and by-product material. The AEA, and the statutes that amended it, delegate the control of nuclear energy primarily to the Department of Energy, the Nuclear Regulatory Commission and the United States Environmental Protection Agency (EPA). The California Radiation Control Law California Health & Safety Code Sections 114960-114985) is a regulatory program designed to provide for compatibility with the standards and regulatory programs of the federal government and integrate an effective system of regulation within the state. The program regulates sources of ionizing radiation and establishes procedures for performance of certain regulatory responsibilities with respect to the use and regulation of radiation sources. These laws and regulations govern the receipt, storage, use, transportation and disposal of sources of ionizing radiation (radioactive material) and protect the users of these materials and the public from radiation hazards.

The use of radioactive materials at the Genentech site is specifically subject to the conditions of a radioactive materials license issued and administered by the Radiologic Health Branch of the DHS. Genentech administers and monitors facility compliance with license requirements. Radioactive materials licensing requirements include routine inspection and monitoring of areas where radioactive materials are used, to ensure that surfaces are not contaminated with radioactivity above background levels. Under the radioactive materials license, renovation or demolition of facilities using radioactive material requires decommissioning of the facilities. This involves radiation testing and conducting decontamination and waste handling activities in accordance with applicable regulations.

Local

San Mateo County Health Department

The San Mateo County Health Department, Environmental Health Division is the primary local agency approved as the Certified Unified Program Agency (CUPA) with responsibility for implementing federal and state laws and regulations pertaining to hazardous materials management. The Unified Program is the consolidation of six state environmental regulatory programs into one program under the authority of a CUPA. A CUPA is a local agency that has been certified by CalEPA to implement the six state environmental programs within the local agency's jurisdiction. This program was established under the amendments to the California Health and Safety Code made by SB1082 in 1994. The six consolidated programs are:

- Hazardous Materials Release Response Plan and Inventory (Business Plans)
- California Accidental Release Program (CalARP)
- Hazardous Waste (including Tiered Permitting)
- Underground Storage Tanks
- Above Ground Storage Tanks, and
- Hazardous Materials Management Plan and Hazardous Materials Identification System

As the local CUPA, the San Mateo County Health Department, Environmental Health Division maintains the records regarding location and status of hazardous materials sites in the county, and administers programs that regulate and enforce the transport, use, storage, manufacturing and remediation of hazardous materials. By designating a CUPA, San Mateo County has accurate and adequate information to plan for emergencies and/or disasters, and to plan for public and firefighter safety.

A Participating Agency (PA) is a local agency that has been designated by the local CUPA to administer one or more Unified Programs within their jurisdiction, on behalf of the CUPA. The City of South San Francisco Fire Department maintains a special program that regulates hazardous materials through disclosure and risk

management plans, as well as referrals to the County of San Mateo for above ground storage tanks. Thus, the City of South San Francisco Fire Department is a PA with the San Mateo County Health Department, Environmental Health Division as the CUPA.

South San Francisco General Plan (1999)

The City of South San Francisco General Plan describes goals and policies that address the patterns of urban and industrial development in South San Francisco that may pose risks to human health and property. The goals and policies of the General Plan Safety Element are intended to acknowledge and mitigate the risk posed by such hazards. Pertinent Safety Element policies are listed below:

- **Policy 8.3-G-2:** Minimize the risk to life and property from the generation, storage and transportation of hazardous materials and waste in South San Francisco. Comply with all applicable regulations and provisions for the storage, use and handling of hazardous substances as established by federal (EPA), State (DTSC, RWQCB, Cal OSHA, Cal EPA), and local (County of San Mateo, City of South San Francisco) regulations.
- **Policy 8.3-I-2**: Continue to maintain hazardous waste regulations in the City's Zoning Ordinance.
- **Policy 8.3-I-3**: Prepare a Geographic Information Systems (GIS) coverage for the sites included in the Cortese List of Hazardous Waste and Substances Sites.
- **Policy 8.3-I-4**: Establish an ordinance specifying routes for transporting hazardous materials.
- **Policy 8.4-I-3**: Require site design features, fire retardant building materials, and adequate access as conditions for approval of development or improvements to reduce the risk of fire within the City.
- **Policy 8.6-I-1**: Maintain and update the City's Emergency Response Plan, as required by State law, to minimize the risk to life and property of seismic and geologic hazards, flooding, hazardous materials and waste, and fire.
- **Policy 8.6-I-3**: Coordinate regular emergency drills with emergency organizations, including City and County Fire, Police, Emergency Medical Services, and Public Works; San Francisco International Airport; and California Environmental Protection Agency.
- **Policy 8.7-I-1**: Do not permit land uses that pose potential hazards to air navigation in the vicinity of SFO. These land uses include the following:
    1. Any use that would direct a steady or flashing light of white, red, green or amber color towards an aircraft engaged in an initial straight climb following takeoff or toward a landing, other than FAA-approved navigational lights
    2. Any use that would cause sunlight to be reflected toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward a landing
    3. Any use that would generate smoke or rising columns of air
    4. Any use that would attract large concentrations of birds within approach and climb-out areas; and
    5. Any use that would engage electrical interference that may interfere with aircraft communications or aircraft instrumentation

East of 101 Area Plan (adopted 1994)

The Project Area is also located within the *East of 101 Area Plan* planning area, which provides a detailed implementation guide for the area. The East of 101 Area Plan is principally used to provide direction related

to project design and certain other facets of development in the area not otherwise covered in the General Plan or other City plans. Some of the policies in the East of 101 Area Plan related to hazards and hazardous concerns are listed below.

- **Policy L1U9:** Uses that emit loud noise or create hazardous materials, water contaminants or other pollutants shall only be allowed in the East of 101 Area after review by the Planning Commission. The Planning Commission must find, in addition to any other required findings, that a proposed use would include all feasible measures to mitigate such adverse impacts and that the use would also have mitigating benefits such as employment creation or revenue generation.
- **Policy L2U3**: Maximum heights of buildings in the East of 101 Area shall not exceed the maximum heights established by the Airport Land Use Commission based on Federal Aviation Regulations Part 77 Criteria.
- **Policy L3U1**: No new above ground, bulk fuel tanks are permitted after July 25 1994. Any above ground fuel tanks that lawfully existed prior to July 1994 may be maintained but may not be replaced or expanded.
- **Policy G5EO**: If hazardous fill such as garbage organics is encountered, it shall be appropriately disposed by a project developer during construction. This material shall not be used for either structural fill or grading fill. However, other uses may be possible such as landscaping around vegetation if the fill has a high organic content. If no acceptable use is found on-site, the hazardous fill should be properly disposed off-site.

South San Francisco Municipal Code

The South San Francisco Municipal Code includes regulatory requirements addressing use and disposal of hazardous materials and hazardous waste. These regulatory requirements include the following:

Chapter 8.16 Solid Waste—Scavenger Services

- **Section 8.16.125, Yard waste; construction and demolition debris; hazardous waste and household hazardous waste**: Yard waste removed from a residential, commercial and industrial or institutional property by a gardening, landscaping or tree trimming contractor as an incidental part of a comprehensive service offered by such contractor, rather than as a hauling service, may be disposed of by such contractor at any licensed landfill, transfer station or materials recovery facility. Construction debris and/or demolition debris removed from a residential, commercial and industrial or institutional property by a licensed construction or demolition contractor using its own employees and equipment as an incidental part of a comprehensive service offered by such contractor, rather than as a hauling service, may be disposed of by such contractor at any licensed transfer station or materials recovery facility. Hazardous waste and household hazardous waste may be disposed of in any lawful manner.

Chapter 14.04 Stormwater Management and Discharge Control

- **Section 14.04.320, Coordination with hazardous materials inventory and response program**: The first revision of a business plan for any facility subject to the city's hazardous materials inventory and response program shall include a program for compliance with this chapter, including the prohibitions on non-stormwater discharges and illicit discharges, and the requirement to reduce stormwater pollutants to the maximum extent practicable.

Chapter 14.08 Water Quality Control

- **Section 14.08.170, Reporting and recordkeeping requirements for permittee**: All industrial users discharging any substance which, if otherwise disposed of, would be a hazardous or acutely

hazardous waste under 40 CFR part 261, must comply with the notification requirements in 40 CFR 403.12(p)(1) and (3) unless exempted under the provisions of 40 CFR 403.12(p)(2). Any written notification required by this subsection shall be provided to the city, the EPA Regional Waste Management Division Director and state hazardous waste authorities. The industrial user shall certify that it has a program in place to reduce the volume and toxicity of hazardous wastes generated to the degree it has determined to be economically practical. The city may accept a copy of a hazardous waste reduction or minimization plan otherwise required by law, as compliance with this requirement.

- **Section 14.08.210, General discharge regulations**: It is unlawful to discharge or cause to be discharged directly or indirectly, any pollutant or wastewater into any storm sewer or into any sewage facility that will interfere with the operation or performance or pass through of the POTW. These general prohibitions apply to all users whether or not the user is subject to categorical pretreatment standards or any other national, state, or local pretreatment standards or requirements. The discharge of the following is prohibited:
    1. wastes or wastewater containing any radioactive materials except in compliance with applicable state and federal regulations
    2. Any pesticides containing algaecides, antibiotics, fungicides, herbicides, insecticides or any similar pesticides in amounts deleterious to any sewage treatment process or to the aquatic life of the waters receiving the effluent, and
    3. Any wastewater or pollutant that results in the presence of toxic gases, vapors or fumes within the POTW in a quantity that may cause acute worker or public health or safety problems

Genentech Policies and Standards

Genentech has developed, and maintains and implements, a proactive Environment, Health and Safety Program that specifically includes procedures that ensure compliance with applicable laws, regulatory agency standards and corporate safety, health and environment directives. Genentech Environment, Health and Safety Program leadership is responsible for site compliance with safety legislation and ensuring that safety policies and practices are adopted and implemented. The Environment Health and Safety Program also includes planning, implementation, monitoring and review of practices and procedures that include protective and preventive safety measures. Examples of Genentech's practices and programs that are in place to ensure ongoing compliance with regulatory requirements governing the management of hazardous materials include the following:

- Genentech has Storm Water Pollution Prevention Plans and Spill Prevention Control and Countermeasure Plans to manage the potential risks associated with an accidental release of hazardous materials to storm drains. Stormwater is monitored regularly, consistent with regulatory requirements.
- The Genentech Chemical Hygiene Plan describes the company's laboratory safety program, and applies to all employees engaged in the use of hazardous chemicals in laboratories. The Chemical Hygiene Plan sets forth requirements and accountability for the proper labeling of all laboratory chemicals, the provision of appropriate training for lab personnel, the provision of appropriate protective equipment, and the implementation of periodic inspections.
- Genentech has a comprehensive Biosafety Program designed to protect employees against potential occupationally acquired infections, to prevent environmental releases of biohazardous materials and wastes, and to ensure compliance with regulations and guidelines applicable to biological materials. The Biosafety Program consists of several components including the Genentech Institutional

Biosafety Committee, the Biosafety Manual, the Medical Surveillance Program and the Blood-borne Pathogens Program (including Exposure Control Plan).

- Genentech has a comprehensive Laboratory Waste Management Guide providing detailed information and resources to laboratory personnel regarding the precise protocols for management of laboratory waste streams that may be hazardous, including radioactive waste, biohazardous waste, laboratory chemical waste and non-chemical solid wastes.
- Genentech has an Institutional Biosafety Committee and a Radiation Safety Committee to oversee compliance efforts and practices where biohazardous and radioactive materials may be used, as well as a Research and Process Development Oversight Committee to oversee all issues pertaining to research laboratory and process development activities.
- Genentech has an Injury & Illness Prevention Program, as well as a Hazard Communication Program to ensure that employees are aware of any workplace hazards, as well as the applicable hazardous materials management requirements. Training courses are provided to employees based on their job duties and responsibilities pertaining to hazardous materials and/or wastes.
- Genentech maintains a company intranet on which all relevant company programs, procedures, standards and general information and resources for employees are maintained.
- Genentech has a database of all chemicals used on-site that is accessible by all employees.
- Genentech has a Medical Surveillance Program to identify individuals and/or health conditions that warrant special attention for work exposures, and to detect early possible effects of potentially harmful work exposure. Personal monitoring devices (such as dosimetry badges, finger-rings, organic vapor monitors, sampling tubes and cartridges, and direct reading instruments) are employed to conduct work area and employee monitoring.

Impacts and Mitigation Measures

Analytic Method

The analysis in this section focuses on the use, generation, disposal, transport or management of hazardous or potentially hazardous materials at the Genentech Campus. This includes disposal options, the probability for risk of upset, and the severity of consequences to people or property associated with the increased use, handling, transport and/or disposal of hazardous materials associated with construction and ongoing implementation of the Project.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines, established City of South San Francisco standards and practices, and the prior 2007 MEIR and its 2012 SMEIR. For purposes of this EIR, implementation of the Project could result in potentially significant impacts related to hazardous materials and waste, or other hazards, if the Project would result in any of the following:

1. Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials.
2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
3. Emit hazardous emissions, or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school.

4. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, if the project results in a safety hazard or excessive noise for people residing or working in the project area.
6. Impair implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan.
7. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

Routine Transport, Use, Disposal or Storage of Hazardous Materials

Hazards 1: Implementation of the Project would not expose Genentech employees or the nearby public to significant hazards due to the routine transport, use, disposal or storage of hazardous materials (including chemical, radioactive and biohazardous waste). (**Less than Significant with Regulatory Compliance**)

Implementation of the Project would result in development of additional laboratories and other research facilities that are likely to use, store or require the transportation and disposal of hazardous materials. The amount and type of hazardous materials may vary over time, with changes in research and additions to hazardous materials lists. However, the general range and type of hazardous materials used on-site can be expected to be similar to those materials that are currently used, some of which are considered hazardous, during the course of daily operations. These hazardous materials include inorganic and organic chemicals, chemical reagents and reaction products, solvents, mercury, lead, asbestos, radioisotopes, biohazards, fuels, oils, paints, cleansers, and pesticides.

The Project would also result in an increase in the number of people that work and visit the Project area, increasing the number of individuals potentially exposed to hazardous materials. The individuals most at risk would be those employees who work at locations where hazardous materials are found (laboratories, production and maintenance facilities and construction sites). Whether a person exposed to a hazardous substance at one of these locations may suffer adverse health effects depends upon a complex interaction of factors. Factors that determine the effects of exposure to hazardous materials include the exposure pathway (the route by which a hazardous material enters the body), the amount of material to which the person is exposed, the physical form (e.g., liquid, vapor) and characteristics (e.g., toxicity) of the material, the frequency and duration of exposure, and the individual's unique biological characteristics (e.g., age, gender, weight, and general health). Adverse health effects from exposure to hazardous materials may be short-term (acute) or long-term (chronic). Acute effects can include damage to organs or systems in the body and possibly death. Chronic effects, which may result from long-term exposure to a hazardous material, can also include organ or systemic damage, but chronic effects of particular concern include birth defects, genetic damage and cancer.

Off-site hazardous materials exposure could occur through limited circumstances, such as accidental spills or release during transport or use.

Regulatory Requirements

Genentech must comply with the safety procedures mandated by applicable federal, state and local laws and regulations (e.g., RCRA, California Hazardous Waste Control Law and principles prescribed by the US Department of Health Services) to ensure that risks resulting from the routine use of hazardous materials and disposal of hazardous wastes remain less than significant. Genentech has established programs, practices and

procedures, and safety standards in compliance with these regulations related to use, disposal and transport of hazardous materials and wastes.

Safety programs will reduce the risk of exposure to biohazardous and chemical hazardous materials through established protocols to safely handle and store hazardous substances. Genentech ensures that their facilities comply with the California Code of Regulations (Title 17) and the conditions of its radioactive materials license. Radiation use authorizations and ongoing training regarding radiation safety also reduce the risks from radiation-related use or disposal on-site. Federal and state laws, as well as all Genentech procedures for handling hazardous wastes, will be extended to all new facilities developed under the Project, as applicable. The potential impact of increased hazardous chemical, biohazardous and radioactive material use at Genentech would remain less than significant.

Regulatory Requirements Hazards 1A - Use of Chemical Materials: Genentech shall comply with all State, federal and local regulations, and Genentech programs, practices and procedures that ensure the potential for worker and/or public exposure to hazardous chemicals from improper or unsafe activities or from accidents is less than significant.

1) To reduce the potential for exposure to airborne chemicals, workers shall take standard precautions such as working under fume hoods when using chemicals that could present exposure hazards. The chemical fume hood is a critical health and safety control in the laboratory setting, ensuring an adequate level of protection from possible harmful effects of chemicals. Proper use of fume hoods keeps exposure to toxic air contaminant levels within indoor laboratories below levels required by Cal/OSHA (Permissible Exposure Levels).

2) To prevent exposure through skin contact, Genentech shall require that protective clothing such as laboratory coats, gloves and safety glasses, be worn while handling hazardous materials. Proper washing after handling chemicals is required. Eating, drinking and smoking are prohibited in laboratories and other areas where hazardous materials are used. These procedures are disclosed to all staff that work with hazardous materials. By training staff, Genentech increases the safety awareness of Genentech employees and further reduces the risks of exposure to hazardous chemicals through inhalation, absorption, ingestion and injection. Should an accident occur that could cause exposure of an individual to hazardous materials, required emergency equipment (e.g., fire extinguishers, eyewashes and safety showers) is also available.

3) Cal/OSHA requires all institutions that use hazardous materials to implement a Hazard Communication Program and to train employees that use hazardous chemicals in the safe use of those materials. Genentech implements all safety procedures and conducts safety programs to ensure that these OSHA safety procedures are consistently followed. Genentech will continue to implement these (or equivalent) programs, practices and procedures, and will expand these programs as needed. Title 8 of the California Code of Regulations (Section 3203 of the General Industry Safety Orders) also requires every California employer to have a written Injury and Illness Prevention Program to provide a safe and healthful workplace. OSHA mandates methods of documenting, investigating and controlling accidents that result in skin penetration. Evidence presented during OSHA rule-making procedures indicates that these programs and methods are effective in reducing the number and severity of injuries and illness in the workplace.

Regulatory Requirements Hazards 1B - Use of Radioactive Materials: The use of radioactive materials at the Genentech site is specifically subject to the conditions of a radioactive materials license issued and administered by the Radiologic Health Branch of the DHS. Genentech administers and monitors facility compliance with license requirements. Radioactive materials licensing requirements include routine inspection and monitoring of areas where radioactive materials are used, to ensure that surfaces are not contaminated with radioactivity above background levels. Under the radioactive materials license, renovation or demolition of facilities using radioactive material requires

decommissioning of the facilities. This involves radiation testing and conducting decontamination and waste handling activities in accordance with applicable regulations.

1) Use of radioactive materials at Genentech is monitored to ensure consistency with requirements of Genentech's radioactive materials license as issued and administered by the Radiologic Health Branch of the DHS. These licensing requirements articulate standards to maintain radiation exposure levels below applicable legal standards, thereby protecting users of radioactive materials.

2) Like all hazardous materials, the effects of the routine use of radioactive materials are limited to areas where exposure may occur and decreases substantially with distance. For this reason, the individuals most at risk would be those specially trained in the use of radioactive materials, thereby reducing the likelihood for accidental exposure through improper handling techniques. All individuals who handle radioactive waste are required to wear a personal monitor that determines their cumulative exposure to radiation. If the monitor indicates that established safety levels might be exceeded, the individual is prevented from being exposed to potential sources of radiation until the monitor indicates that safety levels can be maintained.

Regulatory Requirements Hazards 1C - Use of Biohazardous Materials: Genentech complies with guidelines promulgated by the United States Department of Health and Human Services (USDHHS), Centers for Disease Control and Prevention, and National Institutes of Health that determine the level of safety precautions that must be used for four tiers of relative hazards. Biosafety Level 1 is for the least hazardous biological agents, and Biosafety Level 4 is for the most hazardous biological agents. Biosafety Levels for infectious agents are based on the characteristics of the agent (virulence, ability to cause disease, routes of exposure, biological stability and communicability), the quantity and concentration of the agent, the procedures to be followed in the laboratory, and the availability of therapeutic measures and vaccines. Biosafety Level 1 agents pose minimal or no known potential hazards to individuals and the environment. Biosafety Level 2 agents are considered to be of ordinary potential hazard and may produce varying degrees of disease through accidental inoculation, but may be effectively contained by ordinary laboratory techniques and specific laboratory equipment. Biosafety Level 3 agents pose a more substantial risk, and work with these agents must be conducted in contained facilities for which airflow is directed into the laboratory and access is controlled separately from public areas.

1) Occupational and public safety is protected by selecting the appropriate biological and physical containment levels for each biological material handled. Standard microbiological practices, such as limiting facility access, washing hands after handling, de-contaminating work surfaces, wearing gloves and other safety equipment, using biosafety cabinets, and proper disposal reduce risks resulting from exposure to biohazardous materials.

2) Current state testing, monitoring and disposal regulations, and Genentech's own programs pertaining to the management of biohazardous materials (including infectious agents), further ensure that risks associated with use of biohazardous substances remain less than significant.

3) Medical wastes are managed by Genentech as a biohazardous material, in accordance with Section 117635 of the California Health and Safety Code and with USDHHS guidelines and DHS regulations. Biohazardous medical waste is generally regulated in the same manner as hazardous waste, except that special provisions apply to storage, disinfection, containment, transportation and disposal.

Regulatory Requirements Hazards 1D - Disposal of Hazardous Materials: Genentech disposes of hazardous wastes in compliance with Titles 8, 14, 17 and 22 of the California Code of Regulations.

1) Spent hazardous materials generated on a daily basis in research, production and maintenance facilities are placed in special containers and are kept in specially designated and ventilated accumulation areas. These hazardous wastes are collected and accumulated in designated and secured areas designed to prevent accidental release to the environment. Wastes are transported off- site by licensed hazardous waste transporters to permitted hazardous waste disposal facilities, and emergency response procedures for all on-site storage sites are included in the Genentech Hazardous Waste Contingency Plan. Biohazardous wastes are managed in the same way, though separately.
2) In accordance with strict regulatory guidelines of the Department of Energy, the Nuclear Regulatory Commission, the US EPA and the California Radiation Control Law (California Health & Safety Code Sections 114960-114985), Genentech collects, prepares and packages its radioactive waste. Radioactive waste is then transported by a radioactive waste broker to a licensed radioactive waste disposal facility.

Regulatory Requirements Hazards 1E – Hazardous Materials Transport: The CHP and US DOT strictly regulate the transportation of hazardous materials to and from the site. Procedures mandated by federal and state laws and regulations include driver training and licensing, standardized hazard warning placards for vehicles, shipping manifest requirements and standards for classifying, handling and packaging hazardous materials. Continuation of existing (or equivalent) Genentech programs, practices and procedures, will ensure that the use, transport or disposal of hazardous materials does not expose employees, visitors or the nearby public to significant health or safety risks.

Mitigation Measures

No mitigation is required.

Mandatory compliance with all applicable federal, State and local regulations pertaining to the safe use, storage, transport and disposal of hazardous materials (including chemical, radioactive, and biohazardous waste used at Genentech facilities) will ensure that the expose of Genentech employees or the nearby public will be reduced to levels determined by these regulations to be less than significant.

Reasonably Foreseeable Upset and Accident Conditions

Hazards 2: Implementation of the Project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. (**Less than Significant with Regulatory Compliance**)

The following discussion focuses on the potential nature and magnitude of risks associated with accidental release of those types of hazardous materials typically used on site.

Hazardous waste shipments may occur as frequently as several times per week. The transportation of hazardous materials can result in accidental spills, leaks, toxic releases, fire or explosion.

In addition to transport of hazardous materials to and from the Genentech facility, the movement of hazardous materials also occurs within buildings at the Genentech facility. Accidents could occur as these materials are moved about the facility, and exposure of employees could occur through fire or explosion. The consequences of an on-site spill depend on whether hazardous materials are released, the specific hazards associated with the material, the facility design and the availability of emergency response equipment. In addition to health impacts associated with direct contact from an accidental spill, indirect impacts could also occur. Spills that occur on permeable surfaces may be difficult to decontaminate and may require complete removal of the surface. In areas without adequate ventilation, including partially enclosed outdoor areas, vapors from released volatile materials could be trapped in stagnant air pockets and persons entering these areas after such a spill could be subject to health hazards associated with such vapors.

Hazardous materials are stored in laboratories in designated secured areas designed to prevent accidental release to the environment. Hazardous materials used for research are generally stored in laboratories in small, individual containers. In the unlikely event of an accidental release, these small storage volumes limit potential consequences to the individual laboratory in which they are stored.

For those employees that work with hazardous materials, the amount of hazardous materials that are handled at any one time is relatively small, reducing the potential consequences of an accident during handling. Major hazardous materials accidents are extremely infrequent and additional emergency response capabilities are not anticipated to be necessary to respond to the potential incremental increase in the number of incidents that could result from implementation of the Project.

Regulatory Requirements

Regulatory Requirements Hazards 2A - Off-Site Transportation of Hazardous Materials: The USDOT Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials, as described in Title 49 of the Code of Federal Regulations, and implemented by Title 13 of the California Code of Regulations. Transportation of hazardous materials along any City or state roadways within or near Genentech is also subject to all hazardous materials transportation regulations established by the California Highway Patrol pursuant to the California Vehicle Code and the South San Francisco Fire Department (SSFFD).

1) In compliance with these regulations, Genentech's programs, practices and procedures specifically govern receipt of hazardous materials. Licensed vendors bring hazardous materials to and from the facility, and manifests are completed and maintained by Genentech for all hazardous waste that is transported. The DTSC maintains copies of Genentech's waste manifests. In conformance with additional legal requirements, incoming radioactive material is monitored and recorded for each acquisition. Genentech processes and delivers all incoming radioactive materials to end users.

2) Section 31303 of the California Code of Regulations requires that when hazardous materials are transported on state or interstate highways, the highways that offer the shortest overall transit time possible shall be used. As required by federal and state laws, all other hazardous materials transportation regulations must be followed, including USDOT regulations for packaging and handling hazardous materials to prevent accidental spills of hazardous materials during transit.

Compliance with all applicable federal and state laws, as well as all Genentech programs, practices and procedures related to the transportation of hazardous materials will continue to reduce the likelihood and severity of accidents during transit.

Regulatory Requirements Hazards 2B - Hazardous Materials Use, Storage and On-Site Transportation: Management of risk and minimizing the potential for upset and accident conditions involving the release of hazardous materials is regulated by numerous federal, State and local laws and regulations.

1) The Cal EPA's regulations pursuant to the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program addresses (among other matters) a number of programs specifically designed to minimize such risks. These programs require all businesses that handle hazardous materials to prepare a Hazardous Materials Release Response Plan and inventory, a Risk Management and Prevention program, and compliance with Unified Fire Code requirements. These programs are implemented at the local level, and in South San Francisco, the San Mateo County Department of Environmental Health (SMCDEH) is the designated Certified Unified Program Agency (CUPA) responsible for implementation of these programs.

2) The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that any business that handles hazardous materials prepare a Business Plan. That Business Plan must include details of the facility and business conducted at the site, an inventory of hazardous materials that are handled or stored on site, an emergency response plan and a training program for safety and emergency response for new employees, with annual refresher courses.

3) The USDHHS, CDC, NIH and DHS all prescribe containment and handling practices for use in microbiological, biomedical and animal laboratories. Medical wastes must be managed as a biohazardous material, in accordance with Section 117635 of the California Health and Safety Code, and the management of biohazardous materials must comply with USDHHS guidelines and DHS regulations.

4) The Atomic Energy Act ensures the proper management of source, special nuclear, and by-product material. The California Radiation Control Law California Health & Safety Code Sections 114960-114985) is a regulatory program designed to provide for compatibility with the standards and regulatory programs of the federal government and integrate an effective system of regulation within the state. These laws and regulations govern the receipt, storage, use, transportation and disposal of sources of ionizing radiation (radioactive material), and protect the users of these materials and the public from radiation hazards.

Genentech complies with all of these applicable federal, State and local laws and regulations via Genentech programs, practices and procedures related to the storage and use of hazardous materials. Safe storage of hazardous materials will continue to be implemented to maximize containment through safe handling and storage practices, and to provide for prompt and effective cleanup if an accidental release occurs. Genentech will also continue to comply with federal and state laws and existing Genentech programs, practices and procedures to eliminate or reduce the consequence of hazardous materials accidents, should they occur. Staff members who work around hazardous materials will continue to wear appropriate protective equipment, and safety equipment will continue to be available in all areas where hazardous materials are used.

Genentech will also continue to implement all applicable federal and State laws and existing Genentech programs, practices and procedures to prevent against the risks of accidental spills or releases of hazardous materials during internal transfers and movement of these materials, and the cleanup of hazardous materials in the event of an accidental release. These laws, regulations, programs, practices and procedures include training regarding the handling of hazardous wastes, and fully developed Emergency Response Programs. If a spill occurs, the Genentech First Alert Team will be immediately notified, and if required, the area of potential affect will be isolated and evacuated as appropriate in accordance with Genentech's Integrated Contingency Plan to reduce the potential for human exposure and to allow for prompt and effective cleanup. In such instances, all individuals will be evacuated from the affected area until vapors dissipate to safe levels.

Mitigation Measures

None required. Continued compliance with all applicable federal, state and local laws and regulations pertaining to the transport, use, disposal, and handling of hazardous waste, as well as implementation of Genentech's programs, practices and procedures, will ensure that impacts related to accidental spills and upset involving hazardous materials remains less than significant.

Cortese List Sites

Hazards 3: Although some Project area facilities are included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, implementation of the Project would not

create a significant hazard to the public or the environment due to the presence of these listed facilities. (**Less than Significant with Regulatory Compliance**)

Certain Genentech facilities and other sites within the Project area are included on lists and databases compiled by applicable federal, state and local agencies pursuant to Government Code Section 65962.5. For the most part, these sites consist of registered facilities that generate, transport, store, treat and/or dispose of hazardous waste, registered active or inactive underground storage tanks (USTs), and registered hazardous materials storage locations, rather than contaminated sites (e.g., soil or groundwater) that may create a significant hazard to the public or the environment.

As indicated in the Setting section of this chapter of the EIR, there is one open (or active) contaminated site within the Project Area where an investigation and/or remediation is in progress and where a regulatory agency is still actively involved. This site is the O'Brien Corporation site located at 450 East Grand Avenue on the South Campus. This site is designated by the DTSC as a "Closed Case" but with Corrective Action.[9] The O'Brien site is also designated by the SWRCB as a Cleanup Program Site with cleanup status "Open – Inactive" as of February 2017.[10]

The O'Brien site is part of the former Fuller O'Brien paint manufacturing property, and historic site activities associated with Fuller O'Brien included manufacturing of varnish for coating horseless carriages, production of vinyl baking finishes, baking enamels, water-thinned latex paints, water-based latex paints, solvent paints (oils and alkyds), lacquers and thinner solvents. The hazardous wastes generated from these prior processes were managed in surface impoundments (ponds). These ponds, a storage area, two storage tanks and other associated facilities were evaluated pursuant to the federal Resource Conservation Recovery Act (RCRA). The Facility Assessment identified nineteen solid waste management units and six areas of concern. The main hazardous waste constituent of concern was lead. Other constituents of concern included metals, total petroleum hydrocarbons (TPH), volatile organic compounds and semi-volatile compounds. Documented regulatory actions for this site are summarized as follows: [11]

- In December 1987, a RCRA Facility Assessment was completed under authority of US EPA, which identified hazardous waste and hazardous waste constituents of concern, including lead and other metals, volatile organic compounds, semi-volatile organic compounds (benzo(a)anthracene and benzo(b)fluoranthene), arsenic, and total petroleum hydrocarbons. The US EPA separated the subsequent site investigations into two parts; US EPA retained lead agency status for soil remediation, and DTSC took lead agency status for groundwater investigations and remediation.
- April 2000: The US EPA approved a soil remedy plan including soil removal and capping, and that soil remedy plan was subsequently implemented.
- October 2000: Because soil with concentrations exceeding cleanup standards remained below the cap following all remedial actions, institutional controls (a deed restriction on future land uses) were imposed. The Deed Restriction was filed with San Mateo County to restrict the property to industrial use, with provisions for exceptions subject to DTSC approval.
- 2001: Groundwater investigations continued.
- 2005: DTSC approved a revised soil remedy, a methane mitigation system was implemented and the RCRA Facility Investigation, which was initiated in 1987, concluded. A "No Further Action" letter was issued for soil contamination

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9 https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=80001530

10 http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL18341761

11 California DTSC, accessed at: https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=80001530

- 2008: Deed restriction was amended to allow a portion of the site to have unrestricted use.
- March 2008: An Agreement for Operation and Maintenance was recorded by DTSC.
- August 2008: DTSC issued a "Corrective Action Completion with Controls" determination. On-site and off-site risks related to groundwater contamination were deemed acceptable by DTSC for all media and receptors.
- August 2011: A request was made to cease monitoring of the passive methane mitigation systems at the site, DTSC approved this request in March 2012 and the methane mitigation monitoring activities were discontinued.
- June 2014: DTSC issued a "Remedy Construction Complete" report, which deemed that the environmental indicators for human health and groundwater had been met, and remedies were complete.
- 2016: Genentech acquired this property and initiated construction of a new building (Building 40). DTSC records pertain primarily to Genentech's construction efforts related to Building 40, and compliance with the Deed Restrictions and Site Management Plan to minimize potential exposure and contamination during construction (i.e., dust control monitoring, pipe grouting, soil disturbance for construction of bio-swales, and notifications for other subsurface work).
- 2017: Genentech began utilities trenching and other work associated with construction of Building B40 at the site and expansion of a cafeteria within Building B42, both partially within the capped portion of the property. At DTSC's request, Genentech implemented a Dust Control Monitoring Plan to demonstrate that the B40 construction activities were not generating dust above local air board requirements.

The B40 construction project is anticipated to end later in 2019, and DTSC and Genentech are currently discussing how these activities will be documented, and whether existing site plans for managing future activities need to be updated.

Regulatory Requirements

Future development of any site that has a documented release of hazardous materials and that is listed in a regulatory database (such as any additional work within the bounds of the O'Brien site) is subject to site clean-up regulations as required by the lead regulatory agency.

Regulatory Requirement Hazards 3 – DTSC Deed Restrictions and Enforcement Plan: The O'Brien site is still subject to deed restrictions and the Agreement for Operations and Maintenance (which includes a requirement to comply with the Land Use Covenant Implementation Enforcement Plan). As a result, the following regulatory controls remain applicable to this site:

1) Activities that may disturb existing groundwater monitoring wells shall not be permitted without prior review and approval by DTSC.
2) The capped portion of the site may be variously occupied by buildings, paved with either concrete or asphalt or covered with landscaping or other vegetative cover, clean soil imported from an off-site location, or with other suitable cover to mitigate direct exposure.
3) Engineering controls such as wind erosion control and dust suppression must be implemented during construction activities to minimize or mitigate potential exposure of contaminated soil.
4) Any contaminated soils that may be brought to the surface by future grading, excavation, trenching, backfilling or other activity shall be managed in accordance with all applicable provisions of state and federal laws and regulations, including the DTSC-approved Site Management Plan and Health and Safety Plan.

5) The Site Management Plan includes administrative controls for construction workers (including designation of regulated areas, employee training and personal hygiene practices). Controls include personal protective respiratory equipment for construction workers, air monitoring to verify the effectiveness of hazard controls and to document emissions, training of construction employees or persons who may handle or come in contact with potentially hazardous materials, and collection and analysis of surface soil samples from areas not covered with structures or a paved surface to verify the integrity of a clean soil cap.

Mitigation Measures

None required. Implementation of these regulatory requirements will ensure that any impacts that may result from future disturbance of the soil cap at this site will be mitigated to less than significant levels.

Construction-Related Hazardous Materials

Hazards 4: New construction activities pursuant to the Project could expose construction workers or Genentech employees to a significant hazard through the renovation or demolition of buildings, or relocation of underground utilities that contain hazardous materials. (**Less than Significant with Regulatory Requirements and Mitigation**)

Based on the historical industrial use of the area, it is possible that currently unknown or non-listed underground storage tanks or sites with soil and/or groundwater contaminated with petroleum hydrocarbons, metals, solvents or other industrial materials could be encountered during construction activities associated with future Project implementation. Potential contamination may include leaks from underground storage tanks and low concentrations of ammonia.[12] Naturally occurring asbestos in serpentine rock is known to be present in the central portions of the Project area, and may be present in other locations as well. It is also possible that contamination could exist in localized areas as the result of pesticide or herbicide use during routine landscape/turf maintenance practices, or in association with the removal or disturbance of older underground utilities or unidentified buried debris.

If required during construction activities, dewatering could result in the withdrawal of contaminated groundwater. If the groundwater contains contaminants above regulatory levels, the water could present a hazard to people or the environment unless properly managed.

Demolition of existing structures within the Project Area may expose construction workers, the public or the environment to hazardous materials such as lead-based paint, asbestos and PCBs. The level of potential impact is dependent upon the age, construction and building materials in each area of the building. Asbestos-containing materials that may be present at the site, if disturbed, could expose workers and the public during demolition. Any activity that involves cutting, grinding or drilling during building renovation or demolition, or relocation of underground utilities, could release friable asbestos fibers and/or lead dust, unless proper precautions are taken.

Regulatory Requirements

Potential exposure to hazardous building materials would be reduced through appropriate identification, removal and disposal according to applicable regulations.

Regulatory Requirement Hazards 4A – Discovery of Underground Storage Tanks: All known on-site storage tanks are above ground and conform to applicable federal, state and local regulations and are registered and permitted by the South San Francisco Fire Department. In the event that previously

[12] Low concentrations of ammonia were previously discovered in soil and groundwater in the Lower Campus. These contaminants were removed, and the Regional Water Quality Control Board issued a "No Further Action" letter in 2003.

unknown USTs are uncovered or disturbed, they will be properly closed in place or removed. While removal could pose health and safety risks, such as the exposure of workers and the public to tank contents or vapors, these potential risks will be reduced by managing the tank closure process according to established regulatory guidelines for investigation and closure of USTs, and for cleanup of sites contaminated by leaking USTs. These regulatory guidelines are established pursuant to the California EPA's adopted Unified Hazardous Waste and Hazardous Materials Management Regulatory Program, as implemented at the local level by the San Mateo County Department of Environmental Health.

Regulatory Requirement Hazards 4B – Asbestos: Asbestos-containing materials are regulated both as a hazardous air pollutant under the Clean Air Act and as a potential worker safety hazard under the authority of Cal-OSHA. Any asbestos-containing materials in structures slated for demolition must be abated in accordance with State and federal regulations, prior to the start of demolition or renovation activities.

1) Section 19827.5 of the California Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos.
2) The BAAQMD is vested by the California legislature with authority to regulate airborne pollutants, including asbestos, through both inspection and law enforcement, and is to be notified 10 days in advance of any proposed demolition or abatement work.
3) State regulations contained in 8 CCR 1529 and 8 CCR 341.6 through 341.14 must be followed where there is asbestos-related work involving 100 square feet or more of asbestos-containing material. Asbestos removal contractors must be certified as such by the Contractors Licensing Board of the State of California.
4) The owner of the property where abatement is to occur must have a hazardous waste generator number assigned by and registered with the DTSC. The site owner or responsible party and the transporter of the waste are required to file a hazardous waste manifest that details the transportation of the material from the site and its disposal.

Genentech has a comprehensive asbestos management program that includes regular surveys, annual notifications and signage in appropriate locations, as well as making information regarding the locations of asbestos on its campus available to all employees through the company's intranet.

Regulatory Requirement Hazards 4C – Lead-Based Paint: Both the federal OSHA and Cal-OSHA regulate worker exposure during construction activities that may disturb lead-based paint. The Interim Final Rule found in 29 CFR 1926.62 covers construction work in which employees may be exposed to lead during such activities as demolition, removal, surface preparation for repainting, renovation, cleanup and routine maintenance. The OSHA-specified compliance includes respiratory protection, protective clothing, housekeeping, special high-efficiency filtered vacuums, hygiene facilities, medical surveillance and training. No minimum level of lead is specified to activate the provisions of this regulation.

Regulatory Requirement Hazards 4D- PCBs: Fluorescent lighting ballasts manufactured prior to 1978, and electrical transformers, capacitors and generators manufactured prior to 1977 may contain PCBs. In accordance with the Toxic Substances Control Act and other federal and state regulations, construction or demolition activities that may involve such materials must properly handle and dispose of electrical equipment and lighting ballasts that contain PCBs.

Regulatory Requirement Hazards 4E – Construction Dewatering: Pursuant to Section 13263 of the California Water Code, the Regional Water Quality Control Board issues Waste Discharge Requirements to

control discharges (including dewatering during construction) to land or water. Pursuant to these requirements, permits require contractors to implement best management practices during construction dewatering to avoid exposure of employees or construction workers to potentially contaminated groundwater. These BMPs may include, but are not limited to groundwater testing, containment of contaminated groundwater in storage tanks for subsequent treatment and/or disposal, and the provision of release response information. In the unlikely event that contaminated groundwater is discovered during construction activities, Genentech's contractors will follow specific procedures to reduce the risk of exposure.

Regulatory Requirement Hazards 4F – Building Demolition: Buildings demolished during construction activities could have contained biohazardous materials, including medical wastes, prior to demolition. Genentech's programs, practices and procedures, and current state testing, monitoring and disposal regulations pertaining to the management of biohazardous materials (including medical waste) will eliminate or reduce the potential for biohazardous substances to be present in fixtures or building materials removed during demolition. Genentech's radioactive materials license requires testing and implementation of decontamination and waste handling activities in accordance with applicable regulations when facilities using radioactive materials are decommissioned for purposes of renovation or demolition.

Mitigation Measures

The regulatory requirements listed above apply to all new construction activities within the Project that could expose construction workers or Genentech employees to a significant hazard from hazardous materials through the renovation or demolition of buildings, or relocation of underground utilities. However, the presence of hazardous materials at any particular location is not always known. Therefore, in addition to all regulatory requirements identified above, the following mitigation measure shall be implemented prior to initiation of ground-disturbing grading activities or construction activities associated with the Project:

Mitigation Measure Hazards 4: Site Assessment: If previously unknown contamination, underground tanks, containers or stained or odorous soils are discovered during construction activities, the construction contractor(s) shall stop work and appropriate investigation, sampling and comparison of data collected with health-based screening levels and/or consultation with a regulatory oversight agency shall be conducted to determine if the discovered materials pose a significant risk to the public or construction workers.

a) If any such materials are discovered that exceed human health screening levels as noted in DTSC's HERO HHRA Note 3 criteria for California Human Health Screening Levels (CHHSLs) and/or Environmental Screening Levels (ESLs), a remediation plan shall be prepared and submitted to the appropriate regulatory agency in compliance with all applicable legal requirements, and to ensure the proper handling and management.

b) Soil remediation methods may include, but are not limited to excavation and on-site treatment, excavation and off-site treatment, or disposal and/or treatment without excavation.

c) Remediation alternatives for cleanup of contaminated groundwater could include, but are not limited to on-site treatment, extraction and off-site treatment, and/or disposal.

d) Construction schedules may need to be modified or delayed to ensure that construction will not inhibit remediation activities and will not expose the public or construction workers to significant risks associated with hazardous conditions.

Resulting Level of Significance

Continued compliance with federal and state health and safety laws and regulations, as well as existing (or equivalent) Genentech programs, practices, and procedures, would ensure that potential exposure to known

hazardous building materials would be reduced to levels of less than significant. Individual site assessments for construction activities that may encounter currently unknown soil or groundwater contamination pursuant to the mitigation measure identified above would also ensure that potential exposure of construction workers, employees and the public are reduced to a level of less than significant.

Emissions of Hazardous Materials near a School

Hazards 5: The Project will not emit hazardous emissions nor handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school, but may handle such substances within one-quarter mile of a childcare facility. **(Less than Significant with Regulatory Requirements**)

There are no existing schools within one-quarter mile of the Project Area. The Project Area is located within an area zoned for industrial uses, only. Thus, no school can be proposed within one-quarter mile of the Project Area. However, there are three childcare facilities operating at or within one-quarter mile of the Project Area, including the Genentech-operated Cabot 2nd Generation at 342 Allerton Avenue and the 2nd Generation at 444 Allerton Avenue, as well as the private Early Years Preschool at 371 Allerton Avenue. Thus, although there are no schools within one-quarter mile, this section nevertheless analyzes the potential impact to the childcare facilities.

Pursuant to South San Francisco Municipal Code section 20.110.002, daycare or childcare centers are considered a public or semi-public use permitted within areas of the City (such as the Genentech Campus) that are zoned as Business and Technology Park (BTP). Childcare centers are required to obtain a license from the State of California Department of Social Services, provide a secure and screened outdoor play area, may only operate between the hours of 6:00 a.m. to 7:00 p.m., Monday through Friday, and must have an approved pick-up/drop-off plan. As discussed above regarding construction-related hazards, new construction activities pursuant to the Project could expose children and workers at these childcare centers to hazards associated with renovation or demolition of buildings, relocation of underground utilities that contain hazardous materials, discovery of unknown or non-listed underground storage tanks or sites with soil and/or groundwater contaminated with petroleum hydrocarbons, metals, solvents or other industrial materials. Additionally, children and childcare workers could potentially be exposed to hazards related to the routine transport, use, disposal or storage of hazardous materials.

Regulatory Requirements

During any construction activities near these childcare facilities, all regulatory requirements pertaining to known hazardous materials sites (see discussion under Impact Hazards 3, above) will apply. Additionally, all regulatory requirements pursuant to construction activities that could expose the public to a significant hazard from hazardous materials through the renovation or demolition of buildings, or relocation of underground utilities (see discussion under Impact Hazards 4, above) will also apply. Compliance with these regulations will ensure that impacts related to use or discovery of hazardous materials during construction remain less than significant.

All of the regulatory requirements listed pursuant to the routine transport, use, disposal or storage of hazardous materials (see discussion under Impact Hazards 1, above) ensure that the exposure of Genentech employees or the nearby public (including nearby childcare facilities) will be reduced to levels determined by these regulations to be less than significant. Similarly, all of the regulatory requirements listed pursuant to reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment (see discussion under Impact Hazards 2, above) will ensure that impacts related to accidental spills and upset involving hazardous materials remains less than significant.

Mitigation Measures

No additional mitigation is required.

Safety Hazards Related to a Public or Private Airport or Airstrip

Hazards 6: The Project is located within the Airport Land Use Plan boundaries of San Francisco International Airport (SFO), but the Project would not result in a safety hazard for people residing or working in the Project area. The Project is not located near a private airstrip. (**Less than Significant with Regulatory Compliance**)

The Project Area is entirely within the SFO Airport Influence Area (AIA) and as such, the compatibility criteria contained within the ALUCP are applicable to development within the Project Area. The *Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport* (ALUCP) is used by the City/County Association of Governments of San Mateo County (C/CAG) to promote compatibility between SFO and surrounding land uses. The ALUCP compatibility criteria, as derived from the Federal Aviation Administration (FAA), are used to safeguarding the general welfare of the public. As more fully discussed in the land Use chapter of this EIR, the Project is consistent with the noise, land use safety and building height criteria of the ALUCP, and would not conflict with plans and policies intended to protect and promote airport operations safety and/or airspace protection.

Safety Zones

The ALUCP defines five safety zones within its AIA, and land use compatibility standards are established to restrict development of certain types of land uses that could pose particular hazards to the public or to vulnerable populations in case of an aircraft accident. None of the five safety zones associated with SFO apply to the Project Area, and the ALUCP's criteria for land use safety do not apply to the Project.

Airspace Protection

The ALUCP also includes plans and policies related to the compatibility of proposed land uses and airspace protection. The purposes of these policies include protecting 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. The criteria used in establishing these policies is based on the Code of Federal Regulations (CFR) 14, Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace (Part 77), which 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.

- 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." The FAA considers any objects that penetrate these imaginary surfaces as potential 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.
- The ALUC also identifies "critical aeronautical surfaces" that protect the airspace required for multiple types of flight procedures. These critical aeronautical surfaces depict the lowest elevations from all FAA-required obstacle clearance criteria to ensure safe separation of aircraft. Any proposed structures penetrating these critical surfaces are likely to receive a Determinations of Hazard from the FAA, and these surfaces indicate the maximum height at which structures can be considered compatible with Airport operations.

Regulatory Requirement

Regulatory Requirement Hazards 6: FAA Building Height Criteria: Pursuant to the Project, the maximum heights of new buildings within the Project Area shall comply with the height regulations and restrictions as established by FAA criteria.

1) Pursuant to these height regulations, new buildings exceeding the FAA Part 77 "imaginary surface" height limits will be subject to FAA review and may be required to provide marking and/or lighting, or may not be found acceptable to the FAA if determined to have impacts to the safety or efficiency of operations at SFO.
2) No new structures will exceed heights that penetrate "critical aeronautical surfaces".

Mitigation Measures

No mitigation measures are required. Compliance with FAA building height regulations would ensure that the Project does not result in new buildings that exceed applicable ALUCP building height limits, and thus will be protective of 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.

Impairment or Interference with an Emergency Response or Evacuation Plan

Hazards 7: Implementation of the Project could impair implementation of, or physically interfere with an adopted emergency response or emergency evacuation plan. Implementation of mitigation measures will ensure this impact remains less than significant. (**Less than Significant with Mitigation**)

As more fully discussed above, Genentech complies with all applicable federal, State and local laws and regulations, and existing Genentech programs, practices and procedures, to prevent against the risks of accidental spills or releases of hazardous materials, and the cleanup of hazardous materials in the event of an accidental release. Pursuant to the California Hazardous Materials Release Response Plans and Inventory Law of 1985, Genentech maintains and updates a Business Plan that includes details of all facilities and activities that use hazardous materials at the site, including an emergency response plan and a training program for safety and emergency response for new employees. Pursuant to Cal EPA regulations under the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program, Genentech also maintains and updates a Hazardous Materials Release Response Plan that is coordinated with the San Mateo County DEH and the South San Francisco Fire Department. These Genentech plans are an integral part of, rather than an impairment of, coordinated emergency response and evacuation planning.

It is possible that construction and certain operational activities associated with the Project could potentially affect emergency response or evacuation plans due to temporary construction barricades or other roadway obstructions that could impede emergency access on-site.

Mitigation Measures

The following mitigation measures shall be implemented throughout the planning horizon of the Project:

Mitigation Measure Hazards 7A – Adequate Roadway Access: To the extent feasible, the Project applicant shall maintain at least one unobstructed lane in both directions on the site's roadways. At any time only a single lane is available, Genentech shall provide a temporary flag-person or other appropriate traffic control to allow travel in both directions. If construction activities require the complete closure of a roadway segment, Genentech shall provide appropriate signage indicating alternative routes.

Mitigation Measure Hazards 7B – Lane Closure Request: To ensure adequate access for emergency vehicles when construction projects may result in temporary lane or roadway closures, Genentech shall consult with the South San Francisco Police and Fire Departments to disclose any such temporary lane or roadway closures and to identify appropriate alternative travel routes.

Resulting Level of Significance

Continued regulatory compliance and coordinated planning between Genentech, the San Mateo County DEH and the South San Francisco Fire Department, will ensure that the Project will not impair or interfere with coordinated emergency response and evacuation planning. On-going coordination between Genentech and local agencies pursuant to the mitigation measures identified above would also ensure that roadway or travel lane closures are coordinated with emergency response personnel. This coordination will ensure that individual development projects pursuant to the Project will not impair implementation of, or physically interfere with emergency response and evacuation efforts, and the impact will be reduced to a level of less than significant.

Wildland Fires

Hazard-8: The Project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. (**No Impact**)

The Project Area is a highly developed industrial area, and no wildlands are intermixed within this industrial area. The Project Area is bordered by developed industrial lands to the north, east and south, San Francisco Bay is to the east and no wildlands are adjacent to the Project area. The closest wildlands area is San Bruno Mountain County Park located approximately one mile away. The Project would not exacerbate wildfire risks of any nature, would not substantially impair and adopted emergency evacuation plan or emergency response plan, and it not located in or near a Local or State Responsibility area with a Very High Fire Hazard Severity Zone designation. The project is not susceptible to significant risk of loss, injury or death involving wildland fires.

Mitigation Measures

None required.

Cumulative Hazards Risks

The Project, when combined with other past, present, existing, approved, pending and reasonably foreseeable development in the vicinity, would not result in significant cumulative hazards. With implementation of applicable regulatory requirements, cumulative impacts related to hazards and hazardous materials would be less than significant, and the Project would not result in a cumulatively considerable contribution to a significant cumulative hazard or hazardous materials impact. Cumulative health and safety impacts could occur if off-site hazards related to the Project were to interact with, or combine with similar effect of other cumulative development within the East of 101 Area. These impacts could only occur through limited mechanisms: air emissions, transport of hazardous materials and waste, inadvertent release of hazardous materials to the sewer or non-hazardous waste landfill, and potential accidents that require hazardous materials emergency response capabilities.

Because cumulative land use in the East of 101 Area relies on the same roads to be used by the Project, the Project would contribute to a cumulative increase in the amount of hazardous materials transported to and from the area. Cumulative increases in the transportation of hazardous materials and wastes would not be significant because the probability of accidents is relatively low due to stringent regulations that apply to transport, use and storage of hazardous materials. The Project, in combination with other development in the East of 101 Area would add to cumulative traffic congestion on those roadways used for evacuation.

Traffic congestion during an evacuation is inevitable, and the roadway system in the East of 101 Area allows for multiple possible evacuation routes in the case of an emergency.

Development of the Project would contribute to a cumulative increase in the demand for emergency response capabilities. Any growth involving increased use of hazardous materials has the potential to increase the demand for emergency response capabilities. First response capabilities and hazardous materials emergency response capabilities are currently available and sufficient for all cumulative projects. Substantive hazardous materials accidents within the Project site or its vicinity are expected to be rare, and if such incidents were to occur, only one such incident would be expected at any one time (except during major catastrophes).

The Project, as well as other future development in the East of 101 Area is subject to all regulatory requirements cited above regarding use, transport and disposal of hazardous substances, which provide for the transport of hazardous materials safely to and from the entire East of 101 Area. These regulatory requirements will keep cumulative impacts related to hazards and hazardous materials at a less than significant level.

12

Hydrology and Water Quality

This chapter of the EIR evaluates the potential impacts of the Project related to hydrology and water quality. This chapter also describes the existing hydrological and flood hazard conditions in and near the Project Area, and evaluates the extent to which these conditions may affect development of the Master Plan Update (Project) as proposed.

Although some of the information in the Environmental Setting draws from the 2007 Master EIR (MEIR), 2012 Supplemental MEIR (SMEIR) and 2002 Britannia East Grand Project (BEG) EIR, setting information for hydrology and water quality has been updated for this EIR using current data from the following sources:

- Federal Emergency Management Agency (FEMA) Flood Map Service Center
- County of San Mateo, Dam Failure Inundation Areas Map
- California Regional Water Quality Control Board, San Francisco Bay Region - Municipal Regional Stormwater NPDES Permit, Order #R2-2015-0049, NPDES Permit No. CAS612008
- California Water Service, *SB 610 Water Supply Assessment (WSA)*, November 2017 (see **Appendix 18**) [1]

Environmental Setting

Climate and Topography

The City of South San Francisco has a Mediterranean type of climate, characterized by dry, relatively cool summers and wet, mild winters. Average annual precipitation in the City is between 18 and 22 inches per year, increasing to 26 inches in the upper watershed west of the City.[2] Approximately 91 percent of the precipitation is received between November and April. Average daily temperatures range from a high of 73.4 degrees Fahrenheit in September to a low of 42.6 degrees Fahrenheit in January.[3]

The Project Area, located along the eastern shoreline of the City overlying artificial fill and Bay mud, is largely paved and occupied primarily by buildings and parking lots. At the center of the Project Area is San Bruno Hill. San Francisco Bay forms the eastern boundary of the Project Area, while the rest of the area is surrounded by mixed industry, warehouse, retail, office and hotel uses in the East of 101 Area.

The East of 101 Area generally slopes downward to the east towards San Francisco Bay. The Project Area is comprised of a hilly region to the southeast, formed by southeast-trending Coyote Point Fault Zone and low-

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[1] California Water Service, *SB 610 Water Supply Assessment for the Genentech Master Plan Update*, November 21, 2017 (see Appendix 12A)

[2] City of South San Francisco General Plan, 1999

[3] Western Regional Climate Center, Weather Station: San Francisco WSO AP, California (047769) - Website accessed September 27, 2017, at: https://wrcc.dri.edu/Climate/west_coop_summaries.php

lying areas to the northeast. Elevations range from 182 feet above mean sea level at the top of San Bruno Hill to approximately 0 feet mean sea level at the low-lying areas in the northeast portion of the Project Area.[4]

Regional Hydrology

The largest watershed in the Project vicinity is the Colma Creek watershed. The Colma Creek watershed includes portions of San Bruno Mountain as well as urbanized areas of Daly City, Colma and South San Francisco. Most of this urbanized creek is channelized or conveyed underground to allow for urban development. The impervious surface area within the Colma Creek watershed was previously estimated at 63 percent, the highest in the County.[5] Colma Creek is a flood control channel maintained by the San Mateo County Department of Public Works that discharges into the San Francisco Bay just north of the San Francisco International Airport.

Runoff throughout the City is collected in the City's storm drainage system, which discharges to Colma Creek or San Francisco Bay.

Project Area Hydrology

Colma Creek does not intersect the Project Area nor does the Project Area drain to Colma Creek. Several drainage ditches are located throughout the Project Area (see **Figure 12-1**). These ditches are excavated in uplands for conveying stormwater runoff from the hillslopes and developed areas in the Project Area to the underground stormwater system, which eventually drains to the Bay. The Project Area's storm drain system consists of underground pipes that collect stormwater via inlets that outfall into the San Francisco Bay at various locations. The storm drainage system is based on gravity flow and does not require pumps to transport flows to the Bay. Existing runoff from the Project Area is regulated under the provisions of a Municipal Regional Stormwater NPDES Permit (MRP). Most of the Project Area is already developed and covered with impervious surfaces (i.e., buildings, parking lots or other structures). Nearly all stormwater becomes runoff and little infiltration into the ground and groundwater occurs.

Groundwater

The California Water Service Company (Cal Water) serves the potable water needs for the portion of the City east of I-280, where the Project Area is located, as well as the cities of San Carlos and San Mateo. The Project Area is in the South San Francisco District (SSFD) of the Cal Water service area. Cal Water prepared and adopted the 2010 Urban Water Management Plan in June 2011, which includes substantial information related to groundwater.[6] Groundwater has historically supplied 10 to 15 percent of the District's water demand.

The Project Area lies within the Visitacion Valley Groundwater Basin. The Visitacion Valley Groundwater Basin has relatively low storage capacity and minimal protection from potential surface contamination. Two sub-basins within the Visitacion Valley Basin underlie the Colma Creek Basin and the Westside Basin. The groundwater wells that supply the Project Area are from the Westside Basin. The Westside Basin is the largest groundwater basin in the upper San Francisco Peninsula. The basin's boundaries are generally defined by Golden Gate Park to the north, the San Bruno Mountains to the east, the San Andreas Fault and Pacific Ocean to the west, and the San Mateo Plain Groundwater Basin to the south. The basin opens to the Pacific Ocean on the northwest and San Francisco Bay on the southeast.[7]

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4 U.S. Geological Survey, San Francisco South Quadrangle, California, 7.5 Minute Series (Topographic) 1980

5 City of Daly City Stormwater Pollution Prevention Program, 1998

6 California Water Service, *2015 Urban Water Management Plan, South San Francisco District*, June 2016

7 California Department of Water Resources, Bulletin 118 – Update 2003, Westside Groundwater Basin

Figure 12-1
On-Site Drainage Channels

Source: HT Harvey, 2018

The San Francisco Public Utilities Commission (SFPUC), Cal Water (South San Francisco and Colma), and the cities of Daly City and San Bruno participate in a joint Regional Groundwater Storage and Recovery Project. Groundwater storage and recovery consists of storing water in wet years and recovering that water for use during dry years. As part of this project, surface water is to be used instead of groundwater in wet years, allowing groundwater to recharge through rainfall and decreased pumping. In dry years, the saved water is to be pumped from groundwater well recovery facilities.[8]

Flood Hazards

The City of South San Francisco is highly urbanized with relatively high runoff generation rates.[9] These conditions increase the potential for flood condition in periods of heavy rainfall. Periodic flooding occurs along most of Colma Creek, but the principal flooding problems in the City exist near its eastern edge (just southwest of the Project Area) where flows in Colma Creek are restricted under the Caltrain railroad tracks and US 101.

Portions of the Project Area are subject to flooding, including inundation from sea level rise. Sea level rise is already affecting much of California's coastal region including the San Francisco Bay. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map panels, the shoreline of the Project Area is within the 100-year flood hazard zone (**Figure 12-2**). No portion of the Project Area is located in the 500-year flood hazard zone.[10]

Dam and Levee Failure

Dam failure often results from neglect, poor design or structural damage caused by a major event such as an earthquake or flood. When a dam fails, the quantity of water held back by the dam (i.e., the contents of the reservoir) is suddenly released downstream, causing damage in its inundation zone. Although there are no dams within the City of South San Francisco, several dams are in the nearby cities of San Francisco, Burlingame and San Mateo. Inundation zones resulting from failure of these dams would not reach the City of South San Francisco.[11]

As with dams, levee failure can occur in the event of a major earthquake or flood. The largest levees in the Northern California region are in the Sacramento-San Joaquin River Delta, on the American River, and on the Sacramento River. However, inundation zones resulting from failure of these levees would not reach the City of South San Francisco. Smaller levees are present throughout the Bay Area along the San Francisco Bay shoreline and in local ponds and creeks. These levees include those in the San Francisquito Creek flood control system, the Foster City and Redwood Shores levee trails, and the Cargill salt ponds. Inundation zones resulting from failure of any of these levees would not reach the City of South San Francisco.

Seiche, Tsunami, and Mudflow

Reservoirs, lakes, ponds, swimming pools and other enclosed bodies of water are subject to potentially damaging oscillations called seiches. This seismic hazard is dependent upon specific earthquake parameters (e.g., frequency of the seismic waves, distance and direction from the epicenter), as well as site-specific design of the enclosed bodies of water, and thus difficult to predict. Genentech's 1.5-million-gallon storage reservoir on the top of San Bruno Hill poses the greatest risk of seiche hazard in the Project Area.

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8 Ibid

9 City of South San Francisco, General Plan, 1999

10 FEMA Flood Map Service Center - Website accessed September 27, 2017, at: https://msc.fema.gov/portal/

11 County of San Mateo, San Mateo County Hazards, Dam Failure Inundation Areas - Website accessed October 2, 2017 at: http://planning.smcgov.org/documents/san-mateo-county-hazards-dam-failure-inundation-areas

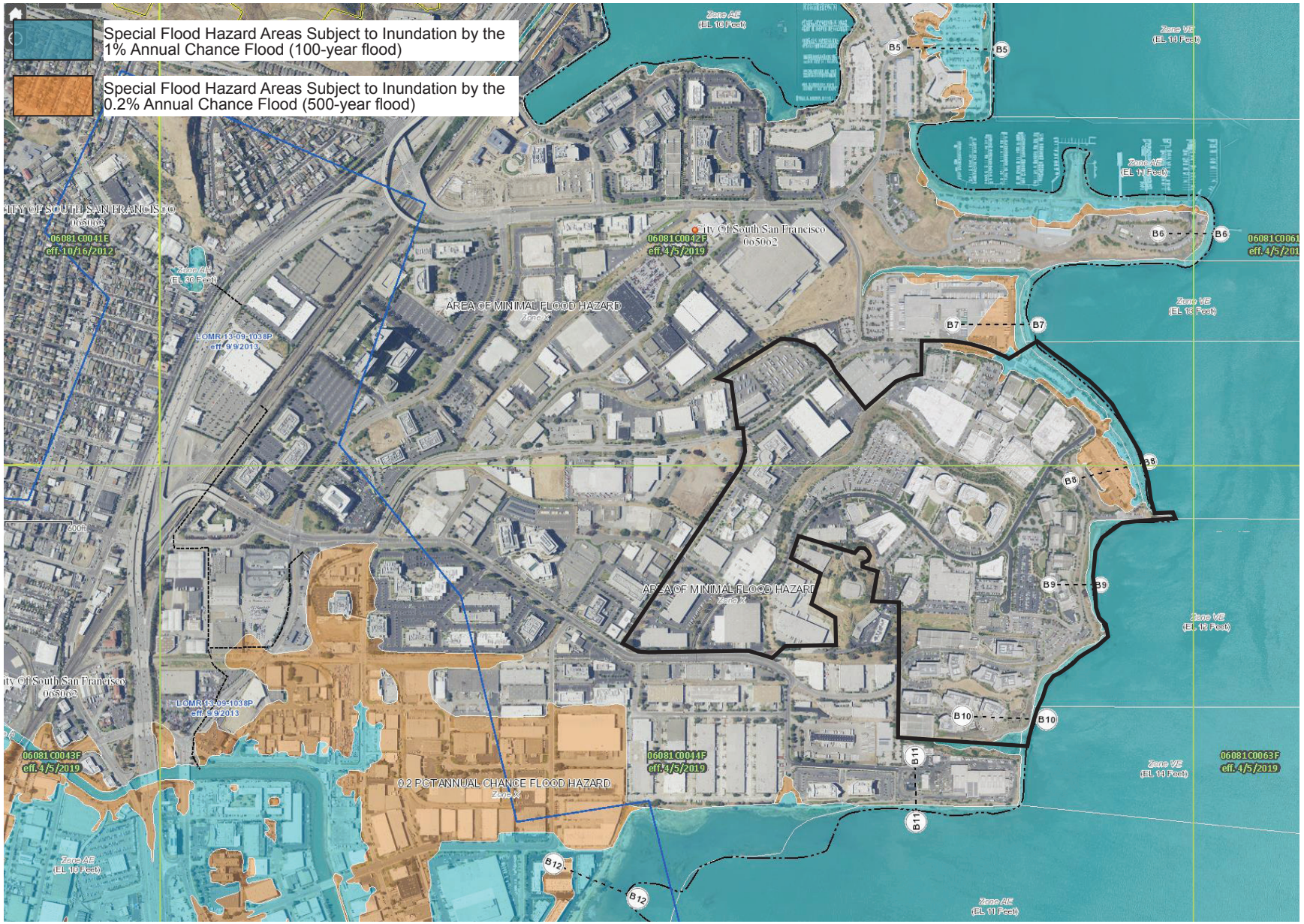

Figure 12-2
FEMA Flood Insurance Rate Maps, Panels 06081C0042F and 06081C0044F

Source: FEMA, April 2019

Earthquakes can also cause tsunamis (or tidal waves) in San Francisco Bay. As specified in the City's General Plan, two portions of the City are subject to inundation by tsunami—the northwest portion of the Project Area (Lower Campus) extending north past Oyster Point Marina Park, and the area of land south of the Campus bordered by Littlefield Avenue and Swift Avenue. Wave run-up is estimated at approximately 4.3 feet above mean sea level for tsunami with a 100-year recurrence and 6.0 feet above mean sea level for a 500-year tsunami.[12]

Mudflows (i.e., debris flows, mudslides) are rivers of rock, earth and other debris saturated with water. They develop when water rapidly accumulates in the ground, such as during heavy rainfall, changing the earth into a flowing river of mud or "slurry." A slurry can flow rapidly down slopes or travel through channels, and can strike with little or no warning at avalanche speeds. A slurry can travel several miles from its source, growing in size as it picks up tree, cars and other material along the way. Mudflow hazards are primarily concentrated in the Hillside Zones of the City, where slopes are steep and covered with exposed soil. Hillside Zones are at the southern flank of San Bruno Mountain and near Skyline Boulevard, but not in or near the Project Area.[13]

Water Quality

Water quality in California is regulated by the U.S. Environmental Protection Agency's National Pollution Discharge Elimination System (NPDES), which controls the discharge of pollutants to water bodies from point and non-point sources. In the San Francisco Bay Area, this program is administered by the San Francisco Bay Regional Water Quality Control Board (RWQCB). The authority of the RWQCB includes permitting of stormwater discharges from municipal storm sewer systems (which includes the existing on-site drainage system), industrial processes and construction sites that disturb areas larger than one acre. The City of South San Francisco is a co-permittee of the San Mateo County Urban Runoff Clean Water Program, which is a coordinated effort by local governments to improve water quality in San Francisco Bay.

The San Francisco Bay RWQCB has listed the Lower and South San Francisco Bays as an impaired water body. The pollutants identified as causing impairment include chlordane, DDT (dichlorodiphenyltrichloroethane), dieldrin, dioxin compounds, furan compounds, invasive species, mercury, PCBs (polychlorinated biphenyls, trash and selenium.[14] Water pollutants enter San Francisco Bay from various sources, including municipal and industrial effluent, urban runoff, non-urban runoff, surface water tributaries, dredging and disposal of dredged material, atmospheric deposition, spills, and marine vessel discharge; mixing of these inputs occurs through semi-diurnal (twice a day) tides. During each complete ebb-flood cycle in the Bay, 10 to 30 percent or more of Bay water is replaced with new ocean water. During dry weather, each complete tidal cycle replaces about 24 percent of the volume of the Bay with new water.

Regulatory Framework

Federal Regulations

Clean Water Act

The Clean Water Act of 1972 establishes the basic structure for regulating discharges of pollutants into "waters of the United States." The Act specifies a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities and manage polluted runoff.

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12 City of South San Francisco General Plan, 1999

13 Ibid

14 San Francisco Bay Regional Board, *Section 303(d) and Section 305(b) Integrated Report*, April 12, 2017

At the federal level, the Clean Water Act is administered by the U.S. Environmental Protection Agency (EPA). At the state and regional level, it is administered and enforced by the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs). The State of California has developed a number of water quality laws, rules and regulations, in part to assist in the implementation of the Clean Water Act and related federally mandated water quality requirements. In many cases, the federal requirements set minimum standards and policies and the laws, rules, and regulations adopted by the state and regional boards exceed the federal requirements.

National Flood Insurance Act

The U.S. Congress passed the National Flood Insurance Act in 1968 and the Flood Disaster Protection Act in 1973 to restrict certain types of development on floodplains and to provide for a National Flood Insurance Program (NFIP). The purpose of these acts is to reduce the need for large, publicly funded flood control structures and disaster relief. The NFIP is a federal program administered by the Flood Insurance Administration of FEMA. It enables individuals who have property (a building or its contents) within the 100-year floodplain to purchase insurance against flood losses. Community participation and eligibility, flood hazard identification, mapping, and floodplain management aspects are administered by state and local programs and support directorate within FEMA. FEMA works with the states and local communities to identify flood hazard areas and publishes a boundary map of flood hazards in those areas. Floodplain mapping is an ongoing process in the Bay Area and flood maps must be regularly updated for both major rivers and tributaries as land uses and development patterns change.

Executive Order 11988 - Floodplain Management

Executive Order 11988 directs federal agencies to avoid to the extent practicable and feasible short- and long-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. Further, this Executive Order requires the prevention of uneconomic, hazardous or incompatible use of floodplains; protection and preservation of the natural and beneficial floodplain values; and consistency with the standards and criteria of the National Flood Insurance Program.

State/Regional Regulations

McAteer-Petris Act / San Francisco Bay Conservation and Development Commission

The McAteer-Petris Act is a provision under California law that preserves San Francisco Bay from indiscriminate filling. The Act established the San Francisco Bay Conservation and Development Commission as the agency charged with preparing a plan for the long-term use of the Bay and regulating development in and around the Bay, while the plan was being prepared. The San Francisco Bay Plan, completed in January 1969, includes policies on 18 issues critical to the wise use of the bay, ranging from ports and public access to design considerations and weather. The McAteer-Petris Act authorizes the Bay Conservation and Development Commission to incorporate the policies of the Bay Plan into state law. The Bay Plan has two features: policies to guide future uses of the bay and shoreline, and maps that apply these policies to the bay and shoreline. The Bay Conservation and Development Commission conducts the regulatory process in accordance with the Bay Plan policies and maps, which guide the protection and development of the bay and its tributary waterways, marshes, managed wetlands, salt ponds, and shoreline.

Porter-Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act established the SWRCB and divided the state into nine regions, each overseen by a RWQCB. The nine regional boards have the primary responsibility for the coordination and control of water quality within their respective jurisdictional boundaries. Under the Porter–Cologne Water Quality Control Act, water quality objectives are limits or levels of water quality constituents

or characteristics established to protecting beneficial uses. The Act requires the RWQCBs to establish water quality objectives while acknowledging that water quality may be changed to some degree without unreasonably affecting beneficial uses. Designated beneficial uses, together with the corresponding water quality objectives, also constitute water quality standards under the federal Clean Water Act. Therefore, the water quality objectives form the regulatory references for meeting state and federal requirements for water quality control. Each RWQCB is required to prepare and update a Basin Plan for their jurisdictional area. Pursuant to the Clean Water Act NPDES program, the RWQCB also issues permits for point source discharges that must meet the water quality objectives and must protect the beneficial uses defined in the Basin Plan.

San Francisco Bay Water Quality Control Plan (Basin Plan)

The San Francisco Bay RWQCB (SFRWQCB) is responsible for the development, adoption and implementation of the Water Quality Control Plan for the San Francisco Bay region. The Basin Plan is the master policy document that contains descriptions of the legal, technical and programmatic bases of water quality regulation in the San Francisco Bay Region. The Basin Plan identifies beneficial uses of surface waters and groundwater within its region and specifies water quality objectives to maintain the continued beneficial uses of these waters. Development pursuant to the Project is required to adhere to all water quality objectives identified in the Basin Plan.

National Pollutant Discharge Elimination System / Municipal Regional Stormwater Permit

The federal Clean Water Act (CWA) addresses urban stormwater runoff pollution of the nation's waters. In 1990, US EPA promulgated rules establishing Phase 1 of the National Pollutant Discharge Elimination System (NPDES) stormwater program. The Phase 1 program for Municipal Separate Storm Sewer System (MS4s) required operators that serve populations of 100,000 or greater to implement a stormwater management program as a means to control polluted discharges from these MS4s.

On November 19, 2015, the SFRWQCB issued countywide municipal stormwater permits as one Municipal Regional Stormwater NPDES Permit (MRP) to regulate stormwater discharges from municipalities and local agencies in Alameda, Contra Costa, San Mateo, and Santa Clara counties, and the cities of Fairfield, Suisun City and Vallejo. The City of South San Francisco, along with the cities of Belmont, Brisbane, Burlingame, Daly City, East Palo Alto, Foster City, Half Moon Bay, Menlo Park, Millbrae, Pacifica, Redwood City, San Bruno, San Carlos and San Mateo, and the towns of Atherton, Colma, Hillsborough, Portola Valley, and Woodside, the San Mateo County Flood Control District, and San Mateo County joined together to form the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP). They are collectively known as the San Mateo Permittees. [15]

Construction General Permit

Pursuant to the MRP, construction activities that include clearing, grading, and excavation are regulated by the California Construction Stormwater Permit (Construction General Permit). The Construction General Permit authorizes the discharge of stormwater to surface waters from construction activities, and prohibits the discharge of materials other than stormwater and authorized non-stormwater discharges, and all discharges that contain hazardous substances unless a separate NPDES Permit has been issued to regulate those discharges.

Provision C.6 of the MRP requires operators and developers of construction sites disturbing one acre or more of soil to file a Notice of Intent for permit coverage under the Construction General Permit. To obtain Construction General Permit coverage, construction operators/developers must prepare a Stormwater

[15] California Regional Water Quality Control Board, San Francisco Bay Region - Municipal Regional Stormwater NPDES Permit, Order #R2-2015-0049, NPDES PERMIT No. CAS612008

Pollution Prevention Plan (SWPPP) to demonstrate compliance with grading ordinances and other local requirements. The SWPPP must demonstrate implementation of seasonally appropriate and effective best management practices (BMPs) to prevent construction site discharges of pollutants into the storm drains, before approval and issuance of local grading permits. All construction greater than 1-acre in size are required to provide site-specific, and seasonally and phase-appropriate, effective BMPS in the following six categories:

- Erosion Control
- Run-on and Run-off Control
- Sediment Control
- Active Treatment Systems, as necessary
- Good Site Management
- Non-Stormwater Management

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment and control pollutants from construction materials. The SWPPP must also include a discussion of the program to inspect and maintain all BMPs. The local permitting agency (e.g., South San Francisco and/or the SMCWPPP) must review applicant's erosion control plans and SWPPPs for consistency with local requirements. This review includes an assessment of the appropriateness and adequacy of proposed BMPs for each site before issuance of grading permits, and verification that sites disturbing one acre or more of land have filed a Notice of Intent for permit coverage under the Construction General Permit.

Stormwater Management Plan / Provision C.3 Requirements

The 2015 MRP also includes requirements to incorporate post-construction stormwater control and low-impact development (LID) measures into new development and redevelopment projects. These requirements are known as Provision C.3 requirements. The goal of Provision C.3 is for local permitting agencies to use their planning authorities to include appropriate source control, site design and stormwater treatment measures in new development and redevelopment projects to address stormwater runoff pollutant discharges, and prevent increases in runoff flows from new development and redevelopment projects.

Provision C.3.c establishes thresholds at which new development and redevelopment projects must comply (i.e., Regulated Projects), and local municipalities must apply standard stormwater conditions of approval for Regulated Projects that receive development permits. Current thresholds for determining when Provision C.3 applies to a project are generally based on the amount of impervious surface that is created and/or replaced by a project. Since 2006, a project that creates and/or replaces 10,000 square feet or more or impervious surface area is defined as a C.3 Regulated Project. As of 2011, the threshold for requiring stormwater treatment was reduced from 10,000 to 5,000 square feet of impervious surface for uncovered parking areas, restaurants, auto service facilities and retail gasoline outlets. The 2015 MRP also includes categories of 'Special Projects' for certain land development characterized as smart growth, high density or transit-oriented development that can either reduce existing impervious surfaces or create less accessory impervious areas and automobile-related pollutant impacts. These Special Projects may receive LID treatment reduction credits in recognition that density and space limitations may make 100% LID treatment infeasible. If approved by the Water Board, these Special Projects may be allowed credits against otherwise applicable treatment requirements by installing tree-box-type high flow-rate bio-filters or vault-based high flow-rate media filters.

Other than Special Projects, all other Regulated Projects must meet Provision C.3 requirements for post-construction stormwater control using a combination Low Impact Development (LID) stormwater controls that are capable of reducing long-term impacts of development on stormwater quality and creek channels.

These LID control measures for post-construction stormwater control are used reduce water quality impacts by preserving and re-creating natural landscape features, minimizing impervious surfaces, and then infiltrating, storing, detaining and evaporating stormwater into the air, and/or bio-treating stormwater runoff close to its source. These LID measures include:

- Site Design Measures: Site design measures are site-planning techniques for pollution prevention and reduction in flow rates and durations, by protecting existing natural resources and reducing impervious surfaces of development projects. Some examples of site design measures include minimizing land disturbance and preserving high-quality open space, minimizing impervious surfaces by using narrow streets, driveways and sidewalks, minimizing impervious surfaces that are directly connected to the storm drain system, clustering structures and paved surfaces and using landscaping as a drainage feature.
- Source Control Measures: Source control measures consist of either structural project features or operational "good housekeeping" practices that prevent pollutant discharge and runoff at the source, such as by keeping pollutants from coming into contact with stormwater. Examples of structural source controls include roofed trash enclosures, berms that control run-on to or runoff from a potential pollutant source, and indoor mat/equipment wash racks that are connected to the sanitary sewer. Examples of operational source controls include street sweeping and regular inspection and cleaning of storm drain inlets.
- Stormwater Treatment: The MRP requires stormwater treatment requirements to be met by using evapotranspiration, infiltration, rainwater harvesting and reuse, or bio-treatment. Stormwater treatment measures must be sized to comply with hydraulic design criteria. The following are commonly used treatment measures: bioretention areas, flow-through planter boxes, infiltration trenches, extended detention basins, green roofs, pervious paving and grid pavements, rainwater harvesting and use, and subsurface infiltration systems.

Local Regulations

San Mateo Countywide Stormwater Pollution Prevention Program

The San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) was established in 1990 to reduce pollution carried by stormwater into local creeks, the San Francisco Bay and the Pacific Ocean. The Program is a partnership of the City/County Association of Governments (C/CAG), each incorporated city and town in the county, and the County of San Mateo. Some of these requirements are implemented directly by municipalities, while others are addressed by the San Mateo Countywide Water Pollution Prevention Program on behalf of all the municipalities. The permit also requires a public education program, implementing targeted pollutant reduction strategies, and a monitoring program to help characterize local water quality conditions and to begin evaluating the overall effectiveness of the permit's implementation. The San Mateo Countywide Water Pollution Prevention Program takes the lead for implementing requirements of these permits.

City of South San Francisco General Plan

The General Plan contains policies designed to protect and improve water quality. Policies applicable to the Master Plan Update are as follows:

- 7.2-G-1: Comply with the San Francisco Bay RWQCB regulations and standards to maintain and improve the quality of both surface water and groundwater resources.

The General Plan contains policies designed to protect people and development from damage associated with flooding. Policies applicable to the Master Plan Update are as follows:

- 8.2-G-1: Minimize the risk to life and property from flooding in South San Francisco.

- 8.2-I-2: Use the City's development review process to ensure that proposed development subject to the 100-year flood provides adequate protection from flood hazards, in areas identified in Figure 8-3 [in the Health and Safety Element].

City of South San Francisco Municipal Code

Flood Damage Prevention

Chapter 15.56 (Flood Damage Prevention) of the South San Francisco Municipal Code promotes the public health, safety and general welfare by minimizing public and private losses due to flood condition. To accomplish this purpose, this chapter includes methods and provisions to:

- restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities
- require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction
- control the alteration of the natural floodplain stream channels, and natural protective barriers, which help accommodate or channel flood waters
- control filling, grading, dredging, and other development which may increase flood damage, and
- prevent or regulate the construction of flood barrier which will unnaturally divert flood waters or which may increase flood hazards in other areas

The provisions contained in Chapter 15.56 of the Municipal Code are applicable only to development in flood hazard areas as defined by FEMA. The shoreline areas of the Project Area are subject to 100-year flood conditions due to coastal flooding and wave action.

Stormwater Management

Chapter 14.04 (Stormwater Management and Discharge Control) of the South San Francisco Municipal Code requires stormwater treatment requirements specified in the shared Regional Urban Stormwater NPDES permit (the MRP) be mandated for certain categories of new and redevelopment projects in the City of South San Francisco, based upon the amount of impervious area created, added or replaced by a project. Stormwater treatment requirements apply to new development and redevelopment projects, special land use categories, road projects and required site design measures for small projects and single-family homes as determined by the director of public works or designee. Treatment BMPs for regulated projects shall incorporate sizing design criteria as specified in NPDES Permit for water quality treatment of stormwater runoff prior to discharge.

City of South San Francisco East of 101 Area Plan

The East of 101 Area Plan provides detailed planning policies that are consistent with policies of the adopted South San Francisco General Plan. With respect to hydrology and water quality, the East of 101 Area Plan aims to reduce flooding by evaluating specific development proposals to determine drainage and flood protection requirements, and to prevent the degradation of water quality by minimizing erosion and sedimentation, and requiring that projects comply with NPDES permit requirements.[16]

[16] City of South San Francisco, East of 101 Area Plan, 1994

Impacts and Mitigation Measures

Thresholds of Significance

Based on the CEQA Guidelines, the Project would have a significant environmental impact if it were to:

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality
2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impeded sustainable groundwater management of the basin
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner that would:
    a. result in substantial erosion or siltation on- or off-site;
    b. Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site
    c. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff
4. In flood hazard, tsunami or seiche zones, risk release of pollutants due to project inundation
5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan

Approach to the Analysis

The Project Area includes the same study area as previously analyzed in the 2002 BEG EIR, 2007 MEIR and 2012 SMEIR, including similar potential Opportunity Sites, or locations where new development or redevelopment within the Genentech Campus is likely to occur. The majority of these potential Opportunity Sites are in the same or similar locations as were contemplated and analyzed in the previous EIRs, and certain information from these previous EIRs remain valid and applicable. The analysis of the Project presented below relies upon known conditions that are present in the Project Area, and as updated for this EIR.

Water Quality

Hydro 1: Future development pursuant to the Project could result in a violation of water quality standards or waste discharge requirements or otherwise substantially degrade water quality. **(Less than Significant with Regulatory Compliance)**

During Construction

Typical construction activities can result in degradation of water quality and violation of water quality and waste discharge standards. Construction activities may loosen soils, increase erosion and downstream siltation, potentially intercept contaminated groundwater during dewatering and allow for accidental spill or release of construction-related chemicals that may contact surface waters. Individual construction projects pursuant to the Project will involve excavation and soil stockpiling, boring and grading that will dislodge soil particles and therefore potentially cause soil erosion. If not properly managed, the dislodged soils could be washed into drainages by rain or by water used during construction. Project construction would also involve use of motorized heavy equipment including trucks and dozers that require fuel, lubricating grease and other fluids. Accidental chemical release or spill from a vehicle or equipment could affect surface water. Such spills

could become washed into the on-site drainages and eventually the Bay, or could infiltrate into soil affecting groundwater quality.

Depending on a number of factors including depth to groundwater, extent of excavation for building foundations or below-grade structures, soil types and site history, non-stormwater may be encountered during construction activities. Typical sources of non-stormwater include groundwater, water from cofferdams, water diversions and waters used during construction activities. When non-stormwater must be removed so that construction may be proceed, the removal of that water is typically accomplished through a dewatering process. Dewatering operations may occur during a wide range of construction activities including but not limited to demolition of pavement or structures, grading (including cut and fill slopes), utility trenching and installation, and installation of underground drainage facilities. Untreated water from construction site dewatering may contain pollutants that, if discharged to a stormdrain system or natural watercourse, may exceed water quality standards of the receiving water. Typical pollutants that may be encountered include sediment (the most common pollutant associated with dewatering operations), high levels of pH, and contaminant pollutants associated with current or past use of the site or adjacent land. Contaminant pollutants may include oil, grease, pesticides, solvents, fuels and other toxics that may be laden with sediments. Release of these pollutants into receiving waters could potentially harm wildlife in the Bay or interfere with the wastewater treatment plant's operation. Discharging contaminated or sediment-laden water from a dewatering site into any water of the state without treatment is prohibited.

Post-Construction

After construction, resulting increases in peak stormwater flows can also result in violations of standards intended to reduce sediments and contaminants in the stormwater system. New development pursuant to the Project would create or replace impervious surfaces. Increases in impervious surfaces would result in increased runoff and the potential for that runoff to carry pollutants to receiving waters, including the Bay. Stormwater runoff from impervious surfaces can generate nonpoint-source pollutants such as organic materials that increase the biological oxygen demand (the demand for oxygen in the water needed by aquatic life to survive), suspended solids, pathogens, sediment from erosion, air pollution fallout, nitrogen and phosphorus from chemical fertilizers, animal wastes, leachates from leaves, and pesticides.

Regulatory Requirements

All new development pursuant to the Project will be required to comply with all applicable regulatory requirements related to water quality. Compliance with local and regional provisions and regulations that implement federal Clean Water Act requirements would prevent potential impacts from rising to a level of significance.

Construction

Regulatory Requirement Hydro 1A - Construction General Permit/Stormwater Pollution Prevention Plan: All new qualifying construction projects pursuant to the Master Plan Update will be required to comply with Provision C.6 of the Municipal Regional Permit (MRP), including filing a Notice of Intent for permit coverage under the Construction General Permit.

1) To obtain Construction General Permit coverage, construction projects must include a Stormwater Pollution Prevention Plan (SWPPP) that demonstrates compliance with the City's Grading Ordinances and other local requirements.

2) The SWPPP must demonstrate implementation of seasonally appropriate and effective best management practices (BMPs) to prevent construction site discharges of pollutants into the storm drains, before approval and issuance of local grading permits.

3) Such construction projects are required to implement the stormwater BMPs identified by the San Mateo Countywide Stormwater Pollution Prevention Program, including plans to address

materials and waste management, equipment management and spill control, grading and earthmoving to prevent erosion, paving and asphalt work, concrete and mortar applications, painting and paint removal, landscaping and dewatering.

Regulatory Requirement Hydrology 1B - Permitting Requirements for Dewatering Discharges: Depending on volume and pollutant loads of non-stormwater discharges associated with an individual construction dewatering activity, and the dewatering methodology to be applied, different regulatory requirements apply. For non-stormwater dewatering discharges, each individual construction project shall obtain coverage either under the Construction General Permit, Statewide Low-Threat Discharge Waste Discharge Requirements (WDR) or a site-specific NPDES permit. Typical dewatering methods permitted pursuant to these regulatory requirements include:

1) Discharge to a Stormdrain. Authorized non-stormwater may be discharged to a storm drain under the Construction General Permit. A permit from the local sewer agency must be obtained prior to such discharge. This approach is generally appropriate for water that contains some sediment and/or pollutants, but sediment may require pre-treatment and acceptable pollutants and pollutant levels are defined by the sewerage agency. Such permits typically include provisions for fees, requirements for pre-discharge testing and reporting, and establishment of acceptable discharge limitations/prohibitions typically pertaining to the chemical quality of the water, discharge flow rates and quantities.

2) Managing Water within the Project Site: Accumulated non-stormwater may be retained and managed on the construction site, generally pursuant to statewide low-threat discharge Waste Discharge Requirements (WDRs). Retained water is evaporated, infiltrated into the soil, or is used onsite for dust control, irrigation or other construction-related purposes. This approach is generally appropriate for water that is free of pollutants, other than sediment.

3) Off-Site Treatment: This option is typically appropriate for water with toxic pollutants that cannot be discharged elsewhere. Under this approach, water is hauled off-site for treatment, typically involving a licensed commercial contractor who can remove, transport and dispose (or treat and recycle) polluted water. General requirements of this approach include acceptance of a NOI for coverage under the Construction General Permit, plus chemical testing of water quality and management of the water as hazardous waste, with applicable regulatory agency (typically RWQCB) oversight (see also Mitigation Measure Hazards-4: Site Assessment in the Hazards and Hazardous Waste chapter of this EIR).

4) Site-Specific NPDES Dewatering Permits: For those dewatering activities that cannot obtain permission to discharge to the local sanitary sewer and where the discharge cannot be regulated under the Construction General Permit or the statewide low-threat discharge WDRs, site-specific NPDES Dewatering Permits may be sought. General requirements for site-specific NPDES dewatering permits include monitoring and reporting as required by the Regional Board, and discharge and receiving water requirements (including water quality objectives, discharge prohibitions and TMDLs) as defined in the Basin Plan and specific NPDES permit obligations.

Implementation of the Construction General Permit and/or Statewide Low-Threat Discharge Waste Discharge Requirements (WDR) or site-specific NPDES permit requirements will reduce potential impacts to water quality during construction activities to a less than significant level. Best Management Practices (BMPs) will be required and incorporated into individual SWPPPs and other permits prior to approval of grading permits, providing an acceptable level of water quality protection.

Post-Construction

Regulatory Requirement Hydro 1C - Provision C.3 Requirements/Stormwater Management Plan: All new Regulated Projects pursuant to the Master Plan Update will be required to comply with Provision C.3 of the MRP, including requirements to incorporate post-construction stormwater control and low-impact development (LID) measures. Each individual development project must meet Provision C.3 requirements capable of reducing long-term impacts of development on stormwater quality. Some combination of the following post-construction stormwater controls will be required to demonstrate compliance with the hydraulic design criteria of the MRP:

1) Site design may include minimizing impervious surfaces that are directly connected to the storm drain system, or using landscaping as a drainage feature.
2) Source control measures may include roofed trash enclosures, berms that control runoff from a pollutant source, use of indoor mats/equipment wash racks that are connected to the sanitary sewer (where allowed under separate sewer discharge permits), and regular inspection and cleaning of storm drain inlets.
3) Stormwater treatments may be met by a combination of measures that may include, but are not limited to bioretention areas, flow-through planter boxes, infiltration trenches, extended detention basins, green roofs, pervious paving and grid pavements, rainwater harvesting and subsurface infiltration systems.

As indicated in SMCWPPP's C.3 Stormwater Technical Guidance document,[17] the entire East of 101 area (including the Project Area) is not included within the Hydromodification Management Control Area Boundary, and thus is not subject to hydromodification management (i.e., is not required to minimize the change in the rate and flow of runoff as compared to the pre-development conditions).

The Project does not include any specific proposal for development within the 100-foot shoreline band of BCDC jurisdiction, However, if Genentech were to consider any development within BCDC jurisdiction in the future, such development proposal would be subject to BCDC's Shoreline Development Permit process, including its requirements for protection of Bay water quality during construction and operation, and potentially additional project-specific environmental review.

Mitigation Measures

None needed.

Subsequent development pursuant to the Project will comply with the State, regional, countywide and City regulations as outlined in the Municipal Regional Stormwater NPDES Permit (MRP) issued by SFRWQCB in November 2015, as may be subsequently updated or amended. These regulations ensure that potential water quality impacts related to construction and post-construction activity pursuant to the Project will be reduced to a less than significant level.

Groundwater

Hydro 2: Future development pursuant to the Project will not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impeded sustainable groundwater management of the basin. **(Less than Significant)**

[17] accessed at: http://www.flowstobay.org/newdevelopment#hydromod

Direct Effects

The Project would result in increased development of the Genentech Campus, which is already developed with buildings and impervious surfaces. The total area of impervious surface created by the Project would not be substantially greater than the existing condition, although the Project will likely add new impervious surfaces in select areas where no prior development exists. Any increase in impervious surfaces will reduce the amount of surface water that can filter into the ground and recharge groundwater basins, but such decrease in filtration would not be substantial. Existing storm drainage systems in the Project Area currently intercept most rainfall and runoff waters, thus limiting the amount of groundwater recharge that occurs. Overall, new development pursuant to the Project may result in slight interference with groundwater recharge, but this impact would be less than significant.

California Water Service Company (Cal Water) supplies water to the Project Area, and new development pursuant to the Project would not individually draw down or otherwise substantially reduce the underlying groundwater resource.

Indirect Effects

Groundwater has historically supplied ten to fifteen percent of the Cal Water's South San Francisco District water demand. Groundwater is extracted from the Merced Formation of the Colma Creek Basin, a sub-basin of the Merced Valley Groundwater Basin. Locally this basin is referred to as the Westside Basin. The Westside Basin is the largest groundwater basin in the San Francisco Bay Hydrologic Region.

If the Project's water demand were to cause Cal Water to extract groundwater at a rate that would substantially deplete groundwater supplies or interfere substantially with groundwater recharge, this would be an indirect impact of the Project on groundwater resources. Additionally, if the Project's water demands were to contribute to cumulative water demands of the Cal Water service area such that these cumulative water demands would cause a net deficit in aquifer volume or a lowering of the local groundwater table level this would be an indirect impact of the Project on groundwater resources.

The Water Supply Assessment (WSA) prepared by Cal Water for use in this EIR concludes that, "*for the next 20+ years the South San Francisco District will be able to provide adequate water supplies to meet existing and projected customer demands, including full development of the 2017 GMPU (the Project) under normal, single dry year and multiple dry year conditions*." This conclusion is based on a number of factors, including "*current Westside Basin groundwater supplies and Cal Water's current and projected groundwater production rates from its active wells.*" [18]

As further described in the WSA report, the 2011 Westside Basin Model (version 3.1) indicates that, the sustainable municipal pumping rate [of the Westside basin] is 6.9 mgd. Cal Water, Daly City and San Bruno intend to coordinate their respective pumping rates so that 6.9 mgd is not exceeded on an annual basis. Cal Water has offered to limit its planned production of groundwater from the Westside Basin to 1.37 mgd (1,535 AFY), which is consistent with their current pumping capacity and historical pumping rates. [19]

The WSA report also describes the Regional Groundwater Storage and Recovery Project (a joint effort between SFPUC, Cal Water, and the cities of Daly City and San Bruno), which coordinates groundwater and surface water management in the South Westside Basin. This project is intended to increase water supply reliability during dry years or emergency conditions. Under this project, when the SFPUC determines that there is surplus water supply available, they will deliver some of this surplus water to the program participants in-lieu of groundwater pumping, thus leaving groundwater in storage in the Basin. When imported supplies are short, the participating pumpers could pump their designated quantities, and receive

[18] California Water Service, SB 610 Water Supply Assessment for the Genentech Master Plan Update, November 21, 2017

[19] Ibid

groundwater produced from SFPUC wells and an equally reduced quantity of imported water. The SFPUC wells will only be operated to extract the previously stored or banked supply. The expected groundwater storage gained from this reduced pumping is approximately 61,000 acre-feet. With that amount of additional groundwater available in the Basin, the agencies could pump at a rate of 7.2 mgd for a 7.5-year dry period. In January 2015, the SFPUC awarded funding for this project, and construction is expected to be complete in 2018.[20]

Based on information contained in the WSA report, the Project's water demands will not cause Cal Water to extract groundwater at a rate that would substantially deplete groundwater supplies or interfere substantially with groundwater recharge. Further, the Project's water demands will not contribute to cumulative water demands that would cause a net deficit in aquifer volume or a lowering of the local groundwater table level. Groundwater resource depletion is therefore not a significant direct or indirect effect of the Project.

Mitigation Measures

None needed.

Additional information regarding water supply and demand, and Genentech's on-going water conservation efforts, is provided in the Utilities chapter of this EIR.

Drainage Patterns and Runoff

Hydro 3: Future development pursuant to the Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner that would result in substantial erosion or siltation on- or off-site, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site, or create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. (**Less than Significant with Regulatory Compliance**)

Off-Site Drainage

Colma Creek is the City's main natural drainage system. Colma Creek does not intersect the Project Area nor does the Project Area drain to Colma Creek. Development pursuant to the Project will not alter the course of Colma Creek, will not result in substantial erosion or siltation to Colma Creek and will not increase the rate or amount of runoff into Colma Creek in a manner that would result in flooding.

On-Site Drainage and Runoff

The City's stormdrain system within the Project Area consists of a variety of disconnected drainage systems including surface street drainage, underground storm drains and surface drainage channels. These stormdrain facilities collect runoff from the Project Area and outfall directly into the San Francisco Bay at several locations along the Project Area shoreline. This stormdrain system is based on gravity flow and does not require pumps to transport flows to the Bay, and is not connected to other off-site or downstream stormdrain facilities. This existing drainage system was generally designed and constructed to accommodate large-scale industrial development, with large capacity stormdrain pipes. Stormwater flows from these outfalls to the Bay are not treated at the outfall, so all water quality treatment occurs prior to discharge into the stormdrain system. Most of the Project Area is already developed and covered with impervious surfaces

[20] Ibid

(i.e., buildings, parking lots or other structures), so nearly all stormwater becomes run-off into this stormdrain system, and little infiltration into the ground and groundwater occurs.

The total area of impervious surface created by the Project will not be substantially greater than the existing condition. Most new development will consist of redevelopment of these existing impervious surfaces with new building sites. Thus, redevelopment of existing impervious area will generally not increase runoff or demand substantial increases in stormdrain capacity, and no expansion of the onsite stormdrain facilities is anticipated. Because the Project Area's stormdrain system drains directly into the Bay, no downstream drainage facilities are effected or influenced by runoff from the Project Area. New development will require localized drainage infrastructure to connect to the existing stormdrain system. These localized drainage system improvements will be required to demonstrate compliance with the water quality treatment requirements as established in the MRP (see discussion of water quality, above), but the volume of stormwater runoff generated by the Project is not expected to substantially increase above existing conditions. Because little or no additional stormwater runoff would be created, no substantial improvements or expansions to the existing stormdrain system is anticipated.

Alteration of Drainage Channels

Three surface drainage ditches are located within the Project Area (see prior Figure 12-1). These drainage ditches are excavated in upland areas for purposes of conveying stormwater runoff from the hillslopes and developed areas in the upper portions of the Project Area to the underground stormwater system, which drains directly to the Bay.

- Drainage Ditch #1: Drainage ditch #1 is a well-maintained cement lined ditch with source water feeding from piped inputs conveying stormwater from nearby impervious surfaces such as paved parking lots, paved roads and walking paths with associated storm drain infrastructure. All observed hydrologic inputs to this ditch appear to arise from either a series of pipes emanating from storm drains, or a cement curb cut that focuses flows into the ditch from an adjoining paved parking lot. The ditch appears to be piped underground, into storm drain infrastructure downstream.
- Drainage Ditch #2; Drainage ditch #2 is located on a hillslope and is entirely cement lined and well maintained. The water source at the origin of the ditch #2 is an approximately 2 to 4-inch pipe input with a faucet opening. The source of the pipe is likely from the buildings on the Upper Campus hilltop. Several other piped inputs were observed over the length of the ditch. The drainage ditch was excavated in uplands for the purpose of stormwater conveyance.
- Drainage Ditch #3: Drainage ditch #3 is also located on a hillslope and is entirely cement lined. The water source appears to be PVC piping that is located several feet upslope of the start of the cement channel. The source piping appears to arise from developed uplands located upslope, including storm drains from the paved parking lot. A few additional piped inputs were observed along the length of the ditch. The drainage ditch #3 appears to drain to stormdrain pipes downslope of this area.

These drainage ditches are part of the Project Area's overall stormdrain system. New development pursuant to the Project may result in the need or desire to alter the alignment, culvert or bridge over these drainage ditches, to develop or gain access to certain Opportunity Sites. As indicated in the Biology chapter of this EIR, these stormwater drainage ditches are not expected to be jurisdictional waters of the United States or the State, and have little or no habitat value. However, they are likely to be considered by the RWQCB to be part of the Project Area's existing stormwater management plans. Existing regulations (see below) would likely require that the drainage function of these ditches be retained or replaced if they are affected by new development.

Regulatory Requirements

Regulatory Requirement Hydro 1A - Construction General Permit/Stormwater Pollution Prevention Plan (see above)

Regulatory Requirement Hydro 1B - Provision C.3 Requirements/Stormwater Management Plan (see above)

All new Regulated Projects pursuant to the Master Plan Update will be required to comply with the C.3 provisions of the Municipal Regional Stormwater NPDES Permit (MRP) that regulate the water quality of stormwater discharges, including post-construction stormwater controls and low-impact development (LID) measures. Each individual development project must meet Provision C.3 requirements capable of reducing long-term impacts of development on stormwater quality. The MRP requires Stormwater Management Plans (SWMP), which in turn require source and treatment control measures. New development projects will be required to comply with existing federal, state and local stormwater regulations that include implementation of drainage control BMPs for water quality. Genentech will be required to adhere to applicable requirements of the MRP and Construction General Permit. These requirements include development and implementation of SWPPPs and SWMPs to minimize erosion during construction, stabilize construction areas, control sediment, control pollutants from construction materials and address post construction runoff quality. These requirements will be incorporated into individual development project designs and construction.

However, as indicated in SMCWPPP's C.3 Stormwater Technical Guidance document,[21] the entire East of 101 Area (including the Project Area) is not within the Hydromodification Management Control Area Boundary, and thus not subject to hydromodification management (i.e., is not required to minimize the change in the rate and flow of runoff as compared to the pre-development conditions).

Mitigation Measures

None needed.

All new Regulated Projects pursuant to the Master Plan Update will be required to comply with State, regional, countywide and City regulations, including those outlined in the Municipal Regional Stormwater NPDES Permit (MRP) issued by SFRWQCB in November 2015 (as may be subsequently updated or amended). Compliance with these regulations will ensure that potential alterations to existing drainage patterns do not result in substantial erosion or siltation or adverse effects to water quality, and maintain the functionality of existing on-site drainage channels.

Flood Hazards

Hydro 4: Future development pursuant to the Project would risk release of pollutants due to project inundation as a result of a flood hazard, tsunami or seiche. (**Less than Significant with Regulatory Compliance**)

Flooding

The Genentech Campus is located immediately adjacent to the Bay, with Bay shoreline along its entire eastern boundary. Portions of the San Francisco Bay Trail, a mostly contiguous trail around the San Francisco Bay, outline the coast around the Genentech Campus. Although the majority of the Project Area is not within a 100-year flood hazard zone, the immediate shoreline and the inlet at the southern portion of the Project Area are within the 100-year flood hazard zone as mapped by FEMA (see prior Figure 12-2). Coastal flooding and wave action during a 100-year storm would inundate certain portions of the immediate shoreline

[21] accessed at: http://www.flowstobay.org/newdevelopment#hydromod

bordering the Project Area.[22] Unlike flood flows along a drainage channel, such coastal flooding at the shoreline would not travel a substantial distance on land due to rising ground elevation. Coastal flood waters run up onto land and recedes back to San Francisco Bay. New development pursuant to the Project would not include housing, and no new structures would be placed on the shoreline that would be subject to or impede flows within the 100-year flood hazard zone. Certain potential Opportunity Sites identified in the Master Plan Update are near the shoreline, but subsequent and more detailed development plans for these sites will need to demonstrate compliance with regulatory requirements, including building pads that are elevated above the 100-year flood elevation.

Tsunami, Dam or Levee Failure; Seiche or Mudflow Inundation

According to the State of California Emergency Management Agency Earthquake and Tsunami Program, the southwestern portion of the South Campus is subject to potential inundation by a tsunami. The tsunami inundation line (see **Figure 12-3**) represents the maximum considered tsunami run-up from a number of extreme, yet realistic, tsunami sources. According to this map, "Tsunamis are rare events. Due to a lack of known occurrences in the historical record, this map includes no information about the probability of any tsunami affecting any area within a specific period of time." Because the occurrence of a tsunami is identified as rare and there ae no historical records of a tsunami affecting this area, the risks of tsunami are considered less than significant.

The Project Area is not prone to flooding in the event of dam or levee failure. Failure of a small-scale levee near the City would not release a volume of water such that the Project Area would become flooded.

The 1.5-million-gallon storage reservoir on the top of San Bruno Hill poses a potential risk of seiche hazard. However, the reservoir holds a relatively small volume of water, and water would drain away from the hill instead of ponding and resulting in high water levels.

The potential for inundation by mudflow is considered low because the Project Area contains few steep slopes of exposed soil. Hillsides in the Project Area are generally covered by development and/or landscaping. Rainfall onto these areas would encounter vegetation or impervious surfaces and would not pose a significant risk saturated soil resulting in mudflows. Impacts related to dam or levee failure, or seiche or mudflow inundation would be less than significant.

[22] FEMA Flood Map Service Center - Website accessed September 27, 2017, at: https://msc.fema.gov/portal/

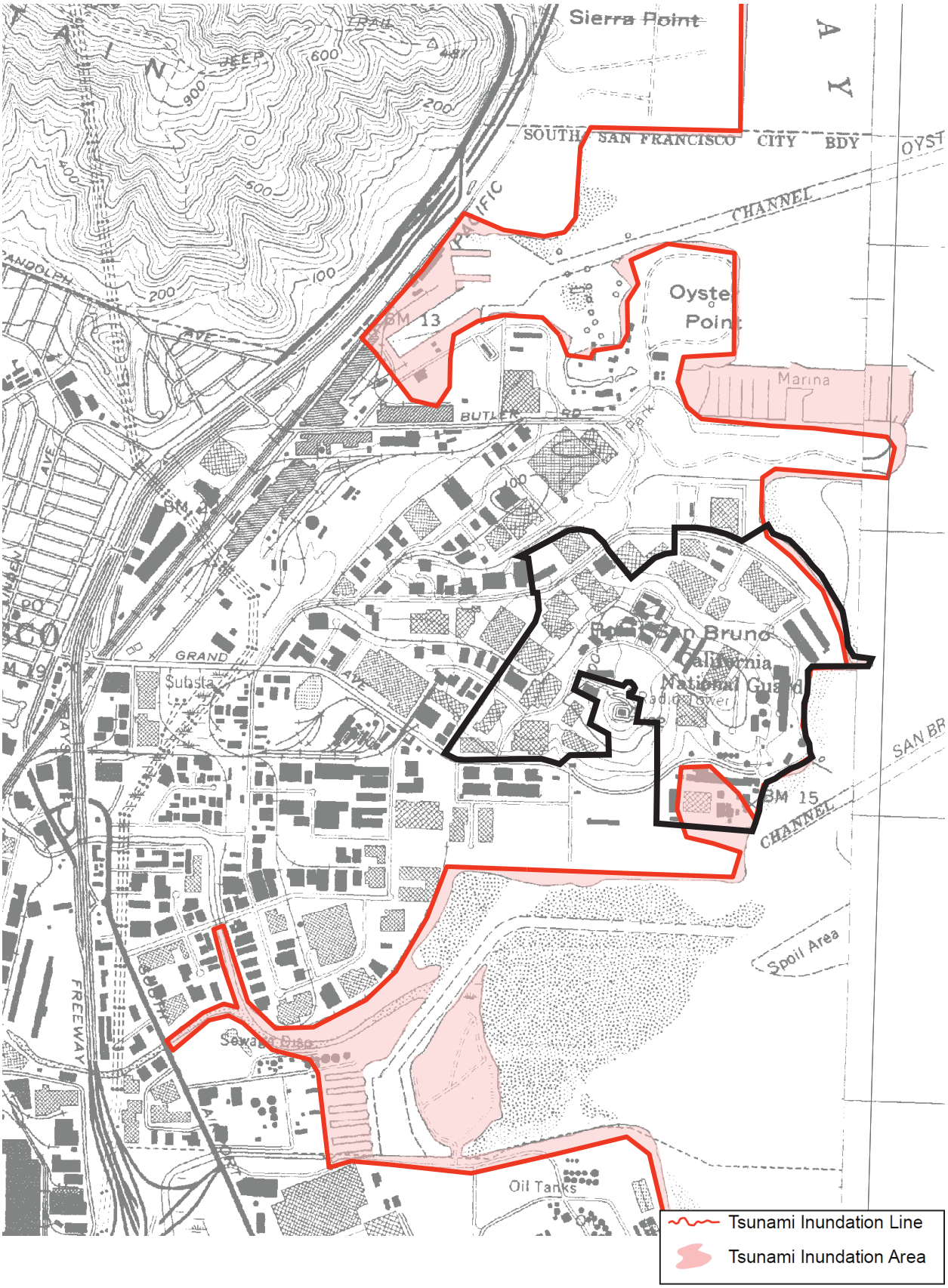

Figure 12-3
Tsunami Inundation Zone

Source: State of California Emergency Management Agency, Earthquake and Tsunami Program

Regulatory Requirements

All new development pursuant to the Project will be required to comply with all applicable regulatory requirements to address flood hazards, including but not limited to the following:

Regulatory Requirement Hydro 4A: National Flood Insurance Program: Executive Order 11988 is a federal regulation that requires the prevention of uneconomic, hazardous or incompatible use of floodplains; protection and preservation of the natural and beneficial floodplain values; and consistency with the standards and criteria of the National Flood Insurance Program.

Regulatory Requirement Hydro 4B: South San Francisco Municipal Code: Chapter 15.56, Section 15.56.140 of the South San Francisco Municipal Code identifies standards specific to construction in coastal high hazard areas.[23] Developments shall be elevated above the flood level, anchored and constructed of materials resistant to flood damage.

City of South San Francisco General Plan also includes policies to ensure that proposed development subject to the 100-year flood provides adequate protection from flood hazards. These policies and regulatory requirements will be incorporated into individual development project's construction activities.

Mitigation Measures

No mitigation measures are required.

All new development pursuant to the Project will be required to adhere to applicable codes and regulatory measures that ensure potential flood hazards are reduced to the maximum extent feasible. With compliance with these regulatory requirements, development pursuant to the Project would not expose people or structures to substantial risks involving flooding, nor would the Project risk release of pollutants due to project inundation as a result of a flood hazard, tsunami or seiche.

Cumulative Hydrology Effects

The Project will not result in a cumulatively considerable contribution to significant cumulative impacts on hydrology or water quality. The Project's potential contribution to cumulative impacts to hydrology and water quality is evaluated in the context of past, present, and reasonably foreseeable probable future development that may affect similar water resources in the same watershed. As indicated below, with implementation of applicable regulatory requirements, cumulative impacts to hydrology and water quality would be less than significant, and the Project would not result in a cumulatively considerable contribution to a significant cumulative hydrology or water quality impact.

Stormwater Runoff

Cumulative construction-related runoff from the Project and other past, current and reasonably foreseeable future cumulative development in the East of 101 Area could have adverse cumulative effects on hydrology and water quality, including increased stormwater runoff and pollutant loading to the Bay. However, all present and reasonably foreseeable development projects are required to comply with regulatory requirements that control the discharge of construction-period stormwater pollutants. Those regulatory requirements that apply to all cumulative construction projects include compliance with the Construction General Permit, and preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) pursuant to Provision C.6 of the Municipal Regional Permit (MRP). All construction-period SWPPPs required

[23] Per SSF Municipal Code 15.56.040, "Coastal high hazard area" means an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. It is an area subject to high velocity waters, including coastal and tidal inundation or tsunamis. The area is designated on a flood insurance rate map (FIRM) as zone V1-V30, VE, or V (see Figure 12-2)

of cumulative development projects must demonstrate implementation of seasonally appropriate and effective BMPs to prevent construction site discharges of pollutants into the storm drains and the Bay. BMPs that are consistent with the San Mateo Countywide Stormwater Pollution Prevention Program must include measures to address materials and waste management, equipment management and spill control, grading and earthmoving to prevent erosion, paving and asphalt work, concrete and mortar applications, painting and paint removal, landscaping and dewatering. With implementation of the Construction General Permit and BMP requirements at each cumulative construction site, potential cumulatively significant impacts to water quality will be individually addressed prior to issuance of each grading permit. No individual construction site, including construction projects pursuant to the Project, would substantially contribute to cumulative construction-period water quality effects.

Post-Construction Runoff

All regulated cumulative development projects are required to design and implement Stormwater Management Plans that comply with applicable C.3 provisions of the MRP, including requirements to incorporate post-construction stormwater controls and low-impact development (LID) measures. These regulations are designed to protect water quality from all new cumulative construction and development, including the Project. As applicable, cumulative projects will also be required to demonstrate that stormwater volumes can be managed by downstream conveyance features such that they do not exceed the capacity of these facilities or induce flooding.

Drainage Patterns

Future development pursuant to the Project would not substantially alter the existing drainage patterns within the Project Area in a manner that would result in substantial erosion or siltation, or that would increase the rate or amount of surface runoff in a manner that would result in flooding.

Off-Site Drainage

Colma Creek is the City's main natural drainage system, and cumulative runoff from areas west of US 101 could potentially alter drainage patterns and water quality within Colma Creek. However, Colma Creek does not intersect the Project Area nor does the Project Area drain to Colma Creek. Rather, the Project drains directly to the Bay via on-site stormdrain systems. Development pursuant to the Project will not contribute to potential cumulative effects that might alter the course of Colma Creek, will not contribute to cumulative siltation effects in Colma Creek, and will not increase the rate or amount of cumulative runoff that contributes to Colma Creek.

Non-CEQA Hydrology Topic

The following topic does not directly relate to any environmental thresholds established by the City of South San Francisco and is not required to be evaluated in this EIR pursuant to CEQA. According to the California Supreme Court's decision in California Building Industry Association v Bay Area Air Quality Management District (S213478, December 17, 2015) and further supported in case law (*Ballona Wetlands Land Trust et al. v. City of Los Angeles [2011] 201 Cal.App.4th 455), CEQA generally does not require that public agencies analyze impacts that existing (or potential future) environmental conditions might have on a project's future users or residents*. An agency must analyze how environmental conditions might adversely affect a project's residents or users only where the project itself might worsen existing environmental hazards in a way that will adversely affect them, or if one of the provisions of CEQA that require such an analysis for certain airport, school and housing projects applies.

However, to aid the public and City decision-makers in evaluating and considering the merits of the Project, this topic is discussed below for informational purposes.

Sea Level Rise

The effects that potential future sea level rise may have on the Project is not a CEQA matter. Therefore, the analysis of sea level rise effects is provided for informational purposes only, but may also provide context for future City consideration of appropriate sea level rise adaptation strategies.

It is expected that a rise in average global temperature due largely to an increase in GHG emissions will be accompanied by a rise in the global sea level. Sea level rise occurs from rising average ocean temperatures, thermal expansion and melting of snow and ice. The rate and amount of sea level rise will be influenced by a rise in average temperatures and the speed of melting glacial ice.

The State of California provides planning guidance for assessing and adapting to the impacts of sea level rise. The State's current guidance, the California 4th Climate Change Assessment (updated in 2018), provides guidance to state agencies for incorporating sea-level rise projections into planning, design, permitting, construction, investment and other decisions.[24] The San Francisco Bay Area Region Summary Report is part of a series of 12 assessments to support climate action by providing an overview of climate-related risks and adaptation strategies tailored to specific regions and themes. Produced as part of California's Fourth Climate Change Assessment by leading climate experts, this summary report translates the state of climate science into useful information for decision-makers and practitioners to catalyze action that will benefit the region, the ocean and coast, frontline communities, and tribal and indigenous communities. [25] This latest guidance document incorporates recent scientific findings from the California Ocean Protection Council's Science Advisory Team Working Group - *Rising Seas in California: An Update on Sea-Level Rise Science*. [26] This document was produced by a Working Group of the California Ocean Protection Council Science Advisory Team (OPC-SAT), supported and convened by the California Ocean Science Trust, and provides the scientific foundation for the 2018 update to the Climate Change Assessment document.

Sea Level Rise Scenarios

According to this document, California has already experienced sea level rise of approximately 6 inches in the past century, and sea level rise is virtually certain to increase beyond this level. There are important open questions about how fast sea levels will rise and how extreme sea-level rise will become, but in spite of uncertainty, all trends point upward. The Fourth Assessment's projections underscore the dependence of sea levels upon greenhouse gas emissions and associated melt and ice-loss from Greenland and Antarctica. The California Ocean Protection Council's *Rising Seas* indicates that before year 2050, the differences in sea-level rise projections under different emissions scenarios are minor. These projections show a 50% probability that sea level rise in the San Francisco Bay will meet or exceed nearly 1 foot above 1991-2009 mean sea level, and a 67% probability that sea level rise in the San Francisco Bay will meet or exceed 7 to 13 inches by year 2050. Sea-level rise projections diverge significantly past mid-century, depending on uncertainties in future greenhouse gas (GHG) emissions, the sensitivity of climate conditions to GHG concentrations, and the overall capabilities of climate models. If GHG emissions continue at current rates, the California Ocean Protection Council's *Rising Seas* indicates that sea level rise in the San Francisco Bay has a 50% probability of reaching 18 to 30 inches above 1990 mean sea level, and a 67% probability of meeting 29 to 41 inches by year 2100. The

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[24] California's Fourth Climate Change Assessment, accessed at: www.ClimateAssessment.ca.gov

[25] Ackerly, David, Andrew Jones, Mark Stacey, Bruce Riordan. (University of California, Berkeley), 2018, San Francisco Bay Area Summary Report, California's Fourth Climate Change Assessment, Publication number: CCCA4-SUM-2018-005

[26] Griggs, G, Árvai, J, Cayan, D, DeConto, R, Fox, J, Fricker, HA, Kopp, RE, Tebaldi, C, Whiteman, EA (California Ocean Protection Council Science Advisory Team Working Group). *Rising Seas in California: An Update on Sea-Level Rise Science*. California Ocean Science Trust, April 2017. Available online at: http://www.opc.ca.gov/webmaster/ftp/pdf/docs/rising-seas-in-california-an-update-on-sea-level-rise-science.pdf

California 4th Climate Change Assessment also includes an additional very-low probability worst-case estimate that exceeds 9 feet of sea level rise.[27]

Other climate-change-induced changes to atmospheric-oceanic processes may also increase coastal flood hazards due to:

- Daily tidal inundation: As sea levels rise, the elevation of MHHW will continually increase. Without action, this increase in elevation will result in increased permanent inundation of low-lying areas.
- Annual high tide inundation (king tides): King tides result in temporary inundation, and are associated with nuisance flooding, such as occasional inundation of low-lying roads, boardwalks, and waterfront promenades. Typical king tides raise coastal waters approximately 14 inches above MHHW. In the winter (December, January, and February), king tides may be exacerbated by winter storms, making these events more dramatic. Without protective action, this regular, predictable flooding will occur more frequently and affect larger areas as sea levels rise.
- Extreme high tide inundation (storm surge): Depending on the type and intensity of cause(s), extreme tides range from 15 inches above MHHW (1-year extreme tide) to 42 inches above MHHW (100-year extreme tides) or higher. In one such recent event (December 11, 2014), Bay waters rose 18 inches above predicted tide levels due to coastal storm conditions during a heavy rain event.
- Weather and weather cycles: Climate change may affect the frequency and/or intensity of coastal storms, El Niño cycles and related processes. During El Niño winters, atmospheric and oceanographic conditions in the Pacific Ocean produce severe winter storms that affect Bay shorelines. No clear consensus has emerged about these projected changes, but a commonly identified trend is a tendency toward increased elevation of snowpack and correspondingly more precipitation falling in Delta watersheds as rain. This trend may increase the frequency of higher Delta flows into the Bay.
- Waves: Large waves, whether generated within the Bay or by large Pacific storms, can damage unprotected shorelines and drive floodwaters even higher. Typical impacts include damage to coastal structures such as levees, docks and piers, wharves, and revetments; backshore inundation due to wave overtopping of structures; and erosion of natural shorelines.
- Precipitation combined with high tides: When large rainfall events co-occur with particularly high tides, coastal waters can impede the drainage of rivers, creeks and stormwater systems to the Bay, resulting in inland flooding during storms. Typical impacts during high or extreme tides include failure of storm drainage infrastructure, drainage restrictions through outfalls, backup of floodwaters into low-lying areas during precipitation events, road closures and neighborhood flooding. [28]

The *Adapting to Rising Tides, Bay Area Sea Level Rise Analysis and Mapping Project* has produced inundation data and mapping products for all nine San Francisco Bay Area counties, representing ten different sea level rise scenarios and/or extreme tide water levels. Each of the mapped scenarios approximates either permanent inundation scenarios or temporary flood conditions from combinations of sea level rise and extreme tides likely to occur before 2100. Permanent inundation occurs when an area is regularly covered by daily tidal fluctuations. As sea levels rise, additional shoreline areas may be subject to permanent inundation. Temporary flooding occurs when an area is exposed to episodic, short-duration, extreme tide events of greater magnitude than normal tide levels (such as during storm surge or El Niño events). Shoreline and

[27] Griggs, et.al., California Ocean Science Trust, *Rising Seas in California: An Update on Sea-Level Rise Science,* April 2017, Table 1b, page 26

[28] San Francisco Bay Conservation and Development Commission (BCDC), Adapting to Rising Tides, Bay Area Sea Level Rise Analysis and Mapping, in collaboration with MTC and AECOM, page 11, accessed at: http://www.adaptingtorisingtides.org)

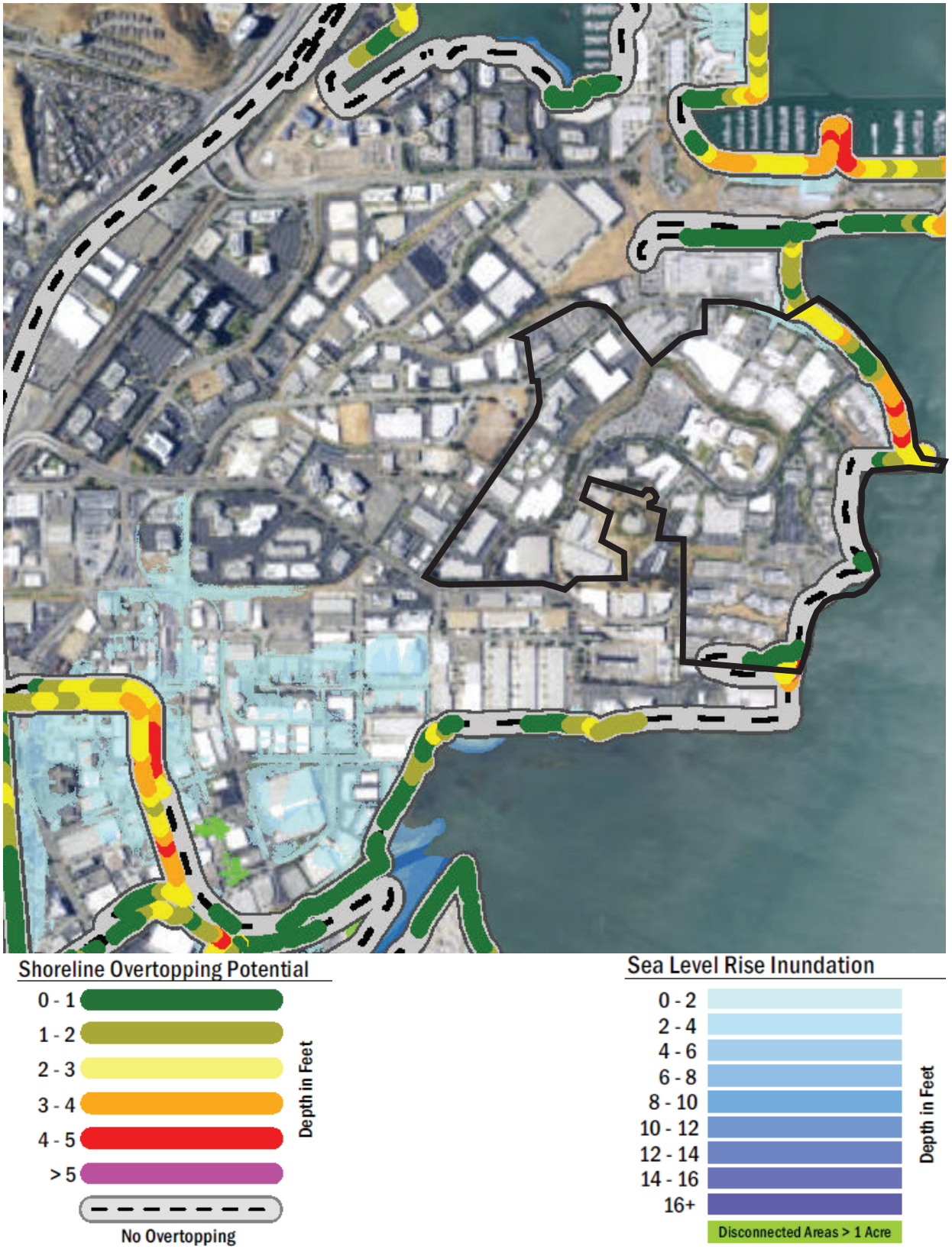
inland areas may be temporarily flooded during an extreme tide event, but may resume their intended function once floodwaters recede. [29]

Implications for East of 101 Area and Project Site

Two of the Adapting to Rising Tide scenarios are presented below, representing the potential range of sea level rise effects to the Project area and to the East of 101 Area in general. The first scenario (see **Figure 12-4**) represents a 12-inch rise in sea level (corresponding to *Rising Seas*' projection of a 50% probability in sea level rise by year 2050, plus a potential 50-year storm surge in the San Francisco Bay. Under this scenario, the Genentech Campus would be expected to experience only limited sea level rise inundation along Forbes Boulevard in the Lower Campus. Shoreline overtopping by 3 to 4 feet could be expected during the combined 50-year storm surge in the same general area along the Lower Campus. The Mid-Campus and South Campus are not shown as being affected by storm surges under this scenario. No other neighborhood Campus locations would be affected by sea level rise inundation or storm surge, as they are well removed from the shoreline and much higher in elevation. The more substantial effects of sea level rise under this scenario would be felt in the southerly portion of the East of 101 Area, generally south of East Grand Avenue. This area is expected to experience sea level rise inundation of between 2 and 4 inches, and the Colma Creek channel is projected to experience overtopping of between 3 to 5 inches along Harbor Way, Utah Avenue and Mitchel Avenue.

The second scenario (see **Figure 12-5**) represents a 42-inch rise in sea level (corresponding to *Rising Seas*' highest of sea level rise under a 67% probability by year 2100, plus a potential 100-year storm surge in the San Francisco Bay. Under this longer-term and more severe scenario, the Genentech Campus would only be expected to experience limited sea level rise inundation of 2 to perhaps 4 feet within the Lower Campus and in Forbes Boulevard, coupled with Lower Campus shoreline overtopping of 4 to 5 feet during the combined 100-year storm surge. The Mid-Campus and South Campus would remain unaffected by sea level rise inundation, but the South Campus might experience shoreline overtopping during storm surges of up to 2-feet under this scenario. No other neighborhood Campus locations would be affected by sea level rise inundation or storm surge, as they are well removed from the shoreline and much higher in elevation. The southwesterly portion of the East of 101 Area, including both sides of East Grand Avenue, is expected to experience sea level rise inundation of 4 to 6 inches. The Colma Creek channel is projected to experience storm-surge overtopping of as much as 5 inches along Harbor Way, Utah Avenue and Mitchel Avenue, and even 2 to 4 inches along East Grand Avenue at Forbes Boulevard.

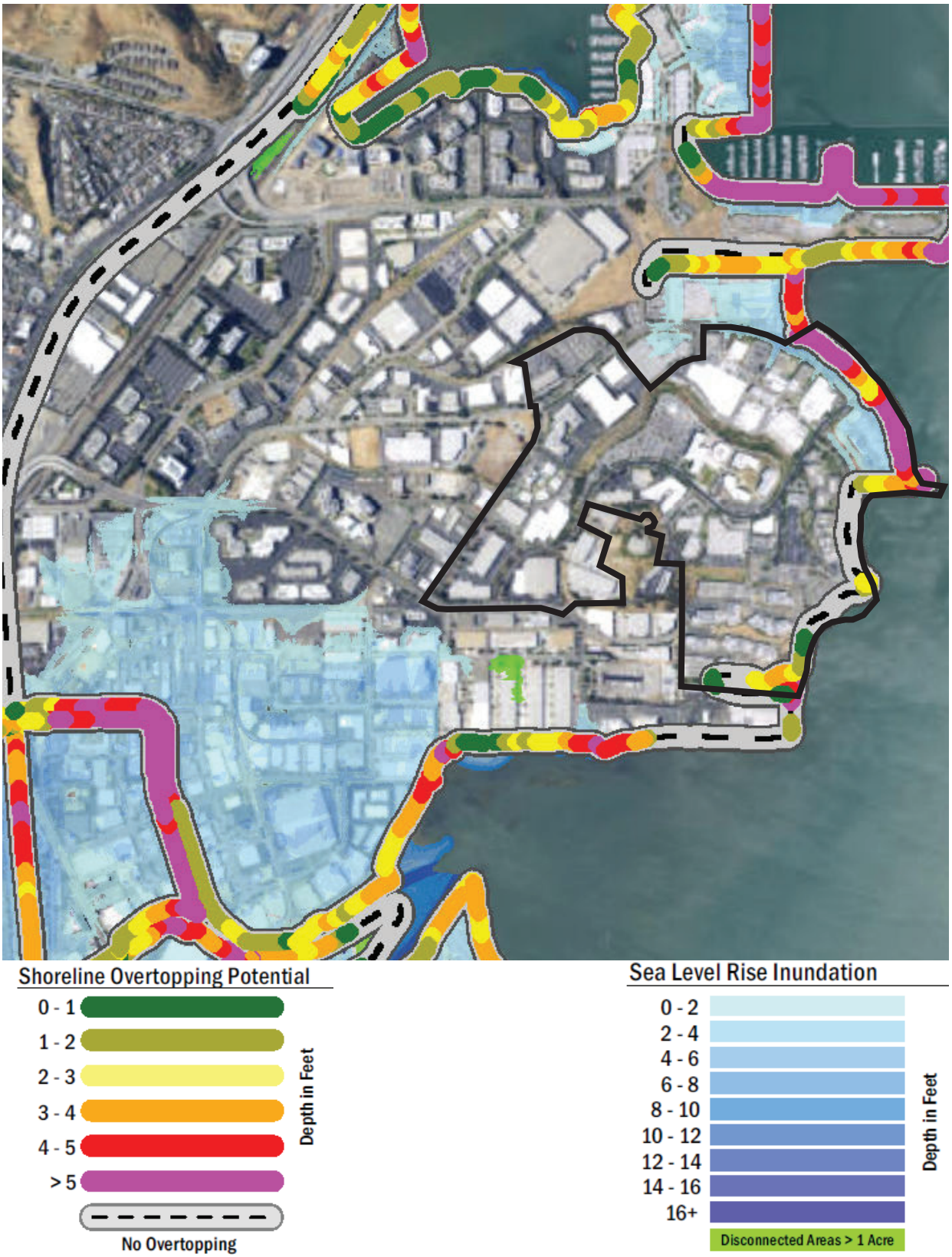
[29] Ibid, page 1



Corresponds to 12″ of sea level rise, plus a 50-year storm surge event

Figure 12-4
Sea Level Rise Scenario 1

Source: BCDC, et.al., *Adapting to Rising Tides,* Bay Area Sea Level Rise Analysis and Mapping Project, September 2017



Corresponds to 42″ of sea level rise, plus a 100-year storm surge event

Figure 12-5
Sea Level Rise Scenario 2

Source: BCDC, et.al., *Adapting to Rising Tides*, Bay Area Sea Level Rise Analysis and Mapping Project, September 2017

As indicated in these figures, most of adverse effects of mid-century sea level rise at the Genentech Campus will likely be confined to the 100-foot shoreline setback along the Bay. This setback restricts Campus development adjacent to sensitive natural areas such as tidal wetlands, which also provide for storm surge and wave dissipation. However, in the longer term (or under accelerated and/or more severe weather conditions) adaptation to sea level rise at the Campus may prove to be more critical. As new development occurs in these more susceptible areas of the Campus, Genentech will consider adaptation strategies that may include:

- Targeting new infrastructure investments (i.e., CUP/CHP construction) in areas that are at lower risk for inundation and storm surge potential
- Elevating the grade of certain areas (i.e., in the Lower Campus) above the expected sea level rise inundation zone, commensurate with new development or redevelopment projects, and
- Potentially building a levee to protect the lower Campus areas from inundation and erosion resulting from sea level rise

The 100-foot shoreline band along the Bay provides opportunity for construction of a levee, and the levee could be designed to include a top-of-bank relocation of the Bay Trail.

In the more southerly portion of the East of 101 Area, the shoreline and Colma Creek channel will become increasingly exposed to more substantial tide levels, and existing flood protection measures may not provide the same level of protection that they do today. This information may help the City of South San Francisco begin to plan for and develop operational strategies, assist in identifying and managing climate change-related risks and help identify trigger points for implementing broader East of 101 Area sea level rise adaptation strategies.

13

Land Use and Planning

This chapter evaluates the potential environmental impacts of the Project related to land use. This chapter describes the existing land uses of the Project Area and its surroundings and evaluates the extent to which the Project may affect land use. In particular, this chapter provides an assessment of the Project's consistency with the existing land use policy and regulatory framework applicable to the Project Area.

Setting information is derived from the following primary sources:

- the *General Plan* of the City of South San Francisco
- the City of South San Francisco *East of 101 Area Plan*
- the *Comprehensive Airport Land Use Compatibility Plan (ALUCP) for the Environs of San Francisco International Airport* (City/County Association of Governments of San Mateo County, November 2012)
- the City of South San Francisco Municipal Code, Chapter 20: Zoning
- relevant land use planning principles and guidelines of the *Genentech Campus Master Plan Update*

Setting

Land Use in the Surrounding East of 101 Area

The City of South San Francisco is bisected by the US 101 freeway. South San Francisco's downtown and other commercial and residential areas are primarily on the west side of the freeway, and freeway commercial, industrial and office land uses are primarily on the east side of the freeway. The east side of the freeway is known as the East of 101 Area.

The central portion of the East of 101 Area is composed primarily of biotechnology-related building space. Genentech is the largest biotechnology company in the area, but there are over 200 biotech companies and approximately 11.5-million square feet of biotechnology building space within the approximately 500-acre East of 101 Area.[1] The growth of the biotechnology industry has significantly changed land use in the East of 101 Area, which had historically been an area of heavy industry, manufacturing facilities and warehousing. Land uses in the East of 101 area are now principally modern, multi-story office and research and development (R&D) buildings, mostly in campus-type settings.

The south and southwest portion of the East of 101 Area has not yet undergone such significant transformation. This area still consists primarily of one and two-story industrial and light industrial buildings and airport-serving land uses, including hotels and fast food restaurants.

The northerly portion of the East of 101 Area is known as Oyster Point. In 2011, the City approved the Oyster Point Specific Plan, which calls for removal of an inn, office buildings, a yacht club and light industrial

[1] http://www.ssf.net/our-city/biotech/biotech-in-ssf

buildings for redevelopment with up to 2.3 million square feet of office/R&D building space, accessory commercial uses, public open space, recreational fields, marina improvements and a hotel. Phase 1 of the Oyster Point Specific Plan is under construction.

Along the entire Bay shoreline of the East of 101 Area is a shoreline trail (the Bay Trail) and greenbelt, which extends north and south along the Bay.

Land Use Characteristics of the Project Area

The Project Area is located within the East of 101 Area, at the furthest easterly point. The Project Area is bordered by the San Francisco Bay to the north and east, and connected by Oyster Point Boulevard and East Grand Avenue to US 101 to the west, and is roughly one mile north of the San Francisco International Airport (SFO).

The Project Area is defined as the Genentech Campus, which had an existing 2017 baseline of approximately 4.7 million square feet of building space within its 207 acres, at a floor-area ratio (FAR) of approximately 0.52. [2]Several clusters of office, laboratory, manufacturing, and research facilities exist within the Project Area, and these building clusters are known as neighborhood campuses.

- The Lower Campus is located in the northerly portion of the Project Area along the Bay shoreline south of Oyster Point, and contains a mix of manufacturing and warehouse buildings, offices and laboratories, and structures containing the Project Area's primary power and infrastructure facilities.
- The Mid Campus is also located along the Bay shoreline, but sits atop a bluff south of the Lower Campus. The Mid Campus is composed almost exclusively of research and lab facilities, and its existing buildings are grouped into multiple building clusters.
- The Upper Campus is the geographic center of the Project Area and occupies the highest point on the hilltop. The Upper Campus is the center of the Genentech Campus and is composed almost entirely of office and related employee amenity land uses.
- The West Campus begins at East Grand Avenue/Allerton Street and along the base of Point San Bruno Hill. Existing building space within the West Campus includes mostly warehouse and distribution space, generally only one or two stories in height.
- The South Campus fronts the San Francisco Bay and was originally designed and constructed as an individual campus with a mix of office and laboratory space with centralized amenities and two parking garages.

The distribution of building space by neighborhood campus location and use type is shown below in **Table 13-1**.[3]

[2] Per SSF municipal Code and East of 101 Area Plan, childcare facilities are not included in the FAR totals.

[3] Genentech's latest 2017 Annual Report shows a matching level of total Campus development, but because the Master Plan Update re-organizes the boundaries of neighborhood campuses, the total by neighborhood campus shown in Table 3-1 vary from that Annual Report.

Table 13-1: Baseline (2017) Building Space by Land Use Type (building square feet)

Land Use Type:	Lower Campus	Mid Campus	Upper Campus	West Campus	South Campus	Total
Office	257,000	82,000	907,000	89,000	230,000	1,566,000
Lab Space / R&D	482,000	469,000	59,000	139,000	568,000	1,718,000
Manufacturing and Distribution	487,000		34,000	764,000		1,285,000
Employee Amenity Space	10,000	2,000	108,000	54,000	23,000	145,000
EIR Baseline, Total	**1,237,000**	**554,000**	**1,107,000**	**1,046,000**	**821,000**	**4,766,000**[1]
Changes During 2017/2018						
Employee Center:			71,000			
Demo (B54 and T06):				-107,000		
Child Care Center				73,000		
New Building 40					170,000	
As of beginning 2019:	**1,237,000**	**554,000**	**1,179,000**	**1,012,000**	**991,000**	**4,973,000**

Notes:

1. EIR baseline totals consistent with 2015/2016 Genentech Annual Report – but are not equal to FAR calculation. Pursuant to SSF Municipal Code and East of 101 Area Plan, childcare facilities are exempt from FAR limitations
2. Baseline totals (pre-2017/2018 changes) are consistent with 2017 Genentech Annual Report

Land use types by building space within the Project Area is generally evenly split between lab space (36% of total building space), office use (33% of total building space) and manufacturing/warehouse (27% of total building space). Employee amenity spaces currently comprise approximately 3% of the total Campus building space. As of the beginning of 2018, two additional buildings (the Employee Center on the Upper Campus, and the Child Care Center in the West Campus) were constructed, and an additional building (Building 40 in the South Campus) was under construction.

These existing land uses are consistent with other surrounding land uses within the East of 101 Area.

Project Consistency with Regulatory Setting

Land use policies, standards and regulations applicable to the Project Area are contained in the South San Francisco General Plan, the *East of 101 Area Plan*, and the South San Francisco Municipal Code. The Project Area is also within the regulatory jurisdiction of other agencies. Along the Project Area's shoreline, the Bay Trail connects to the San Francisco Bay regional park system within the Bay Conservation and Development Commission's (BCDC) jurisdiction. The entire East of 101 area, including the Project Area, is within the SFO Airport Influence Area (AIA) and subject to rules and regulations of the City/County Association of Governments of San Mateo County (C/CAG) to promote compatibility between SFO and surrounding land uses. No natural community plan or habitat conservation plan is applicable to the Project Area.

Potential conflicts with the General Plan and other plans, policies and regulations do not inherently result in a significant effect on the environment within the context of CEQA. CEQA Guidelines Section 15358(b) states that, "effects analyzed under CEQA must be related to a physical change." CEQA Guidelines Section 15125(d)

further states that an EIR shall discuss any inconsistencies between a proposed project and the applicable general plan in the Environmental Setting section of the document, rather than as an impact. Further, Appendix G (Environmental Checklist Form) of the CEQA Guidelines indicates that a project would result in a significant impact related to land use and planning if it would, "*cause a significant environmental impact* due to a conflict with any applicable land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect" (emphasis added). Accordingly, this section of the EIR provides an evaluation of the overall consistency of the Project with applicable plans, policies and regulations, but the physical impacts that may result from any such conflicts are analyzed in the various impact sections of the EIR.

Federal – City/County Association of Governments of San Mateo County

Comprehensive Airport Land Use Compatibility Plan for SFO (2012)

The *Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport* (ALUCP) is used by the City/County Association of Governments of San Mateo County (C/CAG) to promote compatibility between the San Francisco International Airport (SFO) and surrounding land uses. The ALUCP compatibility criteria, as derived from the Federal Aviation Administration (FAA), are used to safeguard the general welfare of the public.

The Project Area is entirely within the SFO Airport Influence Area (AIA) and as such, the compatibility criteria contained within the ALUCP are applicable to land use plans and development within the Project Area. As indicated below, the Project is consistent with the noise, land use safety and building height criteria of the ALUCP, and would not conflict with plans and policies intended to protect and promote airport operations safety and/or airspace protection.

Land Use Safety

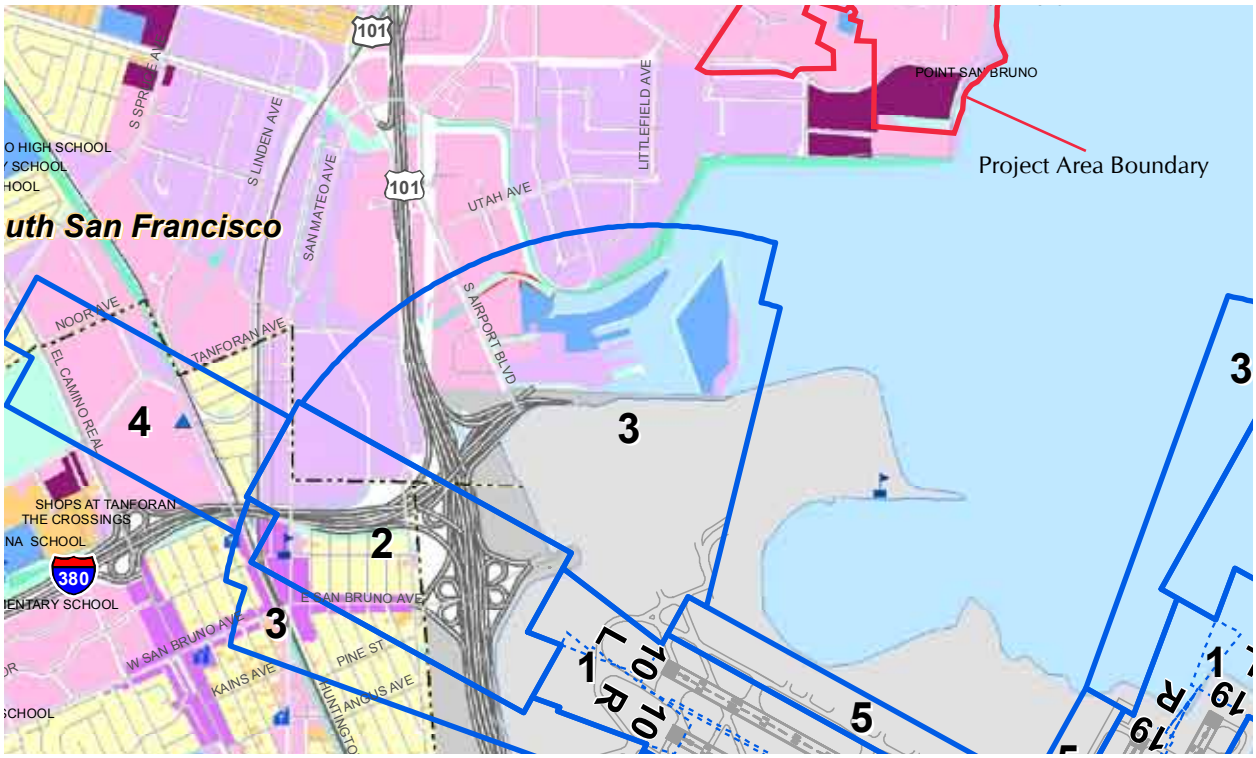
The ALUCP defines five safety zones within its AIA, and land use compatibility standards are established to restrict development of certain types of land uses that could pose particular hazards to the public or to vulnerable populations in case of an aircraft accident.

> Consistency: As shown on **Figure 13-1**, none of the five safety zones associated with SFO apply to the Project Area. Thus, the ALUCP's criteria for land use safety do not apply to the Project, and the Project is consistent with these criteria.

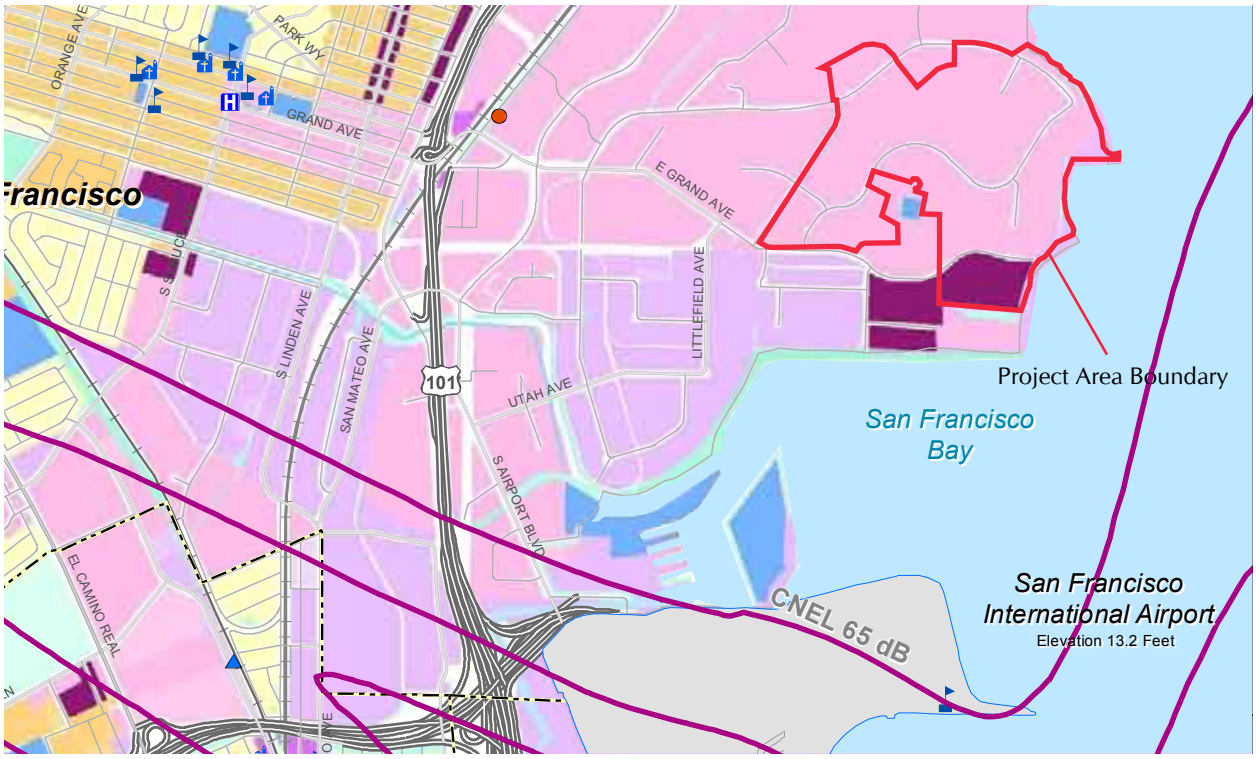
Noise

The ALUCP establishes boundaries within which noise compatibility policies apply. These boundaries depict "noise impact areas" or noise compatibility zones, defined by noise contours at the 65 dB CNEL, 70 dB CNEL, and 75 dB CNEL contours. Noise compatibility policies apply to each noise impact area or contour. Commercial uses (e.g., offices and business) or industrial and manufacturing uses and related structures are considered compatible without restrictions within all of these noise impact areas.

> Consistency: As shown in **Figure 13-1**, the Project Area is not located within any of the ALUCP-identified noise impact areas. Thus, the ALUCP land use noise exposure criteria do not apply to the Project (and would not restrict the Project's proposed land uses, even if they did apply) and the Project is consistent with the ALUCP noise criteria.



A: Safety Compatibility Zones



B: Noise Compatibility Zones

Figure 13-1
SFO Safety and Noise Compatibility Zones - Relationship to Project Area

Source: *SFO ALUCP*, Exhibits IV-4 and IV-6, San Mateo C/CAG, 2012

Airspace Protection

The ALUCP includes plans and policies related to the compatibility of proposed land uses and airspace protection. The purposes of these policies are:

- 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, and
- 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

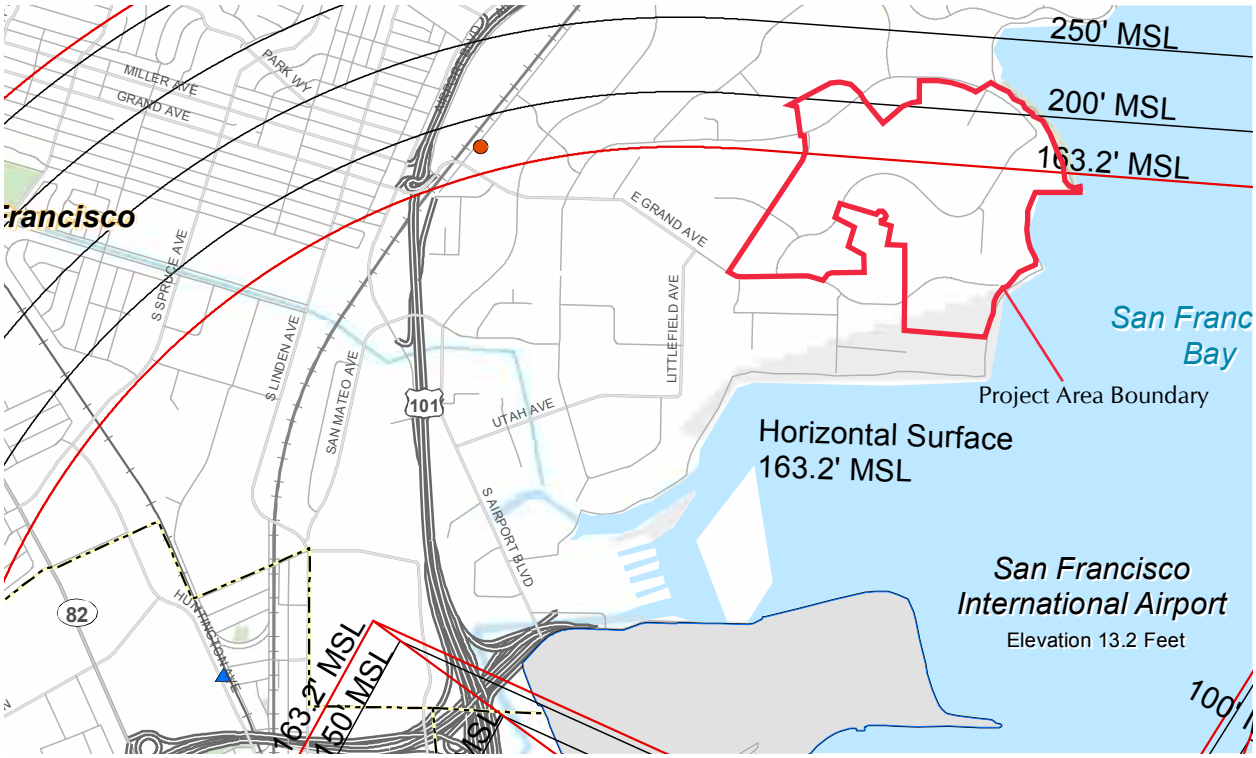
The criteria used in establishing these policies is based on the Code of Federal Regulations (CFR) 14, Safe, Efficient Use and Preservation of the Navigable Airspace (Part 77), which governs the FAA's review of proposed construction exceeding certain height limits, defines airspace obstruction criteria, and provides for FAA aeronautical studies of proposed construction.

Pursuant to these federal regulations, any new structure or alterations to an existing structure (including portions of structures, mechanical equipment, flag poles, and other projections) with a height that would exceed Part 77 elevation thresholds is required to file a Notice of Proposed Construction or Alteration with the FAA. 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." These imaginary surfaces rise from the primary surface (ground level at the SFO runways), and gradually rise along the approach slopes and sides of the runways. The FAA considers any objects that penetrate these imaginary surfaces as potential 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.

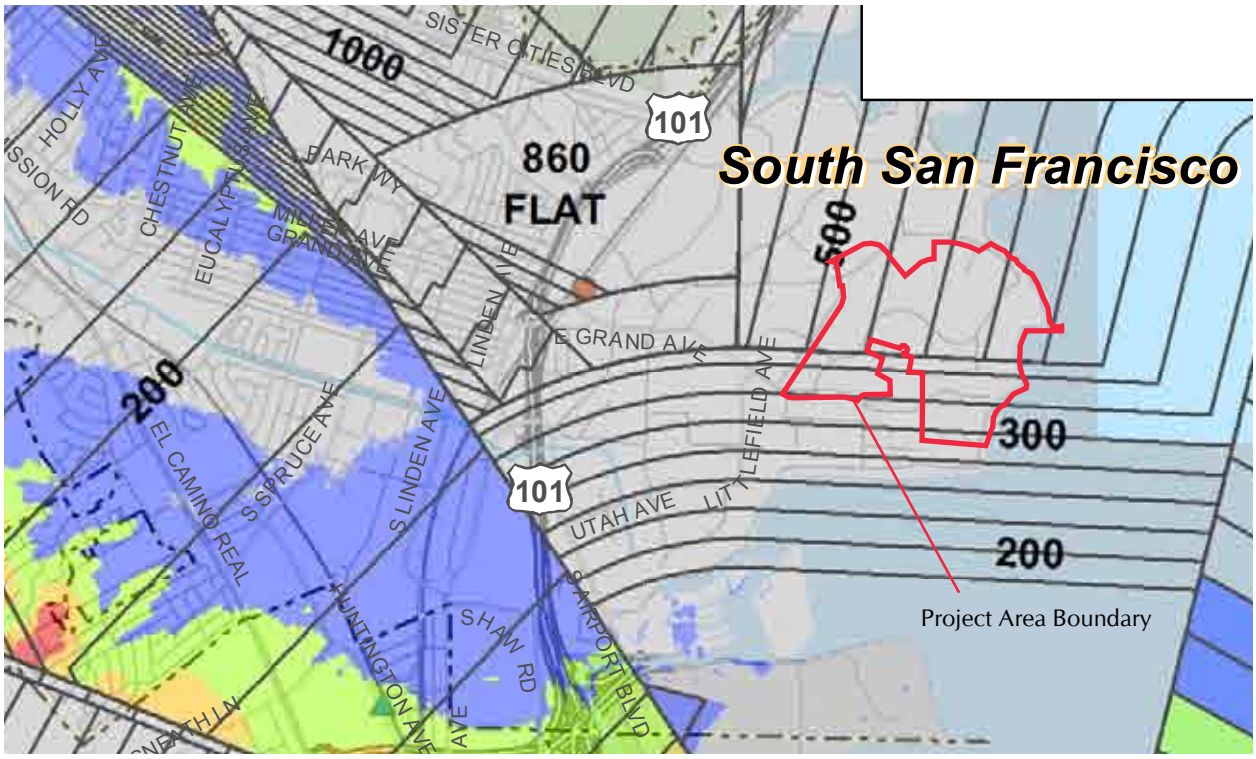
The ALUCP also includes mapping that illustrates the critical aeronautical surfaces that protect the airspace required for multiple types of flight procedures (such as those typically factored into FAA aeronautical studies). These critical aeronautical surfaces depict the lowest elevations from all FAA-required obstacle clearance criteria to ensure safe separation of aircraft. Any proposed structures penetrating these critical surfaces are likely to receive a Determinations of Hazard from the FAA, and these surfaces indicate the maximum height at which structures can be considered compatible with Airport operations.

Consistency: Important building height criteria of the ALUCP applicable to the Project Area include:

- Within the Project Area, new or altered buildings that exceed between 80 feet above mean sea level (AMSL) in the southern portion of the Campus, to 120 feet AMSL in the northerly portion of the Campus, are required to file a Notice of Proposed Construction or Alteration with the FAA.
- As indicated on **Figure 13-2**, the Part 77 airport imaginary surfaces that define potential obstructions to air navigation begin at a horizontal surface of 163.2 feet MSL for a majority of the Project Area, and rise to a height of over 200 feet AMSL in the northerly portion of the Campus. Buildings exceeding the heights of these imaginary surfaces are subject to an aeronautical study prepared by the FAA (known as an Obstruction Evaluation/Airport Airspace Analysis, or OE/AAA review process), and a determination by the FAA that the building is "not a hazard to air navigation".
- As also indicated on **Figure 13-2**, the maximum height at which structures can be considered compatible with airport operations (i.e., the "critical aeronautical surface") within the Project Area ranges from 325 feet AMSL in the South Campus, to as high as 500 feet AMSL in the northwest portions of the Campus. Any proposed structures penetrating these critical surfaces are likely to receive Determinations of Hazard (DOH) from the FAA through the aeronautical study process.



A: Part 77 Surface Heights



B: SFO Critical Aeronautical Surfaces

Figure 13-2
SFO's FAA Part 77 Building Height Review Requirements and Restrictions

Source: *SFO ALUCP*, Exhibits IV-14 and IV-17, San Mateo C/CAG, 2012

According to the Genentech Campus Master Plan Update, the maximum heights of new buildings within the Campus shall comply with the height regulations and restrictions as established by FAA criteria. Pursuant to these proposed height regulations, new buildings exceeding the FAA Part 77 height limits will be subject to FAA review and may be required to provide marking and/or lighting, or may not be acceptable to the FAA if found to have unexpected impacts to the safety or efficiency of operations at SFO. Compliance with these regulations would ensure that the Project does not result in new buildings that exceed applicable ALUCP building height limits, and would therefore be consistent with the ALUCP criteria. The following **Table 13-2** provides a generalized indication of how these FAA Part 77 surface contours apply to new buildings within the Project Area, and the implications for FAA notification and review (see **Figure 13-3**). To ensure consistency with ALUCP and FAA criteria, any new building exceeding these FAA Part 77 surface heights must apply to the FAA for review, thus ensuring consistency with ALUCP and FAA criteria.

Table 13-2: Applicable FAA Building Height Regulations and Restrictions

	Approx. Ground Level	Approx. FAA Part 77 Surface Height	Approx. Building Height Requiring FAA Review [1]	FAA Critical Surface Height	Approx. Building Heights Exceeding FAA Critical Surface [2]
Lower Campus(Bayview)	10	170	160	425	415
Lower Campus (near Gull)	20	200	180	450	430
Mid Campus (south)	50	163	110	375	325
Mid Campus (near Upper)	80	163	80	425	345
Upper Campus (north of DNA)	90	170	80	450	360
Upper Campus (south of DNA)	100	163	60	450	350
West Campus (near Grand)	30	163	130	350	320
West (near Forbes)	30	180	150	475	445
West (north of Forbes)	30	200	170	500	470
South	20	163	140	325	305

Notes:

1. New buildings exceeding these approximate heights are not expressly prohibited, but are subject to an aeronautical study prepared by the FAA and a determination by the FAA that the building is "not a hazard to air navigation"
2. New buildings may not exceed the Critical Aeronautic Surface heights.

Any proposed building that exceeds the critical aeronautical surface is presumed to be a hazard to aircraft operations and would not be acceptable. The Project does not propose any new buildings that would exceed critical aeronautical surface elevations, and thus is consistent with these ALUCP criteria.

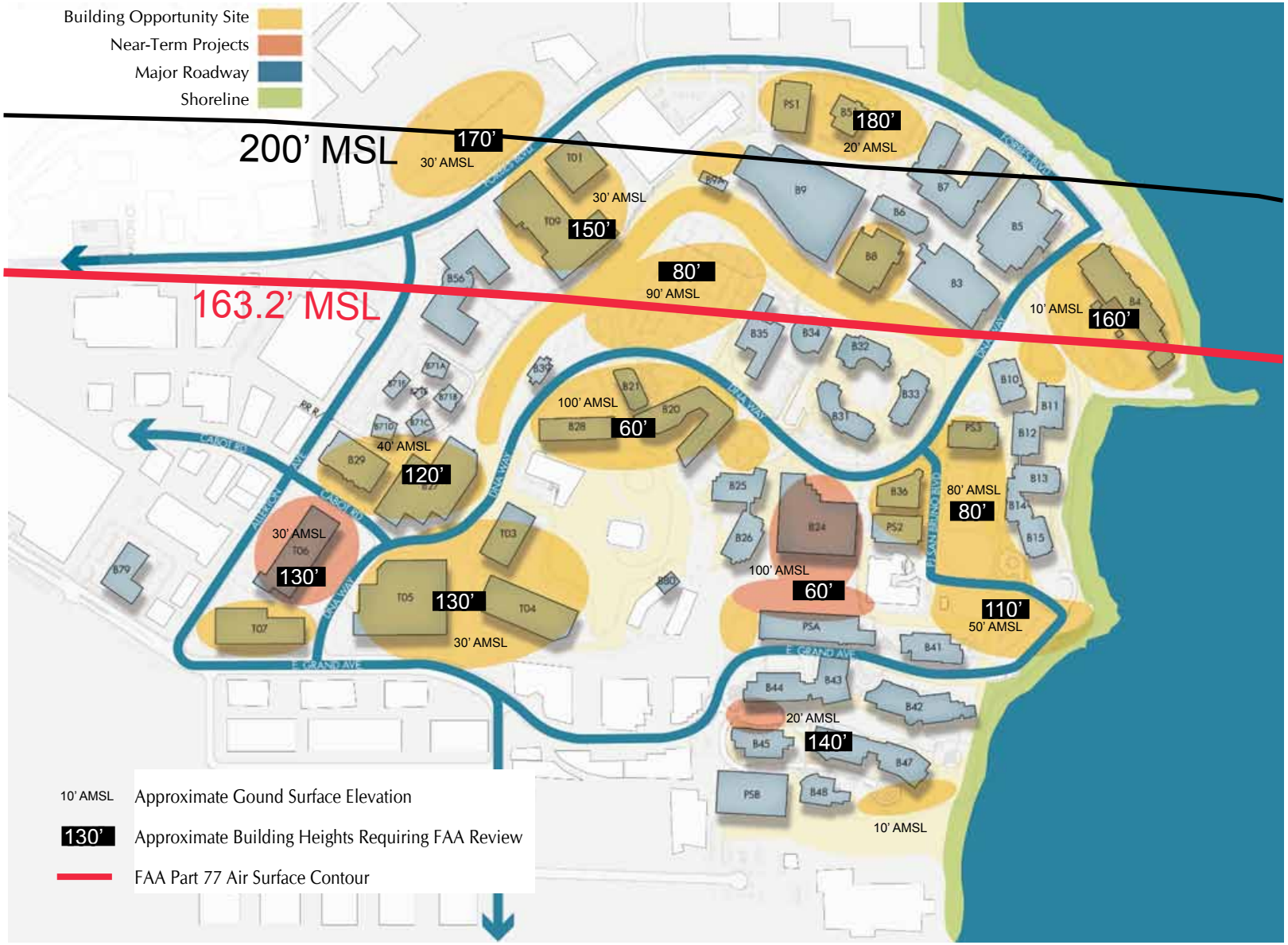


Figure 13-3
Approximate Building Heights Triggering FAA Part 77 Review

Source: SFO ALUCP, Exhibit IV-14, San Mateo C/CAG, 2012

State

McAteer-Petris Act

The McAteer-Petris Act of 1965 created the San Francisco Bay Conservation and Development Commission (BCDC), and mandated a study of the Bay. The original *San Francisco Bay Plan* was completed and adopted in 1968. The most recent *Bay Plan* was adopted in 2012, including amendments made in 2011 to address climate change. In 2017, BCDC initiated two amendments to the Bay Plan to address fill for habitat projects, and to address social equity and environmental justice. These amendments processes are currently underway.[4]

The *Bay Plan* includes two essential components: policies to guide future uses of the Bay and shoreline, and maps that apply these policies to the present Bay and shoreline. The area over which BCDC has jurisdiction includes the San Francisco Bay (all areas that are subject to tidal action including sloughs, marshlands located within five feet above mean sea level, tidelands, and submerged lands); a shoreline band between the Bay shoreline and 100 feet landward of that line; salt ponds; managed wetlands, and other certain waterways. Within the BCDC shoreline jurisdiction, the *Bay Plan* specifies that certain water-oriented land uses should be permitted on the shoreline as a priority use, and that BCDC may deny applications for BCDC permits [for projects within the shoreline band and subject to BCDC jurisdiction] that fail to provide maximum feasible public access to the Bay and the shoreline.

The Project Area is immediately adjacent to the shoreline band and other jurisdictional areas, where certain *Bay Plan* policies (including, but not limited to those listed below) may be relevant:

- Projects should be sited and designed to avoid, or if avoidance is infeasible, minimize adverse impacts on any transition zone present between tidal and upland habitats. Where a transition zone does not exist and it is feasible and ecologically appropriate, shoreline projects should be designed to provide a transition zone between tidal and upland habitats.
- Diversions of fresh water should not reduce the inflow into the Bay to the point of damaging the oxygen content of the Bay, the flushing of the Bay, or the ability of the Bay to support existing wildlife.
- All projects (other than repairs of existing facilities, small projects that do not increase risks to public safety, interim projects and infill projects within existing urbanized areas) should be designed to be resilient to a mid-century sea level rise projection. If it is likely the project will remain in place longer than mid-century, an adaptive management plan should be developed to address the long-term impacts that will arise based on a risk assessment using the best available science-based projection for sea level rise at the end of the century.
- New shoreline protection projects and the maintenance or reconstruction of existing projects and uses should be authorized if:

  a) the project is necessary to provide flood or erosion protection for existing development, use or infrastructure, or proposed development, use or infrastructure that is consistent with other *Bay Plan* policies

  b) the type of the protective structure is appropriate for the project site, the uses to be protected, and the erosion and flooding conditions at the site

[4] http://www.bcdc.ca.gov/planning/

c) the project is properly engineered to provide erosion control and flood protection for the expected life of the project based on a 100-year flood event, taking into account future sea level rise

d) the project is properly designed and constructed to prevent significant impediments to physical and visual public access; and

e): the protection is integrated with current or planned adjacent shoreline protection measures. Professionals knowledgeable of the Commission's concerns, such as civil engineers experienced in coastal processes, should participate in the design.

- Shore areas not proposed to be reserved for a priority use should be used for any purpose (acceptable to the local government having jurisdiction) that uses the Bay as an asset and in no way affects the Bay adversely. This means any use that does not adversely affect enjoyment of the Bay and its shoreline by residents, employees, and visitors within the site area itself or within adjacent areas of the Bay or shoreline.
- Public access should be sited, designed and managed to prevent significant adverse effects on wildlife.
- Public access improvements provided as a condition of any approval should be consistent with the project and the physical environment, including protection of Bay natural resources, such as aquatic life, wildlife and plant communities, and provide for the public's safety and convenience. The improvements should be designed and built to encourage diverse Bay-related activities and movement to and along the shoreline, should permit barrier free access for persons with disabilities to the maximum feasible extent, should include an ongoing maintenance program, and should be identified with appropriate signs.
- Whenever public access to the Bay is provided as a condition of development, on fill or on the shoreline, the access should be permanently guaranteed. This should be done wherever appropriate by requiring dedication of fee title or easements at no cost to the public, in the same manner that streets, park sites, and school sites are dedicated to the public as part of the subdivision process in cities and counties. Any public access provided as a condition of development should either be required to remain viable in the event of future sea level rise or flooding, or equivalent access consistent with the project should be provided nearby.
- Access to and along the waterfront should be provided by walkways, trails, or other appropriate means and connect to the nearest public thoroughfare where convenient parking or public transportation may be available. Diverse and interesting public access experiences should be provided which would encourage users to remain in the designated access areas to avoid or minimize potential adverse effects on wildlife and their habitat.

Consistency: The Project does not specifically propose any development within the 100-foot shoreline band or other lands subject to BCDC jurisdiction, and thus the majority of Bay Plan policies do not apply. The Project Area is immediately adjacent to the shoreline band, but does not result in any inconsistencies with the environmental protection and public access policies listed above. If Genentech were to consider any development within BCDC jurisdiction in the future, such development proposal would be subject to BCDC's Shoreline Development Permit process.

Genentech's BCDC Permits

Genentech holds two BCDC permits - Permit #18-74(A) and -74(B) originally issued in 1975 and as amended through December 2009, and Permit #MO5-9 issued August 2006. Among other matters, these permits require Genentech to:

- provide, improve and use approximately 2.5 acres for public access to and along the Bay shoreline along the Lower Campus (including irrigated landscaping, a public access pathway and connector paths, public amenities and public access signs, and parking), and to make the Building 4 parking lot available to the general public on the weekends and after normal business hours for those using the public access areas (Permits #18-74(A&B), and to
- construct, use, and maintain a 12-foot-wide public access trail along approximately 2,335 feet of shoreline along the Mid and South Campus (approximately 3.8 acres), also including a bicycle and pedestrian ramp, landscaping, site furnishings and a storm drain and drop inlets (Permit #MO5-9)

Consistency: The Project does not propose any development or other activity or use that would be inconsistent with these existing BCDC permits. If Genentech were to propose modifications to these permits (e.g., to suggest a relocation of provided public parking facilities), such a proposal would be subject to BCDC's Shoreline Development Permit process.

Local

South San Francisco General Plan (1999)

Land Use Element

The Land Use Element of the City of South San Francisco General Plan outlines the framework that guides land use decision-making, provides the General Plan land-use classification system, and outlines citywide land use policies.

According to the General Plan Land Use Diagram (see **Figure 13-4**), the entire Project Area is designated as Business and Technology Park, and the South Campus is also combined with a Coastal Commercial designation. The General Plan Land Use Element policies and guidelines applicable to the Business and Technology Park and Coastal Commercial Land Use designations, and the Project's consistency with these policies and guidelines, is discussed below.

Building Intensity: The General Plan establishes density/intensity standards for each use classification. Maximum permitted ratio of gross floor area to site area (FAR) is specified for non-residential uses. Building area devoted to structured or covered parking is not included in FAR calculations for non-residential developments. According to Table 2.2-2 of the Land Use Element, the base FAR permitted in the Business and Technology Park land use designation is 0.5, but an increase to a maximum FAR of 1.0 is permitted with implementation of a TDM Program and discretionary design standards.

Consistency: The Project represents new development located within the City's designated Business and Technology Park land use designation, and will have an ultimate FAR of 1.0. Accordingly, the Project is required by City Municipal Code to achieve a TDM trip reduction rate of 35 percent. The Project proposes a TDM goal of a 50 percent reduction in drive-alone arrivals to the Campus prior to buildout, and establishes a Trip Cap that is equal to the number of AM peak hour single-occupant vehicle trips as assumed in the 2007 MEIR, while still growing in building space and employees. The combination of a TDM goal of 50 percent and the Trip Cap will far exceed the City's TDM requirement. Thus, the Project's proposed Campus-wide limit for the Project at an FAR of 1.0, combined with required Design Review for new development, is fully consistent with the building intensity policies of the General Plan Land Use Element.

BTP - Business Technology Park
MI - Mixed Industrial
COAC - Coastal Commercial
BC - Business Commercial
PR - Park and Recreation
OS - Open Space

Figure 13-4
South San Francisco General Plan, Land Use Diagram

Source: http://zoning.ssf.net/

Height Limits: Figure 2-2 of the General Plan Land Use Element established airport-related height limits, based on the ALUCP. For the majority of the Project Area, this height limit is identified as 161 feet, and up to 211 feet in the northerly portion of the Project Area.[5]

Consistency: As indicated above, the ALUCP has been amended and updated since the 1999 General Plan, and effective height regulations and limitations are now more precisely defined. The Project proposes zoning changes that would be consistent with these new definitions of FAA-established height limits. These new ALUCP regulations allow new buildings to be as tall as:

- the maximum currently effective (per the 2012 ALUCP) FAA Part 77 air surfaces, or
- taller than the FAA Part 77 air surface, if additional FAA review determines a "no hazard"
- Buildings are prohibited if their height exceeds FAA critical surface heights, or if they are found to be a hazard to aircraft or airport operations based on FAA review.

The Project proposes zoning changes based on these newer ALUCP criteria, which are thus consistent with the General Plan height limits.

Permitted Land Uses: The Business and Technology Park land use designation provides locations for a mix of corporate headquarters, research and development facilities and other offices in a campus-like environment. Permitted uses include incubator-research facilities, prototype manufacturing, testing, repairing, packaging, publishing and printing as well as offices and research facilities. Marinas and shoreline-oriented recreation are allowed in light of the shoreline location. Warehousing, distribution, manufacturing and small-scale retail and service uses serving local employees and visitors may be permitted as secondary uses. All development is subject to high design and landscape standards.

Consistency: The Project provides for new growth and development of office, lab/research and development and other ancillary employee-serving amenity uses within the Genentech Campus, and provides for continuation of high-level landscaping and design. The Project's proposed land uses and facilities are fully consistent with the permitted land uses under the General Plan Land Use Element.

Planning Sub-Areas Element, East of 101

The Planning Subareas Element of the City General Plan established policies specific to individual planning sub-areas in the city. Policies in this element complement citywide policies included in the Land Use and other Elements. Areas requiring special emphasis in the City's planning process include the East of 101 Area. As South San Francisco's employment base, the East of 101 area is expected to accommodate a major share of South San Francisco's new non-residential development. The East of 101 Sub-area Element policies of the General Plan are identified and assessed for Project consistency in **Table 13-3**, below.

[5] Figure 2-3 of the Land Use Element indicates that, "For areas subject to airport-related height limitations, building heights must be in accordance with the limits indicated in the most recently adopted Comprehensive Airport Land Use Plan."

Table 13-3: Consistency with General Plan Policies of the East of 101 Sub-Area Element	
Guiding Policies	
Policy 3.5-G-1: Provide appropriate settings for a diverse range of non-residential uses.	***Consistent***: The Project includes an expected range of office, laboratory, amenity and other biotechnology-related uses, and does not include any residential uses
Policy 3.5-G-2: Direct and actively participate in shaping the design and urban character of the East of 101 area.	***Consistent***: The Project (the Master Plan Update) includes an Urban Design chapter specifically intended to help further shape the design and urban character of the Project Area.
Policy 3.5-G-3: Promote campus-style biotechnology, high technology, and research and development uses.	***Consistent***: The Project is a Master Plan Update that promotes campus-styled biotechnology and R&D land uses within the Project Area.
Policy 3.5-G-4: Use the East of 101 Area Plan as a guide for detailed implementation of General Plan policies.	See further discussion below regarding East of 101 Area Plan
Implementing Policies	
Policy 3.5-I-1: Maintain the East of 101 Area Plan as the detailed implementation guide for the area; amend it as appropriate for consistency with the General Plan. This includes design review of projects in accordance with policies established in the Design Element of the East of 101 Area Plan.	See further discussion below regarding East of 101 Area Plan
Policy 3.5-I-5: Do not permit any residential uses in the East of 101 area.	***Consistent***: The project does not include any new residential uses.
Policy 3.5-I-4: Unless otherwise stipulated in a specific plan, allow building heights in the East of 101 area to the maximum limits permissible under Federal Aviation Regulations Part 77.	***Generally Consistent***: The Project proposes zoning changes that would allow new buildings to be as tall as the maximum height of the FAA Part 77 air surfaces, or to exceed the FAA Part 77 surfaces if additional FAA review concludes in a "no hazard" determination. Building heights that would exceed FAA critical surface heights or that are found to be a hazard to aircraft or airport operations would be prohibited. These proposed regulations and restrictions represent a more accurate interpretation of applicable FAA criteria.
Policy 3.5-I-5: Do not vary permitted maximum development intensities based on lot size.	***Consistent***: The Project establishes one uniformly applied FAR of 1.0 across the entire Project Area
Policy 3.5-I-7: Prepare signage and streetscape plan for the areas designated as Business Commercial and Business and Technology Park on the General Plan Diagram, treating the entire area as one large campus, with unified signage and orchestrated streetscapes that make wayfinding easy and pleasant.	***Consistent***: The Project includes continuation of the existing streetscape and signage program as currently exists within the Project Area (i.e., within the Genentech Campus)
Policy 3.5-I-8: Encourage the development of employee-serving amenities with restaurants, cafes, and support - commercial establishments such as dry-cleaners, to meet the needs of the employees in the East of 101 area. Such uses could be located within independent centers or integrated into office parks or technology campuses.	***Consistent***: The Project provides for, and anticipates, expansion of employee-serving amenity uses as an integral component of new growth and development in the Project Area.

Table 13-3: Consistency with General Plan Policies of the East of 101 Sub-Area Element	
Policy 3.5-I-9: Examine the feasibility of developing a shoreline park at the terminus of East Grand Avenue.	The terminus of East Grand Avenue is now at the Genentech South Campus. The South Campus was developed in 2002 as the Britannia East Grand project, and its construction precludes development of a shoreline park in this area. This inconsistent condition already exists and is not attributable to the Project. Thus, the Project is neither consistent nor inconsistent with this policy. Opportunities for a shoreline park near the terminus of East Grand Avenue are further to the south, not within the Project Area.
Policy 3.5-I-11: Do not permit any new warehousing and distribution north of East Grand Avenue or in areas designated Business Commercial.	**Consistent**: The majority of the Project Area is located north of East Grand Avenue, and the Project does not propose any new warehouse or distribution uses. The Project Area does include existing warehouse and distribution land uses that may be retained into the future, or that may be redeveloped for new office and lab space.
Policy 3.5-I-13: Facilitate waterfront enhancement and accessibility	**Consistent**: The Project Area includes shoreline public access along the Bay Trail, which will be retained as part of the Project. The Project (the Urban Design chapter of the Master Plan Update) also anticipates enhanced access to the shoreline Bay Trail with additional bike and pedestrian trail connections as part of new individual development projects that may occur nearest the shoreline. These enhanced access improvements would require BCDC review and consent, but would be consistent with BCDC objectives to facilitate waterfront access.

Economic Development Element

Although not required by State law, the city's Economic Development Element of the General Plan provides a policy framework for ensuring South San Francisco's long-term competitiveness in the region. This Element outlines the City's economic development objectives, serves to ensure that economic decision-making is integrated with other aspects of the city's development, and provides a framework for detailed implementing actions. The Economic Development Element address a wide range of economic development sectors, but includes the following specific to the Project:

> *"**Policy 6-I-6**: Create a task force of biotech/R&D industry leaders to work toward the creation of a campus environment in the East of 101 area, and to promote the area as a high amenity growth-based industrial activity center.*
>
> *The biotech/R&D industry is South San Francisco's largest industrial cluster. While the provisions of the General Plan permit a doubling of current employment at Plan buildout, many other cities are also targeting similar development. The most likely source of competition is likely to be the Mission Bay project in San Francisco, which includes the new UCSF biotech/R&D campus. It is vital that the City strives to create an environment that is beneficial in realizing this potential and maintains the City's competitive edge. The creation of a campus environment in the East of 101 area would not only enhance the prestige of South San Francisco as the biotech/R&D capital, but also promote the City as a high amenity location for these activities. This concept would include a high level of landscaping and design, a unified signage and wayfinding system, orchestrated streetscapes, nearby services including child care programs, and access to parkland or open space."*

Consistency: The Project is a direct example of the type of development promoted pursuant to this Economic Development policy. Genentech is a biotechnology leader and is firmly established in the East of 101 Area with an already well-defined campus. The Project provides for new growth and development within the Genentech Campus, and provides for continuation of high-level landscaping and design, a unified signage and wayfinding system, orchestrated streetscapes, nearby services including child care programs, and access to park land or open space.

East of 101 Area Plan (adopted 1994)

The Project Area is located within the *East of 101 Area Plan*. This Area Plan provides detailed implementation guidelines for the area, principally used to provide direction related to project design and certain other facets of development not otherwise covered in the General Plan or other City plans. As indicated in **Figure 13-5**, the *East of 101 Area Plan* designates the Project Area as Planned Industrial, with the South Campus shown as a combined designation with Coastal Commercial. The land use plan was intended to provide a balance between industrial and commercial development, and designed to accommodate market demands for expansion. All development in the East of 101 Area is to be consistent with the provisions of these land use categories, and with those policies that are specifically related to the Project Area and assessed for consistency in Table 13-4, below.

Consistency: As indicated in **Table 13-4**, the Project is fully consistent with those broad Area Plan policies that promote planned industrial office and commercial uses. The Project is also consistent with policies that encourage or promote development that enhances net revenues to the City, creates quality jobs for South San Francisco and that respects and is in character with the Bay environment. In addition to the specific policies mentioned above, the *East of 101 Area Plan* also lists guiding policies to control the design of individual buildings, sites, and streetscape, including policies related to parking, loading, and access design; landscaping and lighting; utility lines; fencing and screening; open space; and signage.

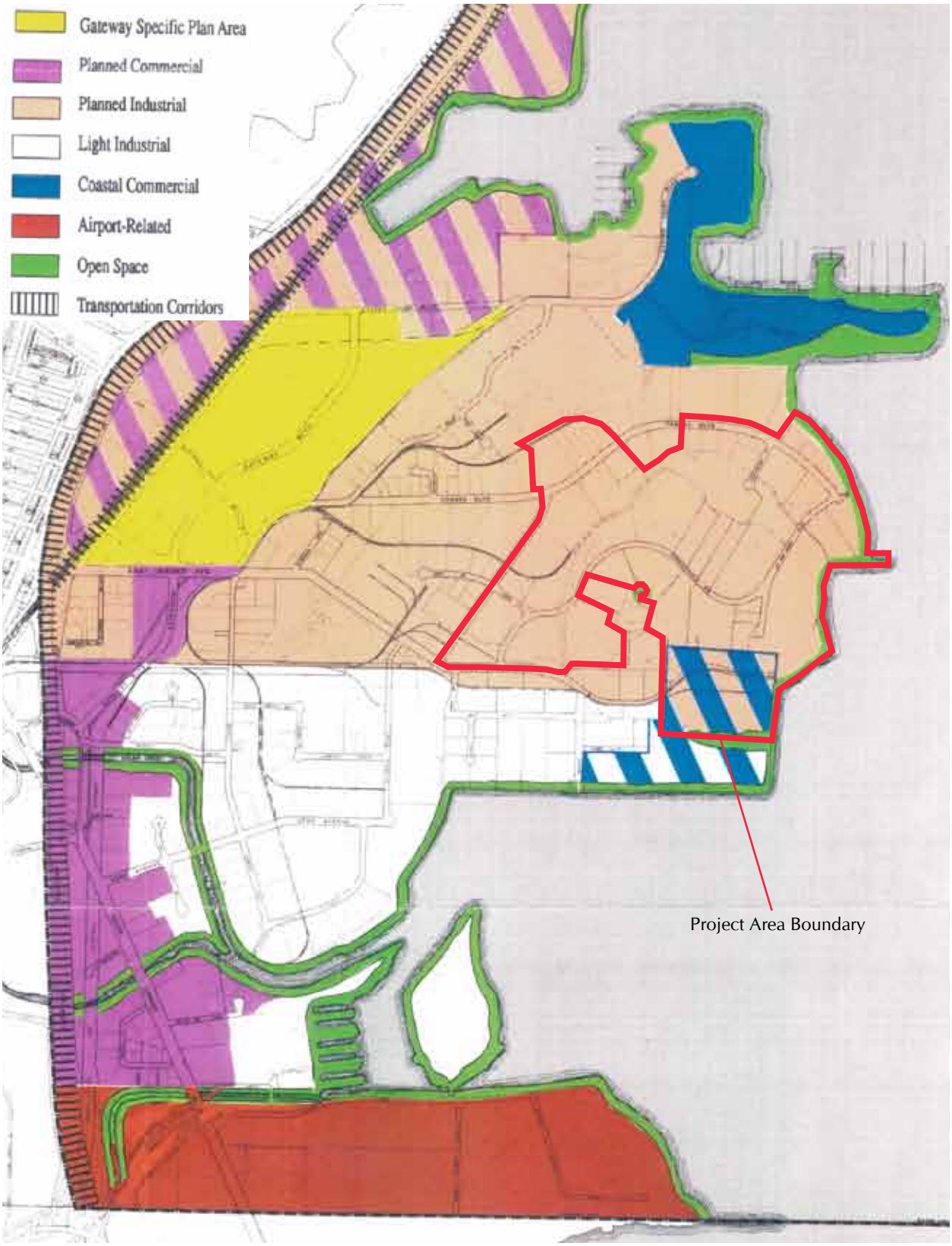


Figure 13-5
East of 101 Area Plan, Land Use Map

Source: South San Francisco, *East of 101 Area Plan*

Table13-4: Consistency with East of 101 Area Plan Policies for Planned Industrial Land Uses	
The Planned Industrial land use category includes industrial parks, light manufacturing, distribution wholesale and warehouse uses office uses and research and development. Incidental retail sales and commercial service uses are also allowed in the Planned Industrial category. The principal development and employment-generating uses allowed in this district are characterized by research, product development and related activities. Small business space offices and support retail intended to serve the immediate area are also conducive to the Planned Industrial land use. The quality of on-site improvements in this area will commonly be higher than the Light Industrial category. The Planned Industrial land use category is intended to accommodate campus-like environments for corporate headquarters research and development facilities and office or warehouse uses in high quality buildings	**Consistent**: The Project provides for expansion and growth of land uses as defined in the East of 101 Area Plan as research and development, with incidental employee-serving ancillary retail and service uses. The Project provides for continuation and enhancement of the campus-like environment for the Genentech corporate facilities, with high quality buildings and on-site improvements.
Policy LU-5a: Uses allowed in the Planned Industrial category shall typically include non-nuisance light manufacturing, incubator facilities, testing, repairing, packaging, publishing and printing offices, administrative activities, research and development facilities big-box retail and warehouse sales, freight forwarding, warehousing, distribution centers and facilities, customs brokerages, offices, service businesses that serve the uses described above, marinas and shoreline-oriented recreation.	**Consistent:** The Project consists of new and existing office and administrative facilities, research and development, biotechnology manufacturing, warehouse and distribution facilities, and services that serve the uses described above, fully consistent with this policy.
Policy LU-5b: The maximum allowed Floor Area Ratio in the Planned Industrial category is 0.55. Structured parking areas ancillary to the main use on a site are excluded from the Floor Area Ratio calculations. LU Policy 7b: The maximum allowed Floor Area Ratio in the Coastal Commercial category is 0.60. *Policy LU-15*: Maximum allowed Floor Area Ratios for the land use categories in Policies LU-4 through LU-7 shall apply only to new construction Where existing buildings on a site exceed the allowed FAR they may be replaced or remodeled with buildings up to the existing FAR on the site provided that all new construction meets all other polices of this Plan and all other codes and regulations in effect at the time of construction Policy LU-17: The maximum allowed Floor Area Ratio may be exceeded through development of a Master Plan, provided the Planning Commission conduct a one-time review of the Master Plan and determines that sufficient roadway and infrastructure capacity exists to accommodate greater FARs at the facility. After such review, future developments at the facility can exceed the FARs allowed, without additional Planning Commission review as long as they are consistent with the Master Plan.	**Consistent**: The prior 2007 Master Plan anticipated a buildout potential of up to 6 million square feet, at an FAR of 0.69 – exceeding the East of 101 Area Plan limit of 0.55. This increased FAR was permitted pursuant to approval of that 2007 Master Plan. Similarly, the Project proposes increasing the buildout potential of the Project Area up to 9 million square feet, at an FAR of 1.0. The 1.0 FAR is consistent with the underlying Genentech Master Plan zoning district, provided the temporary buildout limitation (expected through year 2016) is removed, as proposed pursuant to the Project.

Table13-4: Consistency with East of 101 Area Plan Policies for Planned Industrial Land Uses	
Policy LU-7a: Uses allowed in the Coastal Commercial category shall typically include business and professional services, administrative and business offices, convenience sales, restaurants, personal services, repair services, limited retail sales, hotel and motel uses with a coastal orientation, recreational facilities and marinas.	**Consistent:** The combined Coastal Commercial/ Planned Industrial designation enables additional land uses that may not be fully consistent with one or the other land use designation. As indicated above, the Project is fully consistent with the Planned Industrial category, and does not need to be simultaneously consistent with the Coastal Commercial category.
Policy LU-11: In areas in a mixed Coastal Commercial/ Planned Industrial or Coastal Commercial/ Light Industrial category, any industrial uses should be transitional. The City deems Coastal Commercial uses to be most appropriate in these areas and such uses are encouraged.	**Consistent:** At the time the Britannia East Grand project (now South Campus) was incorporated into the Genentech Master Plan zoning district, the accompanying City Resolution concluded that the proposed Zoning Map and Text Amendments and Master Plan Amendments were "consistent and compatible with all elements of the City of South San Francisco General Plan." The General Plan includes policies and programs that are designed to encourage the development of high-technology campuses in the East of 101 Area. The Project is a continuation and expansion of such high-technology campus uses.
Policy LU-13: No residential development shall occur in the East of 101 Area.	**Consistent**: The Project does not include any residential land use.
Policy LU-16: The City shall encourage development of campus settings and planned growth for multiple-parcel developments and shall promote the development of facility Master Plans and design standards that meet the Area Plan objectives. Master Plans shall include specific commitments to high quality design that meet the City goals for a site. The minimum size for a Master Plan site is 20 acres.	**Consistent**: The Project provides for new growth and development within a campus setting (the approximately 207-acre Genentech Campus), and provides for continuation of high-level landscaping and design, a unified signage and wayfinding system, orchestrated streetscapes, nearby services including child care programs, and access to park land or open space.
Policy LU-18: Noxious industrial uses that emit odors or large quantities of air pollutants or are visually unattractive shall not be allowed in the East of 101 Area This restriction includes meat processing plants above-ground flammable liquid storage and other similar intensive industrial uses	**Consistent**: The Project Area includes industrial/manufacturing activities and anticipates expansion of lab/R&D uses, but those activities are, and will be operated in a manner as to not emit noxious odors or large quantities of air pollutants, and designed to be visually attractive.
Policy LU-19: Uses that emit loud noise or create hazardous materials, water contaminants, or other pollutants shall only be allowed in the East of 101 Area after review by the Planning Commission which must find in addition to any other required findings that a proposed use would include all feasible measures to mitigate such adverse impacts and that the use would also have mitigating benefits such as employment creation or revenue generation	Use of hazardous materials or generation of hazardous materials, water contaminants, or other pollutants that maybe associated with the Project will be regulated to avoid adverse impacts (see other relevant chapters of this EIR).
Policy LU-23: Maximum heights of buildings in the East of 101 Area shall not exceed the maximum heights established by the Airport Land Use Commission based on Federal Aviation Regulations Part 77 Criteria	**Generally Consistent**: The Project proposes zoning changes that would allow new buildings to be as tall as the maximum height of the FAA Part 77 air surfaces, or to exceed the FAA Part 77 surfaces if additional FAA review concludes in a "no hazard" determination. Building heights that would exceed FAA critical surface heights or that are found to be a hazard to aircraft or airport operations would be prohibited. These proposed regulations and restrictions represent a more accurate interpretation of applicable FAA criteria.

Table13-4: Consistency with East of 101 Area Plan Policies for Planned Industrial Land Uses	
Policy LU-24: Retail and personal services shall be encouraged throughout the area to serve the employees of the East of 101 Area. In the Light Industrial and Planned Industrial categories, dedicated retail space may be included in a development without being applied to the allowed FAR, provided such development includes adequate parking and does not exceed 10 percent of the building square footage of a project.	**Consistent**: The Project provides for and anticipates expansion of employee-serving amenity uses (such as on-site retail and personal services) as an integral component of new growth and development in the Project Area. The amount of proposed employee-serving amenity uses (approximately 305,000 sf) represents approximately 7% of the total Project (4,239,000 SF), thus not exceeding 10 percent of the total.
Policy LU-26: Childcare facilities may be built as part of a commercial or industrial development and shall not be counted as part of the Floor Area Ratio of the project.	**Consistent**: The Project Area includes child-care facilities and may include expansion of such facilities in the future.
East of 101 Area Development Potential: The East of 101 Area could probably accommodate a total of 16,491,304 square feet of new building area. This would result in a total building area of 34,588,073 square feet in the East of 101 Area[6]	**Consistent:** Based on the traffic model inputs for cumulative buildout in the East of 101 Area as used in this EIR, the cumulative scenario (which includes approximately 9 million square feet in the Project Area) shows a total of approximately 33.8 million square feet of building space. This is within the probable development potential of approximately 34.6 million square feet as estimated in the East of 101 Area Plan.

General Plan and East of 101 Area Plan Policies Regarding Steep Slopes

General Plan Health and Safety Element

The 1999 South San Francisco General Plan Health and Safety Element contains policies designed to minimize the risks associated with development in areas of seismic hazards. As such, the South San Francisco General Plan Health and Safety Element has set forth specific guidelines with respect to site treatment and building design and the unique geological hazards of the area. As indicated in the Health and Safety Element, "*the strong ground motions that occur during earthquakes are capable of inducing landslides, generally where unstable soil conditions already exist. The parts of the San Francisco Bay region having the greatest susceptibility to landsliding are hilly areas underlain by weak bedrock units of slope greater than 15 percent. In South San Francisco this hazard is primarily located on the southern flank of San Bruno Mountain in the Terrabay development and near Skyline Boulevard*. Implementing Policy 8.1-2 provides that:

> "*Steep hillside areas (i.e., slopes in excess of 30 percent grade) should be retained in their natural state. Development of hillside sites should follow existing contours to the greatest extent possible. Grading should be kept to a minimum.*"

As indicated in **Figure 13-6**, the East of 101 Area of South San Francisco generally does not contain steep slopes, except for portions of the Genentech Campus that are at and below Point San Bruno Hill.

East of 101 Area Plan

The East of 101 Area Plan includes a Geotechnical Safety Element (Chapter 10). This chapter provides policies to ensure acceptable protection of people and development from the risks associated with geotechnical hazards in the East of 101 Area. Among these policies is Policy Geo-9 regarding steep slopes:

[6] East of 101 Plan, Table 1: Area Plan Development Potential

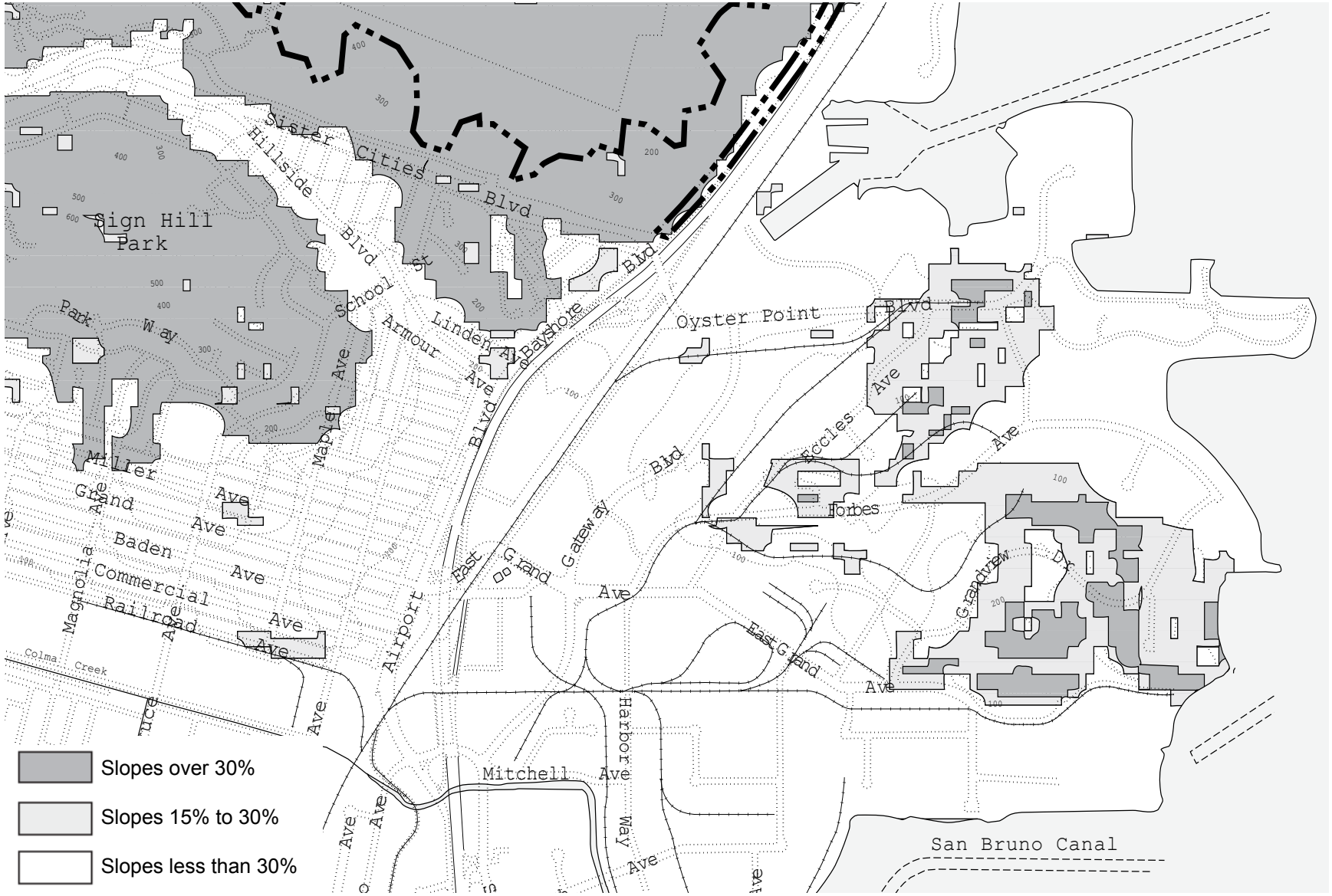


Figure 13-6
General Plan Health and Safety Element, Slope Map

Source: SSF General Plan Health and Safety Element, Figure 8-1, 1999

***"Policy GEO-9**: Steep hillside areas in excess of 30 percent grade shall be retained in their natural state. Development of hillside sites should follow existing contours to the greatest extent possible and grading should be kept to a minimum."*

> *"The slopes of San Bruno Point Hill may exceed 30 percent grade. The hill is a visually prominent landmark in the East of 101 Area and should be preserved. In addition, the slopes of the hill may have unstable conditions due to their steep grade. Therefore, preservation of the natural landmark should continue and development shall not encroach upon the slopes of the hillside."*

Consistency: This EIR's Project Description identifies general locations where new development or redevelopment pursuant to the Master Plan Update is most likely to occur, indicated as "Opportunity Sites" throughout the Campus. Among these identified Opportunity Sites are certain areas of steep topography (i.e., slopes in excess of 30 percent grade) that has presented a challenge to cohesive campus planning, separating lower portions of the Campus from the upper portions of the Campus by elevation. The Project Descriptions indicates that it is possible for new buildings, potentially including new parking structures, to be constructed into the base or sides of these hillsides, such that the top portions of these new buildings could serve as a "bridge" linking the upper and lower elevations of the Campus together. The environmental implications of development on these steeper Opportunity Areas have been fully analyzed elsewhere in this EIR.

- Chapter 9: Geology includes an evaluation of potential impacts related to the risk of landslides and slope instability on these identified hillside Opportunity Sites, and Mitigation Measure Geology 2 - Geotechnical Requirements for Hillside Opportunity Sites, specifically requires site-specific geotechnical studies to be conducted for each new development at hillside Opportunity Sites, with implementation of site specific recommendations as part of detailed plans for subsequent development at these sites. These geotechnical studies must include site-specific geotechnical recommendations to address the stability of existing and proposed slopes and the stability of proposed excavations, detailed recommendations addressing the stability of the underlying bedrock, appropriate shoring systems to be used to ensure the stability of excavations, evaluation of drainage and infiltration, installation of horizontal drains to remove seepage, and construction of buttress wall at the base of the slopes to reduce the risk of damage.
- Chapter 5: Aesthetics includes an evaluation of potential impacts related to the loss of views of the Point San Bruno Hill, concluding that redevelopment of steeper Opportunity Sites does not include substantial re-grading that would encroach into the steep sides of the Point San Bruno Hill and would not modify the natural landform of Point San Bruno Hill, and thus would not result in significant impacts related to views of this landmark geologic feature.

However, development of steeper Opportunity Sites is not consistent with the direction of Policy Geo-9 of the East of 101 Area Plan requiring that steep hillside areas in excess of 30 percent grade "shall be" retained in their natural state. Development of steeper Opportunity Sites is also not fully consistent with Policy 8.1.2 of the General Plan Health and Safety Element, which less directly provides that steep hillside areas (i.e., slopes in excess of 30 percent grade) "should be" retained in their natural state.

Pursuant to pending General Plan update efforts, the Planning Commission and City Council may choose to consider amendments to these policies to provide further clarification. Absent a revision or modification to the policies in the East of 101 Area Plan, Opportunity Sites identified on any slopes greater than 30% will be subject to further review, including an individual determination of whether Mitigation Measure Geology 2 (Geotechnical Requirements for Hillside Opportunity Sites) demonstrates an alternative means of complying with the underlying purpose of these policies to address the susceptibility of hillside areas to landsliding.

South San Francisco Municipal Code

The South San Francisco Municipal Code, Title 20: Zoning, section 20.260.001 establishes the Genentech Master Plan zoning district, and prescribes land use regulations for facility-wide development in accordance with the 2007 Genentech Facilities Ten-Year Master Plan. The entire Project Area is located within the Genentech Master Plan zoning district (see **Figure 13-7**). Under these zoning regulations, new development is required to comply with the development standards and requirements set forth in the Business Technology Park zoning district and conditions of prior City approvals, except for certain specific development standards and requirements that uniquely apply to the Genentech Master Plan zoning district. The purposes of the unique Genentech Master Plan zoning district's development standards are:

- To establish a facility-wide architectural character, a system of open space elements and a pedestrian and vehicular circulation plan linking buildings and uses together in a flexible, logical and orderly manner for the Genentech all lots of record and their structures owned or leased by Genentech and reclassified such that the uniform regulations and requirements covered by the Genentech Master Plan district apply;
- To increase the flexibility of the City's land use regulations and the speed of its review procedures to reflect the quickly changing needs of a research and development focused corporation;
- To establish facility-wide development standards and design guidelines consistent with the City's General Plan and the *East of 101 Area Plan*; and
- To define a baseline of existing conditions for each lot reclassified to the Genentech Master Plan district.

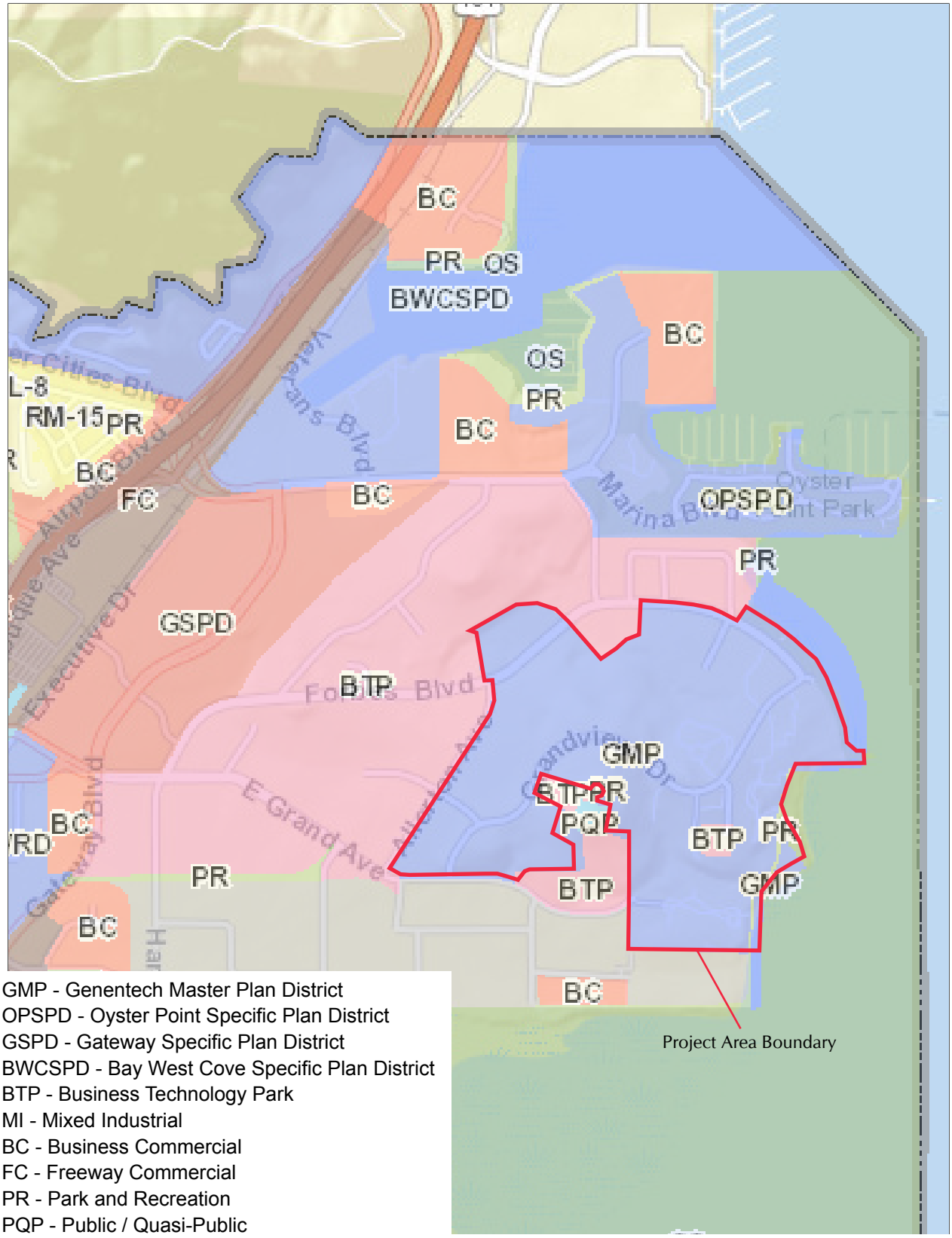
Zoning Standards of the Genentech Master Plan Zoning District

The Project proposes a number of changes to the development standards of the Genentech Master Plan zoning district. These changes are proposed as a means of addressing the unique purpose of the Genentech Master Plan District's development standards to "increase the flexibility of the City's land use regulations and the speed of its review procedures to reflect the quickly changing needs of a research and development focused corporation."[7] These proposed zoning changes address both substantive development standards and City processes related to the following topics:

- Lot coverage (see Aesthetics chapter)
- Floor-to-Area Ratio (FAR) (see Project Description)
- Building heights (see full analysis in this Land Use chapter and in the Hazards chapter)
- Off-street parking requirements (see Transportation chapter)
- Growth and development projections (i.e., removing the temporary development limitations for the Genentech Campus at an overall limit of 6 million square feet – see Project Description), and
- Signage (see Aesthetics chapter)

These proposed zoning changes do not result in any physical changes not otherwise fully described in the Project Description, and so do not individually or collectively result in a physical environmental impact beyond those effects identified elsewhere in this EIR. For reference, the text of these proposed zoning text changes are included in **Appendix 13-A**.

[7] South San Francisco Municipal Code, Section 20.260.001 (B)



GMP - Genentech Master Plan District
OPSPD - Oyster Point Specific Plan District
GSPD - Gateway Specific Plan District
BWCSPD - Bay West Cove Specific Plan District
BTP - Business Technology Park
MI - Mixed Industrial
BC - Business Commercial
FC - Freeway Commercial
PR - Park and Recreation
PQP - Public / Quasi-Public

Figure 13-7
South San Francisco Zoning Map

Source: http://zoning.ssf.net/

Impacts and Mitigation Measures

Analytic Method

This section discusses potential land use impacts that could result from implementation of the proposed Project. It presents the thresholds of significance, describes the approach to the analysis and identifies potential impacts and mitigation measures as applicable. The analysis of land use impacts focuses on physical land use changes that would have a direct or indirect adverse effect on the physical environment. Analysis of the Project's consistency with those established land use plans and policies that are not related to, or adopted for the purpose of avoiding or mitigating an environmental effect, are discussed above in the Regulatory Setting section.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines and established City of South San Francisco standards and practices. For purposes of this EIR, implementation of the Project could result in potentially significant land use impacts if the Project would result in any of the following:

1. Physically divide an established community
2. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect

Physically Divide an Established Community/Residential or Business Displacement

Land Use 1: The Project would not physically divide an established community (**No Impact**).

Existing and future uses within the Project Area include commercial, manufacturing, and research and development activities. These uses are consistent with existing land uses in the surrounding area, which include industrial, warehouse, commercial and research and development activities.

There are no residential structures within the Project Area, and residential use is not permitted in the East of 101 Area. No existing business or residential community would be displaced by the proposed Project. Therefore, there would be no impact.

Mitigation Measures

No mitigation required.

Conflict with Policies or Regulations Adopted to Avoid or Mitigate an Environmental Effect

Land Use 2: Implementation of the Project would modify or change certain land use regulations applicable to the Project Area, but would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. (**LTS**)

Consistency with SFO ALUCP

As more fully described in the above Regulatory Setting section of this Chapter, the San Francisco International Airport Land Use Compatibility Plan (ALUCP) provides policies and regulations pertaining to land use that may affect, or be affected by airport operations. As indicated in the Consistency Analysis, the Project would not result in a conflict with any of the following applicable land use plans, policies or regulations of the ALUCP that have been adopted for the purpose of avoiding or mitigating an environmental effect:

- The Project Area is not located within an ALUCP-designated Safety Compatibility zones established to restrict the development of land uses that could pose particular hazards to the public or to vulnerable populations in case of an aircraft accident.
- The Project Area is located outside of the area subject to airport operations-related noise contours of 65 dBA CNEL, in an area where commercial and industrial land use and related structures (such as the Project) are compatible, without restrictions.
- The Project Area is subject to Federal Aviation Regulations Part 77, which provide guidance for the height of objects that may affect normal aviation operations or that could create a safety hazard for aircraft. The majority of the Project Area is located within the Horizontal Surface Plane established by the ALUCP at an elevation of 163.2 feet above mean sea level (MSL), and the northern portion of the Project Area is outside of the Horizontal Surface Plane where building heights can begin to exceed 163.2 feet MSL at a 20:1 slope. Any proposed new building or structure within the Project Area that exceeds the applicable FAA Part 77 surface elevations would be inconsistent with the airspace protection criteria of the ALUCP, could adversely affect airport operations and/or could create a safety hazard for aircraft. The Master Plan Update includes policies and plans that require all new buildings within the Project Area to respect the height restrictions imposed by the FAA to ensure a "No Hazard" determination, such that no inconsistencies would occur. Guidance provided by the FAA Part 77 criteria is not absolute, and deviation from the Part 77 standards does not necessarily mean that a No Hazard determination can be achieved, only that the object must be evaluated by the FAA. Based on this review, the FAA may determine that the building may proceed, but that mitigating actions (such as markings or lighting) may be required.
- No new buildings are proposed pursuant to the Project that would exceed elevations indicated as SFO "critical aeronautical surfaces".

Consistency with BCDC Bay Plan

As more fully described in the above Regulatory Setting section of this Chapter, the *Bay Plan* provides policies and regulations to assist BCDC in its protection of the Bay and in its exercise of permit authority over development adjacent to the Bay. The McAteer-Petris Act defines BCDC's jurisdiction as being inclusive of all areas of the San Francisco Bay subject to tidal action (including sloughs, marshlands lying between mean high tide and five feet above mean sea level, tidelands, submerged lands) and a shoreline band located between the shoreline and a line 100 feet landward of and parallel with that shoreline.

The Project does not propose any specific development activity within areas subject to BCDC jurisdiction. If Genentech were to consider any development within BCDC jurisdiction in the future, such development proposal would be subject to BCDC's Shoreline Development Permit process and additional environmental review. The Project does not result in a conflict with any BCDC policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect, as further described below.

- The Project would not adversely affect any transition zone between tidal and upland habitats, and the 100-foot shoreline band (within which no development is proposed) provides a transition zone between tidal habitats and developed upland areas.
- The Project does not include any diversions of fresh water (runoff) that would reduce inflow into the Bay or damaging the oxygen content, flushing, or the ability of the Bay to support existing wildlife.
- The Project does not propose any new shoreline protection projects, or new or modified maintenance or reconstruction of existing shoreline protection projects.
- The Project uses the Bay as an aesthetic, visual and recreational asset, and does not adversely affect enjoyment of the Bay and its shoreline.

- The Project maintains existing public access improvements that were provided as conditions of prior approvals, including public access easements for the Bay Trail.
- The Project retains and proposes expanded opportunities for access to and along the waterfront via walkways and trails connected to the Campus.
- Most of adverse effects of mid-century sea level rise at the Genentech Campus will likely be confined to the 100-foot shoreline setback along the Bay (see Hydrology chapter of this EIR). This setback restricts Campus development adjacent to sensitive natural areas such as tidal wetlands, and provides for storm surge and wave dissipation. In the longer term (or under accelerated and/or more severe weather conditions) adaptation to sea level rise at the Campus will likely prove to be more critical. As new development occurs in susceptible areas of the Campus, Genentech will consider adaptation strategies. These strategies may include targeting new infrastructure investments for areas that are at lower risk for inundation and storm surge, elevating the grade of certain new development projects above the expected sea level rise inundation zone, and building a levee to protect the lower Campus areas from inundation and erosion resulting from sea level rise.

Consistency with the SSF General Plan

As indicated in the Regulatory Setting section above, the Project is generally consistent with the City of South San Francisco General Plan (including the Land Use Element, the East of 101 Sub-Area Element and the Economic Development Element). The Project's only identified inconsistency with the General Plan pertains to effective height regulations and limitations, which are now more precisely defined to represent an accurate interpretation of applicable FAA criteria (see discussion under Consistency with SFO ALUCP, above). The Project would not conflict with any South San Francisco General Plan policies adopted for the purposes of avoiding or mitigating an environmental effect.

Consistency with the East of 101 Area Plan

The Project is generally consistent with policies of the *East of 101 Area Plan*. The Project's only identified inconsistency with the *East of 101 Area Plan* pertains to effective height regulations and limitations, which are now more precisely defined to represent an accurate interpretation of applicable FAA criteria (see discussion under Consistency with SFO ALUCP, above). The Project would not conflict with any *East of 101 Area Plan* policies adopted for the purposes of avoiding or mitigating an environmental effect.

Consistency with Policies Pertaining to Steep Slopes

As more fully described in the above Regulatory Setting section of this Chapter, the South San Francisco General Plan and the East of 101 Area Plan each include policies indicating steep hillside areas in excess of 30 percent grade should/shall (respectively) be retained in their natural state. As indicated in the Consistency Analysis above, the Project does propose development on steeper hillside sites, but mitigation measures (Mitigation Measure Geology 2 - Geotechnical Requirements for Hillside Opportunity Sites) specifically require site-specific geotechnical studies to be conducted for each new development at these hillside Opportunity Sites, with implementation of site-specific recommendations as part of detailed plans for subsequent development. With implementation of these mitigation requirements, the potential environmental impacts pertaining to development of hillside areas susceptible to landsliding would be reduced to less than significant, and the potential conflict with these policies would not result in significant environmental effect not otherwise addressed.

Consistency with City Zoning

As indicated in the Regulatory Setting section above, the Project proposes numerous changes to the regulatory standards of the Genentech Master Plan zoning district. Primary among these proposed changes is the removal of the temporary (through year 2016) limitation on buildout potential at 6 million square feet,

replaced with an FAR limit of 1.0, which would effectively enable a buildout potential within the Project Area of 9 million square feet. The environmental consequences of this proposed change to the zoning standards is the focus of this EIR, and all such impacts are fully disclosed. The Project also proposes new building height limits that are a more accurate interpretation of applicable FAA criteria (see discussion under Consistency with SFO ALUCP, above). None of the other proposed changes to effective zoning standards would directly conflict with any standards adopted specifically for the purposes of avoiding or mitigating an environmental effect.

Mitigation Measures

None required. However, to clarify the City's position regarding consistency with ALUCP criteria, the following mitigation measure is recommended:

MM Land Use 2 - Building Height Limits: Any proposed building within the Project Area that would exceed FAA notification heights shall file a Notice of Proposed Construction or Alteration with the FAA.

a) Any structure that exceeds the Horizontal Surface Plane of 163.2 feet above mean sea level, that otherwise exceeds applicable FAA Part 77 criteria, or which exceed 200 feet above the ground level of its site shall be required to comply with the findings of an FAA aeronautical study. Structures subject to such FAA review shall comply with any FAA-recommended alterations in the building design and/or height, and any recommended marking and lighting of the structure as may be necessary to be found by the FAA as not posing a hazard to air navigation.

b) The maximum height of new buildings within the Project area shall be the lower of the height shown on the SFO Critical Aeronautical Surfaces Map, or the maximum height determined by the FAA as being "not a hazard to air navigation" based on an aeronautical study.

c) The Project proponent shall provide documentation to the City Planning Division demonstrating that the FAA has issued a 'Determination of No Hazard to Air Navigation" when such determination is applicable.

Conflicts with Applicable Habitat Conservation Plan

Land Use 3: The Project would not conflict with any applicable habitat conservation plan or natural community conservation plan. (**No impact**)

The Project site is not included in any natural community conservation plan or applicable habitat conservation plan. Therefore, the Project has no impact related to potential conflicts with such plans or programs. This conclusion is consistent with the conclusions of the 2007 MEIR and 2012 SMEIR.

Mitigation Measures

No mitigation required.

Cumulative Land Use Effects

Chapter 4 of this Draft EIR identifies the foreseeable future buildout of the East of 101 Area. The majority of the anticipated future cumulative development consists of new office/R&D and commercial uses. The Project would contribute to these overall changes in land use in the East of 101 Area. Development pursuant to the Master Plan Update, in combination with other cumulative development in East of 101 will increase the density of the employment-generating land use in the East of 101 Area, but would be consistent with buildout expectations of the SSF General Plan and East of 101 Area Plan. The City encourages redevelopment of underutilized sites with high-quality campus-style biotechnology, technology and research and development uses.

Other office/R&D uses anticipated under cumulative conditions are anticipated to be consistent with land use plans and policies in effect at the time. However, to the extent that other cumulative development may not be fully consistent with the General Plan and other plans, policies and regulations, such inconsistencies are not inherently a cumulative CEQA impact unless such inconsistencies cause a significant environmental effect. The Project will maintain the BCDC 100-foot shoreline easement that includes the Bay Trail, and will add new connections from the Campus to facilitate access to the waterfront. The Master Plan Update, in combination with other cumulative development in East of 101 will not contribute to a physical division of the established business community.

For these reasons, the Project in combination with past, present and reasonably foreseeable future projects in the East of 101 Area will have a less than significant cumulative land use impact. The Project will not make a cumulatively considerable contribution to a significant cumulative land use impact, and no mitigation measures are necessary.

14

Noise

This chapter of the EIR evaluates the potential impacts of the Master Plan Update (the Project) related to noise and ground-borne vibration. The chapter describes the existing noise conditions within and near the Project Area, and evaluates the potential for noise and vibration impacts from the Project.

Some of the information presented in this chapter draws from the prior analyses conducted for the 2007 MEIR, the 2012 SEIR and the 2002 BEG EIR. Updated or additional information regarding environmental and Project-related noise conditions was taken from various sources including:

- the General Plan of the City of South San Francisco,
- City of South San Francisco East of 101 Area Plan,
- Draft Transportation Impact Assessment (Fehr & Peers, January 2017) prepared for this EIR
- San Francisco International Airport Noise Exposure Report
- Traffic Noise Impact Analysis (RGD Acoustics, August 2017), **Appendix 14** of this EIR

Environmental Setting

Fundamentals of Environmental Noise

Noise is defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB) with 0 dB corresponding roughly to the threshold of hearing. Decibels and other technical terms are defined in **Table 14-1**.

Most of the sounds that we hear in the environment do not consist of a single frequency, but rather a broad band of frequencies, with each frequency differing in sound level. The intensities of each frequency add together to generate a sound. The method commonly used to quantify environmental sounds consists of evaluating all of the frequencies of a sound in accordance with a weighting that reflects the facts that human hearing is less sensitive at low frequencies and extreme high frequencies than in the frequency mid-range. This is called "A" weighting, and the decibel level so measured is called the A-weighted sound level (dBA). Typical A-weighted levels measured in the environment and in industry are shown in **Table 14-2** for different types of noise.

Table 14-1: Definitions of Acoustical Terms Used in this Report

Term	Definitions
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period. The hourly Leq used for this report is denoted as dBA L_{eq} (h)
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period
L01, L10, L50, L90	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, Ldn or DNL	The equivalent noise level for a continuous 24-hour period with a 10-decibel penalty imposed during nighttime and morning hours. (10:00 pm to 7:00 am)
Community Noise Equivalent Level, CNEL	CNEL is the equivalent noise level for a continuous 24-hour period with a 5-decibel penalty imposed in the evening (7:00 pm to 10:00 pm) and a 10-decibel penalty imposed during nighttime and morning hours (10:00 pm to 7:00 am).
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998

Table 14-2: Typical Noise Levels in the Environment

Common Outdoor Noise Source	Noise Level (dBA)	Common Indoor Noise Source
	110 dBA	
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
		Active office environment
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20 dBA	
		Broadcast/recording studio
	0 dBA	

Source: Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013

Although the A-weighted noise level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of noise from distant sources that creates a relatively steady background noise in which no particular source is identifiable. A single number descriptor called the Leq is widely used to describe the time-varying character of environmental noise. The Leq is the average A-weighted noise level during a given time period.

In determining the daily level of environmental noise, it is important to account for the difference in response of people to daytime and nighttime noises. During the nighttime, the exterior background noises are generally lower than the daytime levels. However, most household noise also decreases at night and exterior noise becomes very noticeable. Further, most people sleep at night and are very sensitive to noise intrusion. To account for human sensitivity to nighttime noise levels, a descriptor, DNL (day/night average sound level), was developed. The DNL divides the 24-hour day into the daytime of 7:00 AM to 10:00 PM and the nighttime of 10:00 PM to 7:00 AM. The nighttime noise level is weighted 10 dB higher than the daytime noise level. The Community Noise Equivalent Level (CNEL) is another 24-hour average that includes both an evening and nighttime weighting.

Effects of Noise on People

The effects of noise on people can be placed into three categories:

- Subjective effects of annoyance, nuisance, dissatisfaction;
- Interference with activities such as speech, sleep, learning; and
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Only workers in industrial plants generally experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation exists in the individual thresholds of annoyance, and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- Under controlled conditions in an acoustics laboratory, the trained healthy human ear is able to discern changes in sound levels of 1 dBA;
- Outside these controlled conditions, the trained ear can detect changes of 2 dBA in normal environmental noise;
- It is widely accepted that the average healthy ear, however, can barely perceive changes in the noise level of 3 dBA;
- A change in level of 5 dBA is a readily perceptible increase in noise level; and
- A 10 dBA change is recognized as twice as loud as the original source (Caltrans, 2009).

Fundamentals of Environmental Ground-borne Vibration

Vibration is sound radiated through the ground. The rumbling sound caused by the vibration of room surfaces is called ground-borne noise. The ground motion caused by vibration is measured as particle velocity in inches per second, and, in the U.S., is referenced as vibration decibels (VdB).

The threshold for perception of vibration velocity for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains and traffic on rough roads. If a roadway is smooth, the ground-borne vibration from traffic is rarely perceptible. The range of interest in ground-borne vibration is from approximately 50 VdB, which is the typical background level of vibration velocity, to 100 VdB, which is the general threshold where minor damage can occur to fragile buildings.

The FTA has established criteria for vibration-sensitive research equipment, such as high-powered optical microscopes and electron microscopes. As described in the 2007 MEIR, there are detailed Vibration Criteria for Specialized Research Equipment, presented in **Table 14-3**.

Table 14-3: Vibration Criteria for Specialized Research Equipment

Max VdB	Description of equipment use
90	Distinctly felt vibration. Appropriate to workshops and non-sensitive areas.
84	Felt vibration. Appropriate to offices and non-sensitive areas.
78	Barely felt vibration. Adequate for computer equipment and low-power optical microscopes (up to 20X)
72	Vibration not felt, but ground-borne noise may be audible inside quiet rooms. Suitable for medium-power optical microscopes (100X) and other equipment of low sensitivity
66	Adequate for medium-to-high-power optical microscopes (400X), microbalances, optical balances, and similar specialized equipment
66	Adequate for high-power optical microscopes (1000X), inspection and lithography equipment to 3 micron line widths
54	Appropriate for most lithography and inspection equipment to 1 micron detail size
48	Suitable in most instances for the most demanding equipment, including electron microscopes operating to the limits of their capability.
42	The most demanding criterion for extremely vibration-sensitive equipment

Source: Harris Miller Miller & Hanson, Inc. Transit Noise and Vibration Impact, Final Assessment, 2006

As described in the 2007 MEIR, the human response to different levels of ground-borne vibration falls into three categories:

- Vibration velocity of 65: Approximate threshold of perception for many people
- Vibration velocity of 75: Approximate dividing line between barely perceptible and distinctly perceptible - many people find that transportation-related vibration at this level is unacceptable
- Vibration velocity of 85: Vibration acceptable only if there are an infrequent number of events per day [1]

Existing Noise Levels

A Noise Impact Analysis was prepared for this EIR by RGD Acoustics (see **Appendix 14**). The major noise sources affecting the study area are vehicular traffic, railroad, aircraft noise and commercial/ industrial activities. As part of the Noise Impact Analysis, noise measurements were conducted in South San Francisco between April and May 2017 to quantify the existing noise environment. Measurements included nine long-term (24 hours or more) measurements (Location LT-1 to LT-9) and four short-term (15 minute) measurements (Location ST-1 to ST-4). The noise measurement locations are shown in **Figure 14-1**.

[1] Harris Miller & Hanson, Inc. Transit Noise and Vibration Impact, Final Assessment, 2006

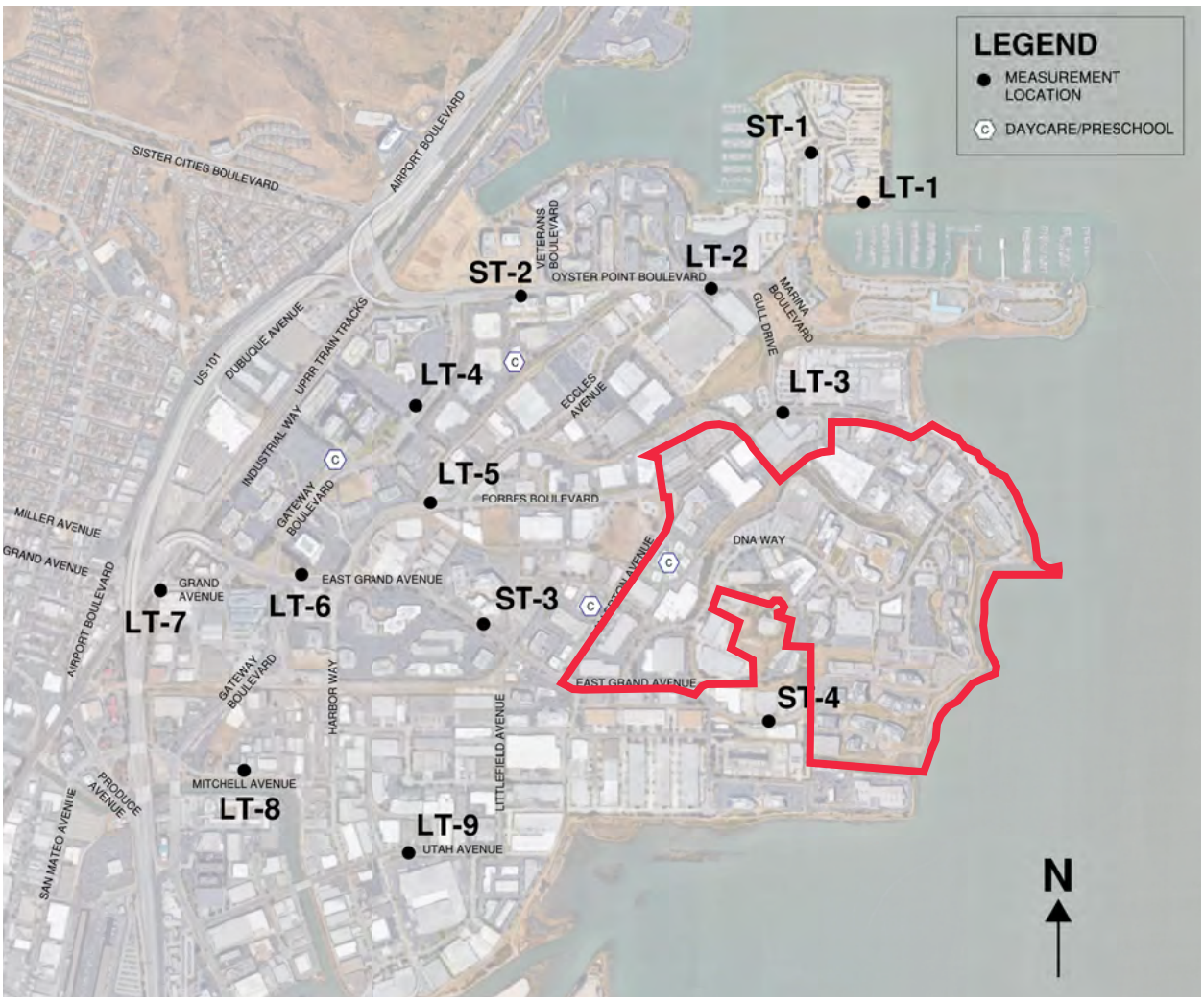


Figure 14-1
Noise Measurement Locations

Source: RGD Acoustics, 2017

Long-term Measurements of Ambient Noise (includes existing traffic)

Long-term noise measurements were made at nine locations in South San Francisco to quantify ambient noise levels. At these locations, monitoring was done using a Larson Davis Sound Level Meter Model 820. Generally, the major noise source at each monitor was traffic on the road where the monitor was located. Additionally, aircraft flyovers were also clearly noticeable and contributed to the overall noise level. The results of long-term measurements are presented in **Table 14-4** and described in more detail in the Noise Study (Appendix 14). Graphs showing the hourly noise levels at each monitoring location are shown in Appendix A of that report.

Table 14-4: Long-term Noise Measurement Results

Weekday CNEL	Date	Average Noisiest Weekday Hour Time	Average Noisiest Weekday Hour Leq
62	04/27/17 - 04/30/17	4:00 PM – 5:00 PM	61
74	04/25/17 - 04/27/17	8:00 AM – 9:00 AM	72
75	04/27/17 - 04/30/17	8:00 AM – 9:00 AM	71
71	04/30/17 - 05/02/17	12:00 PM – 1:00 PM	70
73	04/25/17 - 04/26/17	4:00 PM – 5:00 PM	75
73	04/27/17 - 05/02/17	11:00 AM – 12:00 PM	71
78	04/30/17 - 05/02/17	7:00 PM to 8:00 PM	75
74	04/27/17 - 05/02/17	12:00 PM to 1:00 PM	73
71	04/25/17 - 04/28/17	7:00 AM to 8:00 AM	69

Source: Traffic Noise Impact Analysis, RGD Associates, August 7, 2017

Short-term Measurements of Ambient Noise (includes existing traffic)

Short-term noise measurements were made at four locations using a Larson Davis Model 824 Sound Level Meter at a height of five feet above ground. The short-term measurements allowed for direct observation of the existing noise environment and non-traffic noise sources can be identified and excluded from the noise readings. Additionally, traffic was classified and counted for comparison with predicted modeling results. The short-term measurement locations are also shown in Figure 14-1 and the measurement results are summarized in **Table 14-5**.

Table 14-5: Short-Term Noise Measurement Results

Site	Location	Date and Time	Leq	L33	CNEL	Lmax
ST-1	On Oyster Point Blvd, 28 feet from center of lane	27 April 2017 1:24 PM – 1:39 PM	61	60	64	Cars: 62 – 68 Trucks: 66 – 72 typ., 76
ST-2	On Oyster Point Blvd between Gateway Blvd and Veterans Blvd	27 April 2017 1:50 PM – 2:05 PM	72	71	75	Cars: 72 – 78 Med Trucks: 76 – 78 Motorcycles: 86 Jets: 71
ST-3	On East Grand Ave, west of Littlefield Ave	2 May 2017 11:20 AM – 11:35 AM	67	67	69	Cars: 68 – 69 Medium Trucks: 67, 77 Heavy Trucks, 76 – 77 Motorcycle: 74
ST-4	On East Grand Ave, east of Haskins Way	27 April 2017 12:22 PM – 12:37 PM	66	64	71	Cars: 64 – 88, typically 70 Medium Trucks: 65 – 76 Heavy Trucks: 74 – 76 Aircraft: 67 - 68

Source: Traffic Noise Impact Analysis, RGD Associates, August 7, 2017

Noise-Sensitive Land Uses

Land uses in South San Francisco East of the 101 Area are primarily offices, commercial and industrial/light industrial uses that are not considered noise sensitive uses. As indicated in the SSF General Plan Noise Element, the land use criteria for noise-impacted industrial areas indicates that a noise level range of less than 75 dBA CNEL is satisfactory for industrial areas, and no special insulation requirements apply.

The South San Francisco General Plan Noise Element defines sensitive land uses as including residences, schools, places of worship and hospitals.[2] These uses are not present in the East of 101 Area. Childcare centers, including both indoor and outdoor areas, are also considered noise sensitive uses. Existing childcare centers and preschools in the East of 101 Area include the Gateway Child Development Center on Gateway Boulevard and the Early Years Preschool on Allerton Avenue. Genentech also operates their own childcare centers including the Genentech 2nd Generation at 444 Allerton Avenue and the recently opened (as of early 2018) Genentech Cabot 2nd Generation at 342 Allerton.

Although not specifically listed in the Noise Element as noise sensitive land uses, there are several hotels within the East of 101 Area along Gateway Boulevard, Forbes Boulevard, East Grand Avenue, Mitchell Avenue, Airport Boulevard and South Airport Boulevard. Most of these hotels are located in proximity to the 101 freeway on- and off-ramps for the convenience of their customers, also placing them in locations subject to substantial traffic noise from the freeway and adjacent arterial roadways. Noise reduction and insulation features are typically included in the design of these near-freeway hotels.

[2] South San Francisco General Plan, Noise Element, page 9-2

Regulatory Setting

Federal

The Federal Aviation Administration (FAA) 14 CFR Part 150: Airport Noise Compatibility Planning requires airports to develop two primary planning reports. The first is a Noise Exposure Map that contains detailed information regarding existing and 5-year future airport/aircraft noise exposure patterns. The second is a Noise Compatibility Program Report that includes descriptions and an evaluation of noise abatement and noise mitigation options/programs applicable to an airport. SFO issued an updated Noise Exposure Map in 2014. It is currently in the processing of updating its Noise Compatibility Plan.

Comprehensive Airport Land Use Compatibility Plan for SFO (2012)

The Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport (ALUCP) is used by the City/County Association of Governments of San Mateo County (C/CAG) to promote compatibility between the San Francisco International Airport (SFO) and surrounding land uses. The ALUCP compatibility criteria, as derived from the Federal Aviation Administration (FAA), are used to safeguard the general welfare of the public. The Project Area is entirely within the SFO Airport Influence Area (AIA) and as such, the compatibility criteria contained within the ALUCP are applicable to land use plans and development within the Project Area.

The ALUCP establishes boundaries within which noise compatibility policies apply. These boundaries depict “noise impact areas” or noise compatibility zones, defined by noise contours at the 65 dB CNEL, 70 dB CNEL and 75 dB CNEL contours. Noise compatibility policies apply to each noise impact area or contour. Commercial uses (e.g., offices and business) or industrial and manufacturing uses and related structures are considered compatible without restrictions within all of these noise impact areas.

State

California Noise Control Act of 1973

The California Noise Control Act of 1973, California Health and Safety Code Sections 46000 through 46080, finds that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that there is a continuous and increasing bombardment of noise in urban, suburban and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention and abatement of noise.

California Noise Insulation Standards (California Code of Regulations, Title 24)

Title 24 establishes an interior noise standard of 45 dBA for multifamily residential structures and requires noise insulation of new multifamily dwellings constructed within a 60-dBA noise contour (OPR 2003).

California Department of Health Services Guidelines

The California Department of Health Services has published guidelines for the preparation of General Plan Noise Elements that outlines recommendations to minimize the exposure of community residents to excessive noise, including noise compatibility standards. These guidelines apply to ambient noise levels rather than individual noise sources. The guidelines also provide adjustment factors that may be used in order to arrive at noise-acceptability standards that reflect a particular community's sensitivity. The adjustment factor for noisy urban communities near busy roads is -5 dBA CNEL, which means that measured noise levels would be reduced by 5 dBA CNEL before comparison to the noise compatibility guidelines. The adjustment factors indicate that noise compatibility guidelines 5 dBA CNEL higher than recommended (see **Table 14-6**) are appropriate in certain urban communities due to existing high noise levels.

Table 14-6: California Recommended Noise Compatibility Guidelines

Land Use Category	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential-Single family, Duplex, Mobile Home	50-60	55-70	70-75	75-85
Residential-Multifamily	50-65	60-70	70-75	75-85
Transient Lodging, Motels, Hotels	50-65	60-70	70-80	80-85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50-70	60-70	70-80	80-85
Auditoriums, Concert Halls, Amphitheaters	NA	50-70	NA	65-85
Sports Arena, Outdoor Spectator Sports	NA	5-75	NA	70-85
Playgrounds, Neighborhood Parks	50-70	NA	67-75	72-85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50-75	NA	70-80	NA
Office Buildings, Business Commercial, Professional	50-70	67-77	75-85	NA
Industrial, Manufacturing, Utilities, Agriculture	50-75	70-80	80-85	NA

Source:

California Governor's Office of Planning and Research, State of California General Plan Guidelines (2003), Appendix C (Guidelines for the Preparation and Content of the Noise Element of the General Plan)

NORMALLY ACCEPTABLE- Specified land use is satisfactory, based upon the assumption that buildings involved are of normal conventional construction, without any special noise insulation requirements.

CONDITIONALLY ACCEPTABLE- New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.

NORMALLY UNACCEPTABLE- New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with noise insulation features included in the design.

CLEARLY UNACCEPTABLE- New construction or development clearly should not be undertaken.

Local

Each local government's goals, objectives and policies for noise control are established by the Noise Element of the General Plan and by specific noise ordinances passed by the City. The Project Area is within the East of 101 Area, for which a specific plan was first adopted in 1994 and updated in February 2016.[3]

City of South San Francisco General Plan Noise Element

The Noise Element of the City's General Plan identifies sources of noise in the City and provides objectives and policies that ensure that noise from various sources would not create an unacceptable noise environment. The Noise Element is intended to achieve and maintain compatibility of land uses with acceptable environmental noise levels.

[3] City Council Resolution No. 18-2016, adopted February 10, 2016 made changes to the Land Use section of the East of 101 Area Plan (Plan), revising the Plan pertaining to legal conforming uses and the Planning Sub-Areas element to ensure policy consistency with the General Plan, the Downtown Station Area Specific Plan, and the Transit Office/Research and Development Core Zoning District

ALUC Noise Standards and Related Requirements

The SFO Land Use Plan establishes a 65 dB CNEL contour as the noise impact boundary for SFO. Local plans, policy actions or development activities that affect areas within that boundary must receive Airport Land Use Commission (ALUC) approval or have a finding of overriding consideration prior to local permit issuance. To assist this process, the ALUC has established noise/land use compatibility standards as the basis of plan review (see **Table 14-7**). The City also applies these standards in its review of development applications located within the 65 dB CNEL boundary. The Project Area is not within the 65 dB CNEL boundary.

Table 14-7: City of South San Francisco Land Use Criteria for Airport Noise-Impacted Areas

Land Use	Exterior CNEL Range	General Land Use Criteria
Residential	Less than 65 dBA	Satisfactory, no special insulation requirements
	65 to 70	Development requires analysis of noise reduction requirements and noise insulation as needed
	Over 70	Development should not be undertaken
Commercial	Less than 70	Satisfactory, no special insulation requirements
	70-80	Development requires analysis of noise reduction requirements and noise insulation as needed
	Over 80	Airport-related development only; special noise insulation should be provided
Industrial	Less than 75	Satisfactory, no special insulation requirements
	75 to 85	Development requires analysis of noise reduction requirements and noise insulation as needed
	Over 85	Airport-related development only; special noise insulation should be provided
Open	Less than 75	Satisfactory, no special insulation requirements
	Over 75	Avoid uses involving concentrations of people or animals

Source: City of South San Francisco General Plan Noise Element, 1999

City of South San Francisco Municipal Code

Operations

The SSF Municipal Code Section 8.32.030 defines the maximum permissible sound levels at various land use zoning districts within the city. It is unlawful for any person to operate or cause to be operated any source of sound at any location within the city, or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other property to exceed the limits as specified in **Table 14-8**. The noise level standards as specified in this table are for a cumulative period of more than thirty minutes in any hour, and a graded scale allowing for increased noise levels over shorter durations is provided. This ordinance applies to stationary sources of noise, and does not pertain to project-generated traffic noise.

Table 14-8: Receiver Site Noise Level Standards, City of South San Francisco

Land Use Category	Time Period	Noise Level (dB)
R-E, R-1 and R-2 zones or any single-family or duplex residential in a specific plan district	10 p.m.—7 a.m.	50
	7 a.m.—10 p.m.	60
R-3 and D-C zones or any multiple-family residential or mixed residential/commercial in any specific plan district	10 p.m.—7 a.m.	55
	7 a.m.—10 p.m.	60
C-1, P-C, Gateway and Oyster Point Marina specific plan districts or any commercial use in any specific plan district	10 p.m.—7 a.m.	60
	7 a.m.—10 p.m.	65
M-1, P-1	Anytime	70

Source: SSF Municipal Code, Table 8.32.040, as adapted from The Model Community Noise Control Ordinance, Office of Noise Control, California Department of Health

If the measured ambient noise level for any area is higher than these standards, then the ambient shall be the base noise level standard for purposes of the cumulative period of more than thirty minutes in any hour.

Construction

Under Section 8.32.050(d) of the SSFMC, construction activities are limited to between the hours of 8:00 AM to 8:00 PM on weekdays, 9:00 AM to 8:00 PM on Saturdays, and 10:00 AM to 6:00 PM on Sundays and holidays. Construction noise that occurs during these hours is allowed if the project meets at least one of the following noise limitations:

- No individual piece of equipment shall produce a noise level exceeding 90 dB at a distance of twenty-five feet. If the device is housed within a structure or trailer on the property, the measurement shall be made outside the structure at a distance as close to twenty-five feet from the equipment as possible.
- The noise level at any point outside of the property plane of the project shall not exceed 90 dB.

City of South San Francisco East of 101 Area Plan

The East of 101 Area Plan Noise Element establishes policies to provide acceptable noise levels for anticipate land uses. These policies have been used to set criteria for the control of noise generated by individual aircraft flyover noise and for average noise levels. The purpose of these criteria is to reduce the potential effects of noise on people, including sleep disturbance, reduced physical and mental performance, annoyance, and interference with speech communication. The East of 101 Area Plan identifies the Project Area as commercial development, and requires that for commercial land uses such as industrial, office, and retail, the interior calculated hourly noise levels during the daytime should not exceed 45 dBA Leq and instantaneous maximum noise levels should not exceed 60 dBA. The Noise Element also establishes a policy to ensure that new development be designed so that the average noise level does not exceed a Leq of 60 dBA at the nearest open space or recreational area.

Impacts and Mitigation Measures

Thresholds of Significance

Based on the CEQA Guidelines, the Project would have a significant environmental impact if it were to:

1. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
2. Generate excessive ground-borne vibration or ground-borne noise levels
3. Expose people residing or working in the project site to excessive noise levels from a project located in the vicinity of a private airstrip or within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport

These CEQA Guidelines do not provide a quantitative measurement to define excessive or substantial. Therefore, the following quantifiable thresholds were used to evaluate the significance of impacts, based on applicable regulations, ordinances and policies:

Construction

Chapter 8.32 of the City's Municipal Code establishes criteria for construction noise. Construction activities authorized by a valid city permit shall be allowed on weekdays between the hours of eight a.m. and eight p.m., on Saturdays between the hours of nine a.m. and eight p.m., and on Sundays and holidays between the hours of ten a.m. and six p.m., or at such other hours as may be authorized by the permit, if they meet at least one of the following noise limitations:

- No individual piece of equipment shall produce a noise level exceeding 90 dB at a distance of 25 feet. If the device is housed within a structure or trailer on the property, the measurement shall be made outside the structure at a distance as close to twenty-five feet from the equipment as possible.
- The noise level at any point outside of the property plane of the project shall not exceed 90 dB

Operational Noise and Noise Exposure

SSF Municipal Code Section 8.32.030 defines the maximum permissible sound levels that can be generated by a land use. Maximum permissible sound levels from a project are determined by the land use category of the receiving property.

- For receiving properties that are within a Commercial (C-1), Professional Commercial (P-C), Gateway and Oyster Point Marina Specific Plan Districts, or any commercial use in any specific plan district (i.e., within the Genentech Master Plan zoning district), the maximum permissible receiving noise level is 65 dBA during the period from 7 AM to 10 PM, and 60 dBA from 10 PM to 7 AM,
- For receiving properties that are within an Industrial zoning district (M-1 or P-1), the maximum permissible receiving noise level is 70 dBA at any time.
- The Noise Element also establishes a policy to ensure that new development be designed so that its average level of noise generation does not exceed 60 dBA Leq at the nearest open space or recreational area.

Traffic Noise

In general, an increase of 3 dBA in traffic noise is considered just noticeable, a change of 5 dBA in traffic noise is clearly noticeable and a change of 10 dBA in traffic noise is perceived as a doubling. [4] This EIR applies the following thresholds of significance for traffic-related noise increases:

- A Project-generated increase of 3 dBA, if the resulting traffic noise would meet or exceed the normally acceptable range (65 dBA CNEL) at a noise-sensitive land use (i.e., childcare)

[4] Traffic Noise Impact Analysis, prepared by RGD Acoustics, August 1, 2017

- A project-generated increase of 5 dBA, if the resulting traffic noise would remain below the normally acceptable range at a noise-sensitive land uses
- A Project-generated increase of greater than 1 dBA to a cumulative traffic noise increase of 3 dBA or more, and where cumulative traffic noise levels would be above the normally acceptable range at a noise-sensitive land use
- A Project-generated increase of greater than 1 dBA to a cumulative traffic noise increase of 5 dBA or more, and where cumulative traffic noise levels would be remain within the normally acceptable range at a noise-sensitive land use

Construction Vibrations

The following criteria are applied in this analysis for identifying potentially significant construction-period vibration impacts:

- Generation of construction-related groundborne vibration levels exceeding the "strongly perceptible" level of 0.1 in/sec peak particle velocity (PPV) at off-site sensitive receptors (i.e., at residences, schools, childcare centers, etc.)
- Generation of construction-related groundborne vibration levels exceeding the modern industrial/commercial buildings damage standard of 0.5 in/sec PPV at on-site or off-site structures (i.e., structural damage)

Construction Noise

Noise 1: Construction activities pursuant to the Project could generate a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of noise levels that exceed the noise standards established in SSFMC Section 8.32.030. (**Significant and Unavoidable**)

Construction noise concerns pertain primarily to construction projects located in close proximity to sensitive land uses (e.g., childcare facilities) or to other existing buildings (on or off-site) where employees could be adversely affected by construction noise.

Construction noise impacts are largely a function of the construction equipment used, the location and sensitivity of nearby land uses, and the timing and duration of noise-generating activities. Construction noise levels for individual developments pursuant to the Project would vary depending on construction phase, equipment type and duration of use, distance between noise sources and receptors, and the presence or absence of barriers between noise sources and receptors. **Table 14-9** displays the maximum noise levels (Lmax) for typical construction equipment, measured at 50 feet from the source.

Table 14-9: Typical Construction Equipment Maximum Noise Levels, Lmax

Type of Equipment	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)	Type of Equipment	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Pickup Truck	55	Excavators	85
Pumps	77	Graders	85
Air Compressors	80	Jackhammers	85
Backhoe	80	Man Lift	85
Front-End Loaders	80	Paver	85
Portable Generators	82	Pneumatic Tools	85
Dump Truck	84	Rollers	85
Tractors	84	Scrapers	85
Auger Drill Rig	85	Concrete/Industrial Saws	90
Concrete Mixer Truck	85	Impact Pile Driver	95
Cranes	85	Vibratory Pile Driver	95
Dozers	85		

Source: FHWA, 2006

According to the numeric thresholds used in this EIR (as derived from Chapter 8.32 of the City's Municipal Code), construction noise that is generated during allowed construction hours is not considered significant if that construction activity either would not exceed 90 dB at 25 feet, or would not exceed 90 dB at any point outside the property. Most of the types of construction equipment likely to be used for Project-related construction would not generate more than 90 dB at 25 feet. However, certain types of construction activity (e.g., concrete mixer trucks, excavators and graders, jackhammers, etc.) that generate 85 dB or more at a distance of 50 feet, could generate noise that exceeds 90 dB at a distance of 25 feet (assuming a standard practice increment of approximately 6 dB increase at one-half the distance from the source), or could potentially exceed 90 dB at a nearby property line.

On-Campus Effects

Internally to the Campus, Genentech operates childcare facilities that are considered noise-sensitive land uses, and other existing Genentech labs and office could potentially be affected by future construction noise. Although technically not considered a CEQA impact (an effect of the Project on the Project is not considered an effect on the "environment"), Genentech recognizes the potential adverse effects that could occur to their own facilities. As has been Genentech's practice, Genentech will continue to prepare and implement Noise Attenuation and Logistics Plans for any new construction that is located in close proximity to an existing Genentech building, demonstrating consistency with all applicable OSHA requirements for safe workspaces, and any other private Genentech-based noise standards for a healthy workplace. [5]

[5] As an example, Genentech's Logistics Plan for the B40 project in the South Campus (which involves a structure that connects two existing buildings) included relocation of all employees located in those portions of existing buildings that were adjacent to the construction activity, to less sensitive spaces in these or other buildings. The initial phase of new construction included application of protective barriers along existing building facades to protect buildings from damage. These temporary barriers, applied directly to the exterior of both existing buildings, included noise and vibration attenuation materials that were sufficient to achieve applicable OSHA standards for acceptable noise and vibration levels in the affected office work environment. With implementation of these noise and vibration barriers, construction-period noise impacts were reduced to

Off-Campus Effects

There are relatively few Opportunity Sites identified in the Master Plan Update that are located adjacent to non-Genentech owned or controlled properties. However, there are some Opportunity Sites along the outer edges of the Campus and adjacent to separately owned properties. Depending on the precise location of new development relative to property lines, construction noise at these select Opportunity Sites could potentially exceed 90 dB at an adjacent property line. These types of construction-period noise impacts would be considered significant.

Mitigation Measures

All noise-generating construction activities pursuant to the Project would comply with limits on weekday and weekend hours, as set forth in the SSF Municipal Code Section 8.32.050. Additionally, the following mitigation measures are recommended for construction activity within the Project Area that is within 50 feet of an adjacent off-site property, and where construction noise may exceed the 90-dB limit of the SSF Municipal Code.

Mitigation Measure Noise 1A - Construction Period BMPs: The Project applicant shall require, by contract specifications, that best management practices (BMPs) for construction activity be implemented by contractors to reduce construction noise levels:

a) Two weeks prior to the commencement of construction, notification must be provided to surrounding land uses disclosing the construction schedule, including the various types of activities that would be occurring throughout the duration of the construction period.

b) Maintain all construction equipment to minimize noise emissions. All construction equipment shall be equipped with mufflers and sound control devices (e.g., intake silencers and noise shrouds) that are in good condition and appropriate for the equipment.

c) Place stationary noise- and vibration-generating construction equipment away from sensitive uses where feasible.

d) Construction staging areas and operation of earthmoving and or other noise-generating or vibration-generating equipment should be located as far away from noise sensitive sites as possible.

e) Unnecessary idling of internal combustion engines should be strictly prohibited.

f) Schedule high noise-producing activities during times when they would be least likely to interfere with the noise-sensitive activities of the adjacent land uses, when possible.

g) For any new development pursuant to the Project that may require deep foundations, consider the use of augured-cast-in-place piles or drilled shafts, rather than use of impact or vibratory pile drivers.

h) Implement noise attenuation measures to the extent feasible, which many include, but are not limited to, noise barriers or noise blankets

i) The construction contractor shall provide the name and telephone number of an on-site construction liaison. If construction noise is found to be intrusive to surrounding properties (i.e., if complaints are received), the construction liaison shall investigate the source of the noise and require that reasonable measures be implemented to correct the problem.

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acceptable levels.

Mitigation Measure Noise 1B - Truck Routes: The Project applicant shall require, by contract specifications, that heavily loaded trucks used during construction be routed away from noise-sensitive and vibration-sensitive uses to the extent possible.

Resulting Level of Significance

With implementation of a Genentech Noise Attenuation and Logistics Plan, construction-period noise effects on Genentech's own on-Campus buildings would meet applicable OSHA requirements for safe workspaces and other private Genentech-based noise standards for healthy workplaces. With implementation of construction-period BMPs per Mitigation Measures Noise 1A and 1B, most adverse effects on adjacent and separately-owned properties resulting from construction activity pursuant to the Project would be reduced to a level of less than significant (i.e., below 90 dBA at adjacent property lines).

However, there are certain potential future construction sites (or Opportunity Sites) that are near adjacent properties and where details about the placement of new structures and associated construction activities are not currently known. It is possible that construction noise generated at these locations, near adjacent property lines, could exceed the 90-dB limits of the SSF Noise Ordinance. Even with implementation of construction-period BMPs, these noise levels could exceed 90 dB at the property line. The details of such future construction projects are not and cannot be known at this time, and the effectiveness of construction-period BMPs cannot be demonstrated with certainty without such details. Construction noise is typically not considered significant if its duration is for a period of less than one year. Construction noise is temporary and episodic in nature, and mitigation measures presented above include all reasonable and feasible methods to reduce construction noise effects. However, since the details of such construction activity at each Opportunity Site cannot be known in advance, this impact is conservatively considered **significant and unavoidable**.

Operational Noise

Noise 2: Operational activities associated with the Project would not generate a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (**Less than Significant**)

The Project will include new operational-based noise sources. Typical noise sources such as those currently located within the Campus include industrial-type land uses, parking garages, roof-mounted HVAC systems and landscape maintenance. Such activities typically generate noise levels of approximately 60 dBA to 70 dBA Lmax at 50 feet. However, none of these new operational noise sources can be precisely located nor have they been designed at this time. Additionally, the Project potentially may include other less-typical operational noise sources such as a new electrical sub-station, potentially a new combined heat and power (CHP) plant, and potentially a new facility designed to capture treated wastewater from the City's disposal pipeline to the Bay, provide additional on-site treatment and use this treated effluent in its industrial applications. None of these potential new noise sources have been precisely located or designed, nor are they certain to be implemented. Calculations of specific noise levels generated by these future and potential operational uses on surrounding uses cannot be made at this time.

According to the City's Municipal Code, the maximum permissible operational noise levels generated from new development pursuant to the Project are determined by the land use category of the receiving property. The maximum L50 noise standards (the A-weighted noise level that is exceeded 50% of the time, or an average of 30 minutes during a measured hour) for the land uses within and adjacent to the Project site are: [6]

[6] From Table 8.32.030 of the SSF Municipal Code (see also Table 14-8, above)

- Business and Technology Park (BTP), conservatively assumed the equivalent of Commercial or Specific Plan districts – 65 dB from 7:00 AM to 10:00 PM, and 60 dB from 10:00 PM to 7:00 AM, and
- Mixed Industrial – 70 dB at all times.
- New development shall be designed so that the average noise level resulting from the new development does not exceed Leq of 60 dBA at the nearest open space or recreational area. This East of 101 Area Plan policy (Policy NO-4) seeks to ensure that noise levels of industrial uses do not affect open space and recreation areas including the Bay Trail and shoreline amenities
- If the existing ambient noise environment at a receiver site is higher than the applicable land use noise standard, then the ambient noise level is the noise standard.

Ambient noise levels throughout the Project site and on surrounding properties vary depending on their location relative to roadway noises, industrial operations and other existing noise sources. Long-term noise measurements conducted for this EIR found ambient noise levels of 65 to 70 dB at and near the Project site.

Regulatory Requirements

The SSF General Plan includes relevant policies intended to reduce the effects of exterior noise on interior locations within new buildings. These policies apply to new buildings pursuant to the Project, as well as new buildings on potential adjacent receiver sites:

General Plan Policy 9-I-5: Require that applicants for new noise-sensitive development in areas subject to noise generators producing noise levels greater than 65 dB CNEL obtain the services of a professional acoustical engineer to provide a technical analysis and design of mitigation measures.

General Plan Policy 9-I-6: Where site conditions permit, require noise buffering for all noise-sensitive development subject to noise generators producing noise levels greater than 65 dB CNEL. This noise attenuation method should avoid the use of visible sound walls, where practical.

In addition, policies of the East of 101 Area Plan would apply to new development under the Master Plan Update. These policies set performance standards to minimize the transfer of exterior noise to interior spaces:

NO-2: Office and retail developments in the East of 101 Area shall be designed so that the calculated hourly average noise levels during the daytime do not exceed Leq of 45 dBA, and instantaneous maximum noise levels do not exceed 60 dBA.

NO-3: Noise sensitive portions of industrial buildings shall meet the noise requirements for offices in Policy NO-2.

Compliance with these General Plan polices will reduce the effects of ambient noise levels on new development pursuant to the Project, but do not address new operational noise sources.

Mitigation Measures

Mitigation Measure Noise 2: Mechanical and Industrial Equipment Noise Reduction Requirements: The project applicant shall analyze or provide documentation of future exterior mechanical or industrial equipment to determine if the equipment would exceed applicable operational noise standards. If so, noise control measures must be provided to meet the City's requirements. Typical noise control measures include barriers, enclosures, silencers and acoustical louvers at vent openings. Prior to issuance of any building permits, the project applicant shall submit a report verifying that noise levels generated by project mechanical equipment are no greater than applicable noise standards at receiving properties.

Resulting Level of Significance

With the implementation of Mitigation Measure Noise-2, new industrial or mechanical operational noise impacts associated with the Project would be reduced to a less than significant level.

Construction-Period Ground-Borne Vibration

Noise 3: Construction activities pursuant to the Project would not generate excessive ground-borne vibration, but could adversely affect vibration-sensitive equipment and persons within the Project Area. (**Less than Significant with Mitigation**)

One concern for new construction projects developed pursuant to the Project are those construction activities conducted in close proximity to existing off-Campus buildings where non-Genentech buildings and/or employees could be affected by vibration from heavy construction equipment. Another potential concern is construction activities conducted in close proximity to existing on-Campus Genentech buildings, where current buildings or employees could be affected by vibration from heavy construction equipment. Each individual campus includes Opportunity Sites that are in close proximity to other existing on- and off-Campus buildings.

Given the rate at which vibration waves attenuate through the soil as they travel towards potential receptors, the most intensely vibratory pieces of construction equipment - vibratory rollers - would not exceed the identified human annoyance threshold of 0.1 inches per second unless it were operating as close as 41 feet from a sensitive vibration receptor (e.g., a daycare facility). It would not exceed the building damage threshold of 0.5 inches per second unless it was operating as close as 14 feet from another building (see **Table 14-10**). All other typical pieces of construction equipment would produce less-than-significant impacts when they are operated more than 23 feet from a sensitive vibration receptor or more than 8 feet away from a building.

Table 14-10: Typical Construction Equipment Vibration Levels

Construction Equipment or Activity	PPV at 25 feet (in/sec)	Distance at which construction equipment or activity exceeds vibration criteria (ft)	
		Annoyance Threshold (0.1 in/sec PPV)	Building Damage Threshold (0.5 in/sec)
Clam shovel drop	0.202	40	14
Vibratory roller	0.210	41	14
Hoe ram	0.089	23	8
Large bulldozer	0.089	23	8
Caisson drilling[1]	0.089	23	8
Loaded trucks	0.076	21	7
Jackhammer	0.035	12	4
Small bulldozer	0.003	2	1

Note: New development pursuant to the Project may include deep foundations consisting of augured-cast-in-place piles, or drilled shafts. For the purposes of noise analysis, these activities are considered similar to caisson drilling.

On-Campus Effects

As noted above, an effect of the Project on the Project is not technically not an effect on the "environment", and not technically considered a CEQA impact. However, it is possible that Genentech's own vibration-sensitive uses (i.e., their two childcare centers on Allerton Avenue) could be as close as 41 feet from a new development project pursuant to the Master Plan Update, and could be exposed to vibration levels that would exceed sensitive receptor "annoyance" thresholds. Additionally, Genentech's own buildings could be as close as 14 feet from an Opportunity Site for new development pursuant to the Master Plan Update. Construction equipment used by new development projects pursuant to the Project could potentially generate vibration levels at the existing Genentech buildings that would exceed building safety thresholds. As has been Genentech's practice, Genentech will continue to prepare and implement Noise Attenuation and Logistics Plans for new development that is in close proximity to another existing Genentech building, demonstrating consistency with all applicable OSHA requirements for safe workspaces, and any other private Genentech-based noise standards for a healthy workplace.

Off-Campus Effects

There are no off-site vibration-sensitive receptors (i.e., childcare facilities) within 41 feet of any of the Master Plan Update's identified Opportunity Sites, and construction vibrations would not exceed the annoyance threshold for any sensitive uses. The nearest off-site sensitive receptor for construction vibration is the Early Years Preschool, separated from the Campus by Allerton Avenue and its setback from that road (at approximately 150 feet from the Campus boundary). Construction equipment used by new development projects pursuant to the Project would not generate vibration levels that would exceed the annoyance threshold at this nearest sensitive receptor, and no off-Campus impacts would occur.

No off-Campus, non-Genentech buildings are expected to be as close as 14 feet from a substantial vibratory construction operation, and no off-site impacts related to building damage are anticipated.

Mitigation Measures

In order to further reduce the potential for building damage impacts from construction vibration to off-Campus buildings, the following mitigation measures are recommended:

Mitigation Measure Noise 3A - Pre-Construction Survey: Prior to the commencement of ground clearing activities, the project applicant shall verify that:

a) no heavy construction activity that may generate a PPV of more than 0.10 inches/second at 25 feet would occur within 10 feet of an adjacent, non-Genentech building, and that

b) no heavy construction activity that may generate a PPV of more than 0.20 inches/second at 25 feet would occur within 20 feet of an adjacent, non-Genentech building

c) If no such construction activity would occur within these specified distances from an adjacent, off-site building, then construction activities would not exceed the building damage threshold, and construction may begin with no further action required for vibration effects.

Mitigation Measure 3B – Changes to Construction Plans: If heavy construction activity is proposed at distances closer to an adjacent, non-Genentech building than those distances prescribed in Mitigation Measure Noise 3A, such that vibration impacts may result in damage to and adjacent building, the project applicant shall adjust the construction plan such that it would not generate vibration levels at the adjacent building that exceed the building damage threshold of 0.50 inches per second PPV.

Additionally, the following construction-period noise mitigation measures would also apply:

Mitigation Measure Noise 1A - Construction Period BMPs (see above)

Mitigation Measure Noise 1B - Truck Routes (see above)

Resulting Level of Significance

With implementation of these mitigation measures, potentially significant damage to adjacent buildings would be reduced to a less-than-significant level.

Operational Ground-Borne Vibration

Noise 4: Operational activities pursuant to the Project would not generate excessive ground-borne vibration, and would not adversely affect vibration-sensitive equipment or persons within the Project Area. (**Less than Significant**)

Upon completion of construction, no operational uses associated with the Project would generate a permanent source of ground-borne vibration. Future sources of ground-borne vibration from operation of the Project would come from routine truck trips for maintenance or other service. As such, implementation of the Project would not expose persons within the Project vicinity to excessive ground-borne vibration levels. The impact would be less than significant.

Mitigation Measures

No mitigation is required.

Substantial Permanent Increase in Ambient Traffic Noise

Noise 5: Traffic generated by the Project would result in increased traffic volumes that would increase local ambient traffic noise levels by greater than 3 dBA CNEL at locations that would also meet or exceed 65 dBA CNEL, but the Project's increased traffic noise would not adversely affect existing noise-sensitive receptors. (**Less than Significant**)

An analysis of expected noise resulting from vehicle traffic as predicted under Existing and with-Project conditions was conducted to determine whether increased vehicle trips attributable to the Project would result in significant increases in ambient noise levels. The increase in traffic noise due to Project-generated traffic was calculated using the Federal Highway Administration's Traffic Noise Model (TNM 2.5), as applied to traffic volumes as estimated in this EIR. The noise model takes into account the expected vehicle class, speed, road surface and distance, and calculates a noise level (Leq) based on peak-hour traffic. The CNEL value of this peak hour traffic was determined based on the difference between the peak-hour Leq, and the CNEL measured at the nearest monitoring location.

Increases in traffic noise in the Project Area vicinity are shown in **Table 14-11**. The noise levels are referenced to a distance of 100 feet from the roadway centerline. Increases of more than 3.0 dBA are shown in **bold**.

Table 14-11: Traffic Noise Levels, Existing and With Project

	CNEL at 100 feet from Roadway Centerline (dBA)		
Roadway	**Existing**	**Existing + Project**	**Increase**
Airport Blvd			
North of Sister Cities Blvd	76.5	76.8	0.3
Sister Cities Blvd to Miller Ave	77.8	77.9	0.1
Miller Ave to Grand Ave	78.0	78.3	0.3
Grand Ave to San Mateo Ave	74.4	74.9	0.5
Sister Cities Blvd west of Airport Blvd	70.8	71.3	0.5
Oyster Point Blvd			
US 101 to Gateway Blvd	75.6	76.1	0.5
Gateway Blvd to Veterans Blvd	71.2	72.3	1.1
Veterans Blvd to Eccles Ave	71.0	72.8	1.7
Eccles Ave to Gull Drive	70.3	72.2	2.0
east of Gull Drive	67.1	67.1	0
Gull Drive	68.0	70.8	2.8
Forbes Blvd			
east of Gull Drive	66.4	68.4	2.0
Gull Drive to Allerton Ave	63.5	66.5	**3.0**
Allerton Ave to East Grand Ave.	63.7	65.9	2.2
Eccles Ave (Oyster Pt Blvd to Forbes)	62.6	62.6	0
Gateway Blvd			
Oyster Pt Blvd to E. Grand Ave.	67.3	68.6	1.3
E. Grand Ave to Mitchell Ave.	70.8	72.1	1.3
Grand Ave			
West of Airport Blvd	67.5	68.0	0.5
Industrial Way to East Grand Ave	75.0	75.7	0.7
East Grand Avenue			
west of Gateway	71.9	74.5	2.6
Gateway Blvd to Forbes Blvd	72.9	76.3	**3.4**
Forbes Blvd to Allerton Ave	72.4	75.7	**3.3**
Allerton Ave to DNA Way	72.1	75.5	**3.4**
East of DNA Way	69.7	73.1	**3.4**
DNA Way (E. Grand to Forbes)	69.0	72.1	**3.1**
Harbor Way (E. Grand to Utah Ave)	67.5	67.5	0
Allerton Ave (E. Grand to Forbes Blvd)	65.6	67.3	1.7
Produce Ave (south of San Mateo Ave)	76.5	77.5	1.0
San Mateo Ave (Airport Blvd to So. Airport Blvd)	67.1	67.1	0

Table 14-11: Traffic Noise Levels, Existing and With Project

	CNEL at 100 feet from Roadway Centerline (dBA)		
Roadway	**Existing**	**Existing + Project**	**Increase**
Mitchell Ave			
Airport Blvd to Gateway Blvd	70.1	71.3	1.2
East of Gateway Blvd	66.7	66.7	0
South Airport Blvd			
Mitchell Ave to Utah Ave	73.7	74.6	0.9
South of Utah Ave	73.2	73.7	0.5
Utah Ave (East of S. Airport Blvd)	71.1	71.9	0.8

Source: RGD Associates, August 7, 2017

As shown in Table 14-11, two roadways are expected to experience traffic noise increases of 3 dBA or more over existing conditions, when traffic generated by the Project is added. These roadways are East Grand Avenue from US 101 to east of DNA Way, and Forbes Boulevard from Gull Drive to Allerton Avenue. Those roadway segments that are affected by Project-generated traffic noise greater than 3 dBA CNEL will also experience roadway noise of greater than 65 dBA. However, both of these roadways are located in the commercial/industrial area of East of 101, where the majority of land uses are not considered to be noise-sensitive uses (the Noise Element specifically lists residences, schools, churches and hospitals as being noise-sensitive). Therefore, other than potential effects on existing childcare facilities within the East of 101 Area (discussed below), the Project's increase in traffic noise would not adversely affect sensitive land uses. No other roadway segments in the Project vicinity would experience increased traffic-related noise above the 3.0 dBA CNEL threshold with the addition of Project-generated traffic.

Traffic noise generated by the Project would add more than 3 dB CNEL to current noise levels along East Grand Avenue between Highway 101 and Forbes Boulevard, near several existing hotels. Hotels are not listed in the General Plan as a noise-sensitive land use. Several other considerations regarding traffic noise also indicate that increased traffic noise effects on hotels would not be significant:

- These hotels are already subject to noise levels in the range of 70 to 80 dBA, primarily from adjacent freeway traffic. The Project's increase in traffic noise of approximately 3 dBA on East Grand Avenue would be a barely perceptible change over the existing freeway noise-dominated environment.
- Most of the Project's traffic noise would occur during peak-hour commute periods, not during nighttime hours when most hotel guests would be sleeping.
- Noise reduction and insulation features are typically included in the design of hotels located near freeways.

For these reasons, the effect of traffic noise on hotels is not considered significant.

Effects on Noise Sensitive Receptors

Table 14-12 shows the increase in Project-generated traffic noise at those few noise-sensitive land uses (childcare centers and preschools) in the East of 101 Area. As demonstrated, these existing noise-sensitive land uses are currently exposed to traffic noise exceeding 60 dBA, but the increased traffic noise attributable to the Project would not increase the existing noise levels at these sensitive receptors by 3 dBA or more.

Although the noise model predicts that DNA Way through the Project Area will receive more than a 3 dBA increase in traffic noise, the models used to predict traffic and traffic noise do not have the locational accuracy to account for the Master Plan Update's parking program. The parking program seeks to locate new parking facilities at the periphery of the Campus, such that only limited through-traffic would use DNA Way throughout the day. Based on this parking strategy, it is unlikely that DNA Way will actually carry Project-generated traffic levels that would generate an increase of 3 dBA CNEL or more over existing conditions.

Table 14-12: Traffic Noise Levels With and Without Project (at Noise-Sensitive Receptors)

	CNEL at Receiver (dBA)		
Receiver	Existing	Existing + Project	Increase
Gateway Child Development Center	68.5	69.8	1.3
Early Years Preschool (371 Allerton Ave)	67.2	69.0	1.8
Genentech's 2nd Generation (444 Allerton Ave)	67.2	69.0	1.8*
Genentech's Cabot 2nd Generation (342 Allerton)	67.2	69.0	1.8*

Source: RGD Associates, August 7, 2017, updated via email June 13, 2018.

*Increase in noise is based on data for Allerton Avenue. The receiver is also exposed to traffic noise from DNA Way. However, as indicated above, DNA Way is unlikely to receive Project-generated traffic levels that would generate an increase of 3 dBA CNEL or more.

Mitigation Measures

None needed. The Project's increase in traffic noise would not adversely affect any noise-sensitive land use (i.e., residences, schools, churches or hospitals), and the impact is considered less than significant.

Excessive Noise Due to Location within an Airport Land Use Plan

Noise 6: The Project would not expose people working in the Project Area to excessive noise levels due to proximity to airport-related noise sources. (**No impact**)

The Project Area is not near a private airstrip, but is entirely within the SFO Airport Influence Area (AIA) and as such, the compatibility criteria contained within the ALUCP are applicable to land use plans and development within the Project Area. The ALUCP establishes boundaries within which noise compatibility policies apply. These boundaries depict "noise impact areas" or noise compatibility zones, defined by noise contours at the 65 dB CNEL, 70 dB CNEL and 75 dB CNEL contours. Noise compatibility policies apply to each noise impact area or contour. Commercial uses (e.g., offices and business) or industrial and manufacturing uses and related structures are considered compatible without restrictions within all of these noise impact areas.

As shown in the Land Use chapter of this EIR (Figure 13-1), the Project Area is not located within any of the ALUCP-identified noise impact areas. Thus, the ALUCP's noise exposure criteria do not apply to the Project and would not restrict proposed land uses, and the Project is consistent with the ALUCP noise criteria. No impact would occur.

Mitigation Measures

No mitigation measures are required.

Cumulative Traffic Noise

Cumulative Noise 7: The Project, in combination with other current and foreseeable future cumulative development in the East of 101 Area will result in increased local traffic volumes that would increase ambient noise levels in the East of 101 area by greater than 3 dBA CNEL. There are no noise-sensitive land uses identified along these roadways that would be adversely affected by the cumulative increase in traffic noise. (**Less than Significant**)

Cumulative traffic from new development will increase traffic noise throughout much of the East of 101 Area (see **Table 14-13**), particularly on:

- Oyster Point Boulevard
- Gull Drive
- Forbes Boulevard
- Eccles Avenue
- Gateway Boulevard
- Grand Avenue
- East Grand Avenue
- Harbor Way, and
- Mitchell Avenue

Table 14-13: Impact of Increased Traffic Noise Due to Project and Cumulative Growth

	Cumulative Traffic Noise Increase Assessment			
Roadway	**Cumulative Increase over Existing (dBA)**	**Threshold (dBA)**	**Project Contribution (dBA)**	**Project Contribution > 1 dBA?**
Airport Blvd				
North of Sister Cities Blvd	2.0	3	0.2	N
Sister Cities Blvd to Miller Ave	1.2	3	0.1	N
Miller Ave to Grand Ave	1.4	3	0.2	N
Grand Ave to San Mateo Ave	1.4	3	0.3	N
Sister Cities Blvd west of Airport	0.1	3	0.5	N
Oyster Point Blvd				
US 101 to Gateway Blvd	2.2	3	0.3	N
Gateway Blvd to Veterans Blvd	2.9	3	0.5	N
Veterans Blvd to Eccles Ave	3.4	3	1.0	N
Eccles Ave to Gull Drive	**3.6**	3	**1.1**	**Y**
east of Gull Drive	4.6	3	0	N
Gull Drive	**3.3**	3	**1.8**	**Y**
Forbes Blvd				
east of Gull Drive	2.7	5	1.7	N
Gull Drive to Allerton Ave	3.7	5	1.7	N
Allerton Ave to East Grand Ave.	4.0	5	1.0	N
Eccles Ave (Oyster Pt to Forbes)	3.5	5	0	N
Gateway Blvd				
Oyster Pt Blvd to E. Grand Ave.	3.8	3	0.5	N
E. Grand Ave to Mitchell Ave.	3.0	3	0.8	N
Grand Ave				
West of Airport Blvd	4.2	3	0.2	N
Industrial Way to E. Grand Ave	1.9	3	0.6	N
East Grand Avenue				
west of Gateway	**3.6**	3	**1.5**	**Y**
Gateway Blvd to Forbes Blvd	**4.3**	3	**2.6**	**Y**
Forbes Blvd to Allerton Ave	**4.0**	3	**2.6**	**Y**
Allerton Ave to DNA Way	**3.9**	3	**3.0**	**Y**
East of DNA Way	**4.9**	3	**2.1**	**Y**
Grandview Dr. (E. Grand to Forbes)	2.0	3	4.3	N
Harbor Way (E. Grand to Utah Ave)	3.8	3	0	N
Allerton Ave (E. Grand to Forbes Blvd)	1.8	3	1.7	N

Table 14-13: Impact of Increased Traffic Noise Due to Project and Cumulative Growth

	Cumulative Traffic Noise Increase Assessment			
Roadway	**Cumulative Increase over Existing (dBA)**	**Threshold (dBA)**	**Project Contribution (dBA)**	**Project Contribution > 1 dBA?**
Produce Ave (south of San Mateo Ave)	2.8	3	0.5	N
San Mateo Ave (Airport Blvd to So. Airport Blvd)	1.4	5	0	N
Mitchell Ave				
Airport Blvd to Gateway Blvd	3.7	3	0.6	N
East of Gateway Blvd	1.5	3	0	N
South Airport Blvd				
Mitchell Ave to Utah Ave	2.3	3	0.4	N
South of Utah Ave	1.6	3	0.4	N
Utah Ave (East of S. Airport Blvd)	0.7	3	0.4	N

Source: RGD Associates, August 7, 2017.

Cumulative traffic noise along these roadways is projected to increase by as much as 4.9 dBA over existing traffic noise levels (as shown in Table 14-13). The increase in traffic noise would exceed 3 dBA CNEL or more along several roadway segments. However, the Project would not generate a significant contribution to cumulative traffic noise throughout most of the East of 101 Area, with the exceptions of Oyster Point Boulevard, Gull Drive and East Grand Avenue. At these limited locations, the Project's contribution to the cumulative increase in traffic noise is 1 dBA or greater. There are no identified noise-sensitive land uses (other than existing childcare and preschool facilities) along these roadways. Thus, cumulative traffic noise impacts on noise-sensitive land uses are considered less than significant, and the Project's increase of 1 dBA or more to these cumulative noise levels is not considered a significant contribution.

Mitigation Measures

None needed

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Population, Housing and Employment

This chapter evaluates the potential impacts of the Master Plan Updated (the Project) related to population, employment and housing. This chapter describes the existing population, employment and housing characteristics of the Project Area and its surroundings, and evaluates the extent to which the Project may affect these characteristics.

Setting information is derived from the following primary sources:

- the US Census Bureau, American FactFinder for the years 2012 through 2016, and the 2012 Economic Census
- General Plan of the City of South San Francisco
- the City of South San Francisco *East of 101 Area Plan*
- Metropolitan Transportation Commission (MTC) and ABAG, *Plan Bay Area 2040 (including the* Supplemental Report, Land Use Modeling), 2017

This analysis is limited to those socio-economic issues that could result in a direct change to the physical environment (pursuant to CEQA Guidelines Section 15131).

Environmental Setting

Population, housing and employment data are available on city, county, regional and state levels. This chapter of the EIR relies on data at the city level for analysis relevant to the City of South San Francisco, as well a broader countywide and regional data that provides greater context and is relevant to Genentech's broader, regional employment characteristics.

Existing Conditions

South San Francisco

Population

The Census Bureau's 10-year Population Estimates Program produces and disseminates the official estimates of the population for the nation, states, counties and cities. According to the 2010 U.S. Census, the City of South San Francisco had a population of 63,632 people in 2010.[1] The Census Bureau's American Community Survey (ACS) produces population, demographic and housing unit estimates on an annual basis. According to the ACS, the City of South San Francisco had a population of 63,752 people in 2010, which has increased to 67,429 people by the most recent estimate period in 2017.[2] This represents an increase of approximately 3,680 people over the past seven years, or an annual average increase of approximately 0.8%.

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[1] US Census Bureau, American FactFinder, at: https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml

[2] https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF

The Census Bureau's ACS also produces data about employment characteristics. According to the ACS, the City of South San Francisco had 31,869 employed residents in 2010. The majority of these employed residents (approximately 76%) worked outside of the city and had an average commute time of about 25 minutes. By 2016, South San Francisco had 35,247 employed residents, about 79% of whom worked outside of the city limits, with an average commute time of about 27 minutes.

Housing and Households [3]

The Census Bureau's ACS also produces estimates of the number of households, household size and housing units. According to the ACS, the City of South San Francisco had 21,576 housing units and 20,831 households, with an average household size of 2.97 persons per household in 2010. These housing characteristics increased to 22,106 housing units and 21,006 households with an average household size of 3.14 persons per household, by year 2016. This represents an increase of approximately 530 housing units over that six- year period, or an annual average increase of 88 housing units per year, or approximately 0.4% per year.

Employment

According to the City of South San Francisco web site, the economy of South San Francisco employed 35,247 people in year 2016. This employment estimate is generally in line with employment as estimated by ABAG, which estimated 38,700 total employees in South San Francisco in its *2017 Plan Bay Area 2040 Final Supplemental Report* for land use modeling.[4]

South San Francisco is the heart of the Bay Area's biotechnology and life sciences industry. Although the US Economic Census breaks out South San Francisco's job numbers according to standardized North American Industry Classification System (NAICS) categories, a large number of employees within these NAICS categories are specifically employed by biotechnology companies, most of which are clustered in the East of 101 Area. According to City publications, South San Francisco is the largest, fastest-growing biotechnology cluster in the world, with more than 200 existing biotechnology firms employing over 20,000 people. The majority of South San Francisco's biotechnology companies are in the medical sector (biotechnology-based pharmaceuticals), and involve research and development of applications for drugs and therapies, as well as the manufacturing of medical devices and other research consumables. Sixty-one percent of the City's biotech companies specialize in biopharmaceutical research and development. Other companies are in the agricultural, industrial or environmental biotechnology fields.[5]

Genentech Jobs

Genentech is one of the largest biotechnology-based pharmaceutical companies in the world, discovering, manufacturing and delivering to the market multiple types of medicines used to treat serious or life-threatening medical conditions in the areas of oncology, immunology, neuroscience, metabolism and infectious disease. Under current baseline conditions, Genentech's direct employment (or headcount) is approximately 12,420 people, including employment at the Genentech Campus (the Project site) as well as in leased space at the Gateway Business Park. These employees include approximately 12,420 people, including 2,830 lab workers, 8,300 office-based workers and 200 workers within the various on-Campus amenities and

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[3] A household is defined by the U.S. Census as, "a group of people who occupy a housing unit." A household differs from a dwelling unit because the number of dwelling units includes both occupied and vacant dwelling units. Not all of the City's population lives in households. A portion of the population lives in group-quarters (such as boarding and care facilities) and others are homeless.

[4] ABAG, *2017 Plan Bay Area 2040 Final Supplemental Report for Land Use Modeling*, page 43, accessed at: http://2040.planbayarea.org/reports

[5] http://www.ssf.net/our-city/biotech

services. On a regular basis, there are also as many as 2,500 additional consultants, service workers and visitors, such that the daily population at the Campus in approximately 15,000 people.

San Mateo County

San Mateo County had an estimated population of 719,899 people in 2010, and increased to 771,410 people at the most recent estimate period in 2017. This represented an increase of approximately 51,500 people over that seven-year period, or an annual average increase of approximately 1.0%.[6] San Mateo County had approximately 270,039 housing units and 255,758 households in 2010, with an average household size of 2.72 persons per household. These housing characteristics increased to 273,798 housing units and 261,010 households by year 2016, with an increased average household size of 2.85 persons per household. This represented an increase of approximately 3,759 housing units over that six-year period, an annual average increase of 626 housing units per year or an annual increase of approximately 0.2% per year.

According to the PBA 2040, San Mateo County was estimated to have approximately 343,300 jobs as of 2010.[7]

Bay Area Region

According to PBA 2040, in 2015 the 9-county Bay Area region was estimated to be home to approximately 7.57 million people residing in approximately 2.76 million households, and contained approximately 4.01 million jobs.[8]

Regulatory Setting

Federal

There are no federal regulations related to population and housing that apply to the Project.

State

State Housing Element Law

The Regional Housing Needs Allocation (RHNA) is a process established under the State Housing Element law, which requires cities in California to plan for the future development of new housing units to meet their share of their regional housing needs. Housing needs for each region in the State are determined by the State Department of Housing and Community Development (HCD) and submitted to Councils of Government for allocation to local jurisdictions. ABAG is ultimately responsible for determining the share of regional housing needs to be met by each city and county in the Bay Area. Under the RHNA process, each jurisdiction is assigned an allocation of housing responsibility, including housing within various tiers of affordability.

Sustainable Communities Strategy and SB 375

SB 375 (adopted in 2008), requires preparation of a Sustainable Communities Strategy (SCS) as part of the Regional Transportation Plan (RTP) for the Bay Area. The SCS must represent an integrated land use and transportation plan and be designed to achieve a reduction in greenhouse gas emissions targeted at 15 percent per capita from cars and light trucks by 2035. The SCS must identify areas within the region sufficient to house all of the region's population including all economic segments. Development of the SCS in the Bay

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6 https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF

7 ABAG, 2017 Plan Bay Area 2040 Final Supplemental Report for Land Use Modeling, page 43, accessed at http://2040.planbayarea.org/reports

8 Ibid, page 16

Area is led by a consortium of regional organizations comprised of the Metropolitan Transportation Commission (MTC), ABAG, Bay Conservation and Development Commission (BCDC), and Bay Area Air Quality Management District. The region's most recent SCS is *Plan Bay Area 2040*, discussed further, below.

Regional

MTC and ABAG, *Plan Bay Area 2040*

As required by Senate Bill 375, all metropolitan regions in California must complete a Sustainable Communities Strategy (SCS) as part of a Regional Transportation Plan (RTP). In the Bay Area, the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) are jointly responsible for developing and adopting a SCS that integrates transportation, land use and housing to meet targets for greenhouse gas reduction as set by the California Air Resources Board (CARB).

Plan Bay Area (PBA 2013) was the region's first Sustainable Communities Strategy. PBA 2013 was updated in 2017 as *Plan Bay Area 2040* (PBA 2040), and is the most recent SCS/RTP for the Bay Area. PBA 2040 provides a regional strategy for accommodating household and employment growth projected to occur in the Bay Area region through year 2040, and a transportation strategy for the region based on expected revenues. The primary objective of *PBA 2040* is to achieve mandated reductions of greenhouse (GHG) emissions and to provide adequate housing for the projected 2040 regional population level. *PBA 2040* sets forth a transportation and land use "blueprint" for how the Bay Area can address transportation mobility and accessibility needs, regional housing responsibilities, economic conditions and forecasts, environmental concerns, and GHG emissions reduction requirements through the year 2040. The region includes nine counties (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano and Sonoma).

Local

General Plan

The South San Francisco General Plan includes an assumed buildout condition, based on the application of assumed average densities and intensities for different land use classifications to vacant sites and sites with potential redevelopment/intensification opportunities. Although the 1999 General Plan included a projection of year 2020 development, the time at which full "buildout" of the General Plan may occur is not specified, other than "beyond 2020". The buildout potential of the General Plan has been updated over the years, primarily in recognition of the City's expanding growth in office and R&D uses, mostly within the East of 101 area.

Employment and Non-Residential Building Space

The East of 101 Area is South San Francisco's primary employment base, expected to accommodate a major share of South San Francisco's new non-residential development. In 2001, the City Council adopted a General Plan Amendment that incorporated revisions to the approved land use buildout in the East of 101 Area. The Amendment included the following conclusions:

- Total buildout of the East of 101 area was projected to reach 23.32 million square feet by 2020, due mainly to an increase in Office and Office/R&D development.
- Employment in the East of 101 area was predicted to increase to 52,880 employees at that same year 2020 planning horizon.

These buildout estimates included major projects known at that time, and an assessment of other properties that would likely convert from industrial to office/R&D. It also accounted for higher employment intensities, as new office/R&D space replaced less intensively employed industrial space. The City's 2005 Traffic Impact

Fee Study Update for the East of 101 Area was also built on the same assumption, that employment in the East of 101 Area was expected to reach 52,880 employees by year 2020.

Since that time, the City approved a number of new development projects in the East of 101 Area, including but not limited to the Genentech Facilities Master Plan (2007), the Gateway Business Park Specific Plan (2009), the Oyster Point Specific Plan (2011), the Britannia Cove Precise Plan (2013) and the Downtown Station Area Plan (2015).

South San Francisco Housing Element, 2015 - 2023

In conjunction with the state-mandated Housing Element update cycle, ABAG allocates housing unit production needs for each county within the Bay Area, setting housing production goals for Regional Housing Needs Allocations (RHNA). In San Mateo County, the City/County Association of Governments (C/CAG) is designated as the entity responsible for coordinating and implementing the sub-regional RHNA process. The C/CAG's countywide RHNA process determined a need for an additional 1,864 housing units in South San Francisco between January 1, 2014 and October 31, 2022. This housing need is divided among various income categories. The City's Housing Element includes an inventory of land suitable for residential development, analyzes zoning and infrastructure to ensure housing development is feasible during the planning period and demonstrates that this potential housing supply is capable of supporting housing demand from all economic segments of the community and for various housing types. Potential future housing sites in South San Francisco were grouped into two geographic areas; the Transit Village area (which is estimated to provide approximately 80 percent of the City's near-term residential development potential), and the Downtown (which is estimated to provide almost 20 percent of near-term residential development potential). The Housing Element indicates the potential to develop 2,169 units of new housing in these areas. As of 2018, more than 600 new housing units were under construction within these opportunity sites. There may be additional sites in South San Francisco with housing potential, including individual vacant lots and developed sites with marginally viable existing uses.

East of 101 Area Plan

In 1994, the *East of 101 Area Plan* concluded that the East of 101 Area could likely accommodate a total buildout potential of approximately 34.6 million square feet, based on land use designations and FAR ratios applicable at the time. The East of 101 Area Plan does not include associated employment projections, but the City's 2005 Traffic Impact Fee Study Update for the East of 101 Area anticipates employment in the East of 101 Area to reach 52,880 employees by year 2020. The East of 101 Area Plan precludes residential development in this area.

Municipal Code

The South San Francisco Municipal Code, Chapter 8.69: Affordable Housing Commercial Linkage Fees requires certain development projects to pay a commercial linkage fee to mitigate the impacts these development projects have on affordable housing in the City. The purposes of this Linkage Fee include (among other purposes) supporting the Housing Element goal of providing suitable, decent and affordable housing for its residents, and offsetting the demand for affordable housing that is created by new commercial development. Other purposes of the fee include mitigating impacts that accompany new commercial development by protecting the economic diversity of the City's housing stock, reducing traffic, transit and related air quality impacts, promoting jobs/housing balance and reducing the demands placed on transportation infrastructure in the region. The City has found that there is a reasonable relationship between the commercial linkage fee and the type of development projects to which the fee is imposed, because the development projects that are subject to the fee place additional demands on housing, specifically affordable housing, in the City. The proceeds collected from these fees are used to address and mitigate the additional impacts created by these development projects.

Commercial linkage fees are paid at the time of issuance of building permits for those commercial development projects subject to the fee, and are calculated based on a per-square-foot basis for all net new gross floor area by land use type.

Impacts and Mitigation Measures

Analytic Method

This analysis considers employment growth and the resulting increase in overall population growth and housing demand that would occur with implementation of the Project, and whether this growth is within local or regional forecasts. In addition, this analysis determines whether growth associated with the Project is considered substantial with respect to remaining growth potential in the City as articulated in the General Plan and the East of 101 Area Plan. Specifically, population, employment and housing impacts are analyzed by comparing the Project with the growth projections of the City, and the regional projections of ABAG.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines, established City of South San Francisco standards and practices, and the prior 2007 Genentech Master Plan EIR and its 2012 Supplemental EIR. For purposes of this EIR, implementation of the Project could result in potentially significant population, housing and employment impacts if the Project would result in any of the following:

1. Induce substantial unplanned population growth in a manner not previously contemplated, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads and other infrastructure)
2. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere

Induce Substantial Population and Employment Growth

Pop/Emp. 1: The Project will result in a substantial increase in local South San Francisco employment, but will not result in employment growth beyond that contemplated in the City, and will not induce population growth beyond that contemplated in the county or the region. (**Less than Significant**)

Employment Growth

Current employment within the Project Area (i.e., at the Genentech Campus) is approximately 10,670 employees.[9] Genentech also occupies leased building space at the Gateway Business Park, accommodating approximately 1,750 employees. Combined, Genentech employs approximately 12,420 employees in the East of 101 Area. With the potential expansion of its facilities pursuant to the Project, employment at Genentech may increase by as much as 12,550 employees, to 24,970 total employees at Project buildout as shown in **Table 15-1**.

[9] Genentech, 2016

Table 15-1: Existing and Projected Employment at the Project Area

	Office	Labs	Mfg.	Amenity	Total
Existing Employment					
Campus	6,550	2,830	1,100	190	10,670
Gateway (lease)	1,750				1,750
	8,300				**12,420**
Project (Net New Employment)					
Campus	11,180	2,640	70	410	14,300
Gateway (lease exits)	(1,750)				(1,750)
	9,430				**12,550**
Employment at Buildout:					
Campus	17,730	5,470	1,170	600	**24,970**

East of 101 Projections

In 2017, the City initiated an update to its transportation planning for the East of 101 area, including an update to East of 101 Traffic Model. This update is intended to account for all recently approved new development in the East of 101 area, and includes a projection of cumulative buildout potential. Cumulative buildout is projected to include approximately 33.4 million square feet of non-residential building space (including 18.9 million square feet of office/R&D space, 12.3 million square feet of manufacturing/industrial space, and 2.2 million square feet of commercial space), and 3,935 hotel rooms (see **Table 15-2**).[10] These projections of non-residential building space represent the most recent estimates of buildout in the East of 101 area.

[10] This East of 101 cumulative buildout for the 2017 East of 101 Traffic Model includes buildout of the Genentech Campus at 6 million square feet, consistent with the 2007 Genentech Master Plan

Table 15-2: East of 101 Cumulative Buildout (without Project)

	Hotel (rooms)	R&D (KSF)	Office (KSF)	Commercial (KSF)	Mfg. /Ind. (KSF)	Total
Genentech [1]		2,002	2,630	325	1,043	
Britannia Cove	200	884		20		
Oyster Point	350	1,405	937	50		
Downtown Station		1,185		780	21	
Remainder of East of 101	3,385	8,630	1,230	984	11,291	
Total:	**3,935**	**14,106**	**4,797**	**2,159**	**12,355**	**33,417**

Notes:

1. Cumulative buildout without Project assumed buildout of 2007 Genentech Facilities Master Plan, at 6 MSF
2. Sources: East of 101 Traffic Study (2011), Oyster Point Specific Plan (2011), Britannia Cove Specific Plan (2013), Downtown Station Area Specific Plan (2014)
3. Cumulative buildout is presumed, for traffic modeling purposes, to occur by year 2040.

As indicated in Table 15-2, buildout projections for the East of 101 area assume a buildout of up to 6 million square feet at the Genentech Project Site. The Project's proposed increase to 9 million square feet of building space (an increase of 3 million square feet over and above the 6 million assumed) represents an increase of less than 10% of all projected employment-generating land uses in the East of 101 Area, assuming that all other predicted development activity in the East of 101 Area occurs.

General Plan Buildout

The General Plan projections indicate that employment will reach 80,600 employees at buildout of the City. This represents an increase of more than 45,350 citywide employees over current City employment estimates (or an increase of more than 41,300 citywide employees over ABAG estimates for year 2015). This level of employment growth will likely take place over a time-period that may extend beyond 20 years. The Project-specific employment growth of 12,550 new employees at Genentech represents between 27% and 30% of this projected employment growth forecast under the General Plan. While Genentech's growth does represent a large share of citywide employment growth projections, current Genentech employment represents approximately 35% of the City's total current employment. The Project's estimated employment growth is within the range of expected citywide employment growth.

Population and Housing Inducement

The Project's increase in employment growth will result in an increased demand for housing. ABAG's projected number of Bay Area jobs by year 2040 (approximately 4.7 million) divided the projected number of Bay Area households by year 2040 (approximately 3.43 million) yields an average of approximately 1.37 jobs per household. Applying this regional average forecast by the estimated increase of 12,550 jobs pursuant to the Project yields a conservative estimated demand for approximately 9,160 new households to support employment growth at the Project. Further, Genentech estimates that approximately 75% of its new labor force since 2010 has been existing Bay Area residents choosing to change their employment to Genentech, and that only approximately 25% of its new labor force is derived from new residents from outside the Bay Area. An increase of 9,160 new households (or even 2,290 new households assuming only 25% of new jobs would be taken by new Bay Area residents) would exceed the projection of new housing potential in the City of South San Francisco pursuant to its Housing Element. However, Genentech is a regional employer, drawing its employees from across the entire Bay Area region. As an example, Genentech's TDM Plan provides employees with various sustainable transportation options to commute to the Campus from these regionally

dispersed locations. The existing gRide program (Genenbus operations) currently connects employees from Alameda, Contra Costa, Marin, Santa Clara, San Francisco, San Mateo, Solano and San Joaquin counties to the South San Francisco campus.

ABAG's Plan Bay Area 2040 regional forecast for growth indicates that between 2010 and 2040, the Bay Area is projected to grow from 3.4 to 4.7 million jobs (an increase of 1.27 million jobs), and the population is projected to grow from 7.2 to 9.5 million people. This population will live in approximately 3.43 million households, an increase of approximately 817,000 households over 2010 levels. The Project's potential indirect housing demand, conservatively estimated to be approximately 9,160 new households, represents a small share (approximately 1.1%) of projected household growth within the Bay Area region. Actual indirect new housing demand in the Bay Area (assuming 25% of the new Project jobs) represents an even smaller share (approximately 0.2%) of projected household growth within the Bay Area region.

On a regional basis, the Project's demand for new housing is not a significant share of the total projected regional household growth, and the impact is less than significant.

Other Growth Inducement

Genentech's presence as the largest employer in the City and founder of one of the largest biotechnology campuses in the world has drawn a number of support businesses and industries to the area. The East of 101 Area has become a major biotechnology cluster, in large measure due to the pioneering efforts of Genentech and the City's efforts to plan for biotechnology growth. According to City publications cited above, the East of 101 Area is the largest, fastest-growing biotechnology cluster in the world, estimated to have more than 200 biotechnology firms employing over 20,000 people. This growth is primarily a function of non-CEQA factors such as business decisions to be proximate to this growing industry, the availability of a specialty-skilled workforce, and forward-thinking planning efforts by the City. These factors are not typical growth inducement concerns of CEQA, such as the extension of roadways or expansion of infrastructure capacity that would otherwise preclude new development or that induce growth beyond what is otherwise planned. The Project will not include any physical improvement that would induce growth in these CEQA-based concerns beyond that needed to support its own needs, or that is in addition to City growth plans for the area.

Regulatory Requirements

R**egulatory Requirement Pop /Emp. 1: Affordable Housing Commercial Linkage Fees**: Each new development project within the Genentech Campus will be required to pay the City's established commercial linkage fee to mitigate impacts on affordable housing in the City.

The City has found that there is a reasonable relationship between the commercial linkage fee and new commercial development because of the additional demands on housing (specifically affordable housing) that is generated by new development. The proceeds collected from these fees are used to address and mitigate the indirect impacts on housing created by commercial development projects.

Mitigation Measures

No mitigation required.

Displace Substantial Numbers of Existing Housing Units

Pop/Emp. 2: Implementation of the Project would not displace any existing housing that would necessitate construction of replacement housing elsewhere. (**No Impact**)

The Project Area is composed entirely of the existing Genentech Campus and contains no housing of any type. As no residential uses exist in the Project Area, implementation of the Project would not displace existing housing. Therefore, there would be no impact.

The Project Area is located in the East of 101 Area, and according to the General Plan and the East of 101 Area Plan, residential uses are not permitted in the East of 101 Area, including within the Project Area. The East of 101 Area is expected to accommodate a major share of South San Francisco's new non-residential development.

Mitigation Measures

No mitigation required.

Displace Substantial Numbers of People

Pop/Emp. 3: Implementation of the Project would not displace substantial numbers of people. (**No Impact**)

The Project consists of intensification of existing uses within the existing Genentech Campus, on properties owned or controlled by Genentech. There are three properties not owned or leased by Genentech, and that are out-parcels not included in the approximately 207-acre Campus. These out-parcels include an approximately 5.3-acre parcel located along Forbes Avenue (owned by UCSF), an approximately 1.4-acre parcel located immediately north of the South Campus (Lithotype Co. Inc., at 333 Point San Bruno Boulevard), and an approximately 2-acre parcel within the Upper Campus (TMB Baking, at 527 DNA Way). These out-parcels are owned and operated by separate owners, and not included in the approximately 207-acre Campus. The presence and ongoing operation of these out-parcels does not affect implementation of the Project or Genentech's on-going operations, nor does the Project fundamentally affect or displace the ownership or use of these out-parcels.

The Project's direct employment growth can be accommodated on the Campus without displacing any businesses or people. As indicated above, the Project's indirect housing demand can also be accommodated on a regional basis within the Bay Area region's expected household growth, also without displacing any people. Genentech is able to draw employees from across the entire Bay Area region due, in large part, to its effective TDM Plan that provides employees with transportation options for commuting to the Campus from regionally dispersed locations.

Mitigation Measures

No mitigation required.

Cumulative Housing and Population Growth

The analysis of the Project's potential to induce substantial population and employment growth on a cumulative basis is fully addressed under the discussion of Impact Pop/Emp. 1, above. That analysis presents Genentech's employment growth in the context of citywide, countywide and regional employment projections. It also addresses secondary effects of housing demand related to employment growth from these city, county and regional perspectives.

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Public Services

This chapter of the EIR evaluates the potential impacts of the Master Plan Update (the Project) related to the provision of public services, including police protection, fire protection and emergency services, and recreation services. The chapter describes the existing public services within and near the Project Area, and evaluates the potential for impacts on the demand for services that could result from the Project. Buildout of the Master Plan Update would not develop any new residential uses within the Project Area, and therefore would not create any direct demand for or result in any direct impacts to libraries, schools, or other public services. Although the Project may result in limited indirect effects (e.g., a limited number of inter-district school transfers and/or occasional use of a library by future employees), these indirect effects are not considered significant and libraries, schools and related community services are not further discussed, as no analysis is required.

Some of the information presented in this chapter draws from the prior analyses conducted for the 2007 MEIR and the 2012 SMEIR. Updated or additional information regarding environmental and Project-related public services was taken from the following sources:

- 2017 Municipal Services Assessment, prepared for 2017 Oyster Point Specific Plan Update, November 2017 (**Appendix 16**)[1]
- *General Plan* of the City of South San Francisco
- *East of 101 Area Plan* of the City of South San Francisco
- *Subsequent EIR for the Community Civic Campus Project*, December 2017
- BCDC Permit #s 18-74(A) and 18-74(B) as amended through December 2009, and Permit #MO5-9 as of 2006

Environmental Setting

Police Services

Police services within the Project Area are provided by the South San Francisco Police Department (SSFPD). SSFPD is divided into two Divisions: Operations and Services. The Operations Division includes Patrol, Criminal Investigations, Downtown Bike Patrol, K-9, Neighborhood Response Team, SWAT/Hostage Negotiations and Traffic/Motors. The Services Division includes Communications, Community Relations, Property/Evidence, Records, Planning and Recruiting. Each Division is commanded by a Captain.

The SSFPD operates out of one main station, located at 33 Arroyo Drive. A new police headquarters that will replace the current SSFPD station is proposed as part of the City's Community Civic Campus project. In July

[1] Although this Municipal Services Assessment (MSA) was prepared for a separate project, and that project's EIR was not certified and the project was not approved, the MSA includes current citywide services information that is relevant to this analysis

2018, City Council selected a Master Plan that will serve as the basis for schematic design, and the complete design process is expected to be complete by the summer/fall of 2019. Construction is estimated in years 2020 to 2022. The Community Civic Campus is to be located at the northeast corner of El Camino Real and Chestnut, and will include a Police Station, a Fire Station (as part of Phase II), and a combined Library and Parks & Recreation Community Center, with parking and landscaping improvements.[2]

Implementing Policy 8.5.I-1 of the General Plan Health and Safety Element seeks to maintain a target ratio of 1.5 officers per 1,000 residents to ensure rapid and timely response to all emergencies. As of fiscal year 2016-17, the officer-to-population ratio for the SSFPD was approximately 1.03 officers per 1,000 population. In 2016, the SSFPD response times to Priority 1 (emergency) calls averaged 3:59 minutes, and to non-emergency calls averaged 6:03 minutes. These response times are considered acceptable (there is no standard against which they are measured, nor is there any obligated standard to measure against).[3]

Fire Protection and Emergency Services

Fire prevention, Municipal Code enforcement, fire suppression, emergency medical services (advanced life support and nonemergency basic life support and ambulance transportation), urban search and rescue, hazardous materials services, public education, disaster preparedness, and marine search and rescue services are provided by the South San Francisco Fire Department (SSFFD).

The SSFFD has five fire stations located throughout South San Francisco. Station #62 is the closest station to the Project Area, located within a mile away at 249 Harbor Way. Station #62 provides all first response services to the East of US 101 area, and provides first response to any emergency in the Project Area.

The SSF General Plan Health and Safety Element does not identify a personnel-to-service population target ratio. The SSFFD staffing consists of emergency response, fire prevention and administrative personnel, with 87 total full-time equivalent and approximately 6 hourly and contract employees. There are a minimum of 20 on-duty emergency response personnel staffing each of three shifts.

Response time is defined as the time that elapses between the moment a call is received by dispatch and the moment when the first unit assigned to the call arrives at the scene. The goal is to arrive at emergency incidents within seven minutes after a 911 call is received, including a 4-minute travel time. Response time goals are generally met system-wide, but the 2017 Municipal Assessment notes that SSFFD is actively looking for an additional or alternative site for Station #62 in the East of 101 area because this station's location in the southwesterly portion of East of 101 makes it difficult to meet response goals in the northern and eastern parts of the East of 101 Area.[4]

Water Supply for Fire Fighting

Delivery of water to Genentech buildings for use in fire protection relies on the on-Campus domestic water distribution system. Additionally, several buildings within the Genentech Campus have additional water storage tanks and/or fire pumps installed for local pressure control.

Genentech First Alert

Genentech's private First Alert Team provides fire response services for emergencies, including medical, chemical and fire emergencies within the Genentech Campus. Emergency call phones are located throughout

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[2] http://www.measurewssfcivic.com/

[3] *2017 Oyster Point Specific Plan Update, Municipal Services Assessment* (MSA)- Draft Existing Conditions and Needs assessment Report, prepared for City of South San Francisco by Michael Baker International, November 2017, page 8

[4] 2017 Oyster Point Specific Plan Update MSA, page 7

the Genentech Campus and calls are routed to the Control Room Operator, who notifies the First Alert Team. If needed, the Control Room Operator also notifies outside emergency personnel such as the SSFPD.

Recreation

The South San Francisco Parks and Recreation Department manages parks and recreation centers within the city boundaries. According to the Municipal Services Assessment, there is an estimated 251 acres of parks and open space in the city. Community parks, neighborhood parks, mini-parks, specialty parks and linear parks collectively provide approximately 1.9 acres of developed parkland per 1,000 residents. Combined with open space and common green areas, there are approximately 3.9 acres of parks and open space per 1,000 residents. This ratio of parks and open space per 1,000 residents is greater than the General Plan standard of 3.0 acres per 1,000 residents. If jointly used school sites are included in the total park and open space calculations, the total parks and open space ratio increases to 5.4 acres per 1,000 residents.[5]

The nearest existing parks to the Project Area are the Jack Drago mini-park (located over a mile from the Project site) and the nearby Oyster Point Marina Park, which includes an open space/special use facility with walking trails, benches, picnic areas and marina-related services. All other park facilities are located west of US 101.

The Bay Trail connects the Genentech Campus to the broader San Francisco Bay regional park system. The Bay Trail is located within the generally 100-foot wide shoreline band around much of the San Francisco Bay, and is with the jurisdiction of the Bay Conservation and Development Commission (BCDC). Within the Campus, the Bay Trail traverses the entire Campus shoreline, providing panoramic views of the Bay and short-range views of natural vegetation.

Regulatory Setting

Federal

There are no federal regulations related to public services applicable to the proposed Project.

State

The California Fire Code contains regulations relating to construction and maintenance of buildings and the use of premises. Topics addressed in the Code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and other general and specialized fire safety requirements for new and existing buildings and premises. The Code also contains specialized technical regulations related to fire and life safety.

Local

The City's General Plan contains implementing policies regarding public services. Applicable policies include the following:

Police

The Health and Safety Element of the General Plan includes the following applicable Implementing Policy:

- **Policy 8.5-I-1**: Ensure adequate police staff to provide rapid and timely response to all emergencies and maintain the capability to have minimum average response times.

[5] 2017 Oyster Point Specific Plan Update MSA, page 11

- Actions that could be taken to ensure rapid and timely response to all emergencies include maintaining a law enforcement standard of 1.5 police officers per 1,000 residents;

Fire and Emergency Services

The Health and Safety Element of the General Plan includes the following applicable Guiding Policies:

- **Policy 8.4-G-1:** Minimize the risk to life and property from fire hazards in South San Francisco
- **Policy 8.4-G-2:** Provide fire protection that is responsive to citizens' needs.

The Health and Safety Element of the General Plan includes the following applicable Implementing Policies:

- **Policy 8.4-I-2**: Explore incentives or programs as part of the comprehensive fire hazard management program to encourage private landowners to reduce fire hazards on their property.
- **Policy 8.4-I-4**: Require site design features, fire retardant building materials, and adequate access as conditions for approval of development or improvements to reduce the risk of fire within the City.

City of South San Francisco Municipal Code

The City has adopted the California Fire Code as Chapter 15.24 of its Municipal Code.

City of South San Francisco East of 101 Area Plan

The East of 101 Area Plan includes the following:

- **Plan Goal 3.3**: Regulate growth in the East of 101 Area in accordance with the ability of the Police Department, Fire Department and other public agencies to provide adequate services.
- **Policy PF-1**: The City shallow allow development in the East of 101 Area only if adequate water supply to meet its needs can be provided in a timely manner.

Impacts and Mitigation Measures

Analytic Method

The analysis in this section focuses on whether the Project would necessitate construction of new facilities in order to provide public services at acceptable service standards, and whether construction of any such new public service facilities would result in potentially adverse environmental effects.

Thresholds of Significance

Based on the CEQA Guidelines, the Project would have a significant environmental impact if it were to cause:

1. Substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
   - fire and emergency services
   - police services
   - parks and other recreational facilities
2. Increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or

3. Substantial adverse physical impacts associated with the provision of new or physically altered recreation facilities, or the need for new or physically altered recreation facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios.

Buildout of the Project would not result in development of any new residential use, and would thus not create an increased demand for, or result in any impacts to libraries or schools. No impacts to library or school facilities would occur, and no additional analysis is required of these public services.

Police Services

Public Services 1: The Project would increase the number of employees in the Project Area over time, gradually increasing the demand for police within the Project Area. However, the Project is and will continue to be adequately served with police service from existing facilities or new facilities to be constructed per citywide efforts, and impacts related to police services would be less than significant. (**Less than Significant**)

The 2017 Municipal Services Assessment (or 2017 MSA) for South San Francisco provides incident rates, which can be used to estimate the number of incremental Police Department response calls that would result from buildout of the Project. The Project will result in an additional 4.3 million square feet of office/R&D building space at full buildout. Based on the MSA's identified incident rate of .0221 average annual calls per 1,000 square feet of office/R&D uses,[6] buildout of the Project could potentially result in approximately 95 more police response calls per year, or approximately 1 additional call every 4 days.

Under CEQA, an increased demand for public services is not a physical environmental impact. Rather, environmental impacts are those physical effects that may be associated with construction of new facilities needed to provide adequate services.[7] At a limited service demand of approximately 1 additional call every 4 days, the Project does not individually generate demand for a new police station. The Project would have a less than significant individual impact related to police services because no new police facilities (other than those already planned at the Community Civic Campus Project, see below) would be required.

Cumulative Effects

As noted in the Setting section above, the SSFPD operates from their main station (currently located at 33 Arroyo Drive), and a replacement police station is expected as part of the City's Community Civic Campus project, with construction planned for 2020 to 2022. The SSF Community Civic Campus Project was reviewed under its own EIR, which was certified by the City Council on December 13, 2017.[8] The new Community Civic Campus project is intended to improve broader citywide (or cumulative) public services to the City. No physical effects associated with construction of new police facilities needed to serve cumulative service demands would occur beyond those already considered pursuant to the Community Civic Campus Project EIR.

Regulatory Requirements

Regulatory Requirement Services 1: Public Safety Impact Fees: Genentech will be required to pay the City of South San Francisco's Public Safety Impact Fees as applicable at the time of new construction.

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[6] Oyster Point Specific Plan Update MSA, Table A-2, Appendix A.

[7] This interpretation of CEQA was reaffirmed specifically as it relates to fire stations in the case: City of Hayward v. Board of Trustees of the California State University (1st Dist., Div. 3 2015) 242 Cal.App.4th 833.

[8] Subsequent Environmental Impact Report for the City of South San Francisco Community Civic Campus Project (SCH# 1996032052), certified by SSF City Council December 13, 2017

Mitigation Measures

No mitigation measures for the Project are necessary. Required contributions to the City's Public Safety Impact Fees represent the Project's fair share of costs to provide citywide police services resulting from cumulative development. [9]

Fire and Emergency Medical Services

Public Services 2: The Project would increase the number of employees in the Project Area over time, gradually increasing the demand for fire and emergency medical services within the Project Area. However, the Project is and will continue to be adequately served with fire and emergency medical service from existing facilities or new facilities to be constructed per citywide efforts, and impacts related to fire and emergency medical services would be less than significant. (**Less than Significant**)

The 2017 MSA provides incident rates that can be used to estimate the number of incremental fire and emergency response calls that would result from buildout of the Project. Based on an additional 4.3 million sf of building space at full buildout of the Project and the MSA incident rate of .0338 average annual calls per 1,000 sf of Office/R&D,[10] full buildout of the Project would result in approximately 145 more firefighter/emergency response calls per year, or approximately one call every two or three days. This limited service demand would not individually generate the need for a new fire station to serve the Project. Additionally, Genentech's private First Alert Team provides supplemental fire response services for emergencies (including medical, chemical and fire emergencies) within the Genentech Campus. Emergency call phones are located throughout the Genentech Campus and calls are routed to the Control Room Operator, who notifies the First Alert Team. If needed, the Control Room Operator also notifies outside emergency personnel such as the SSFFD.

Cumulative Effects

Fire Station #62 serves the entire East of 101 Area from its location at 249 Harbor Boulevard. The 2017 Oyster Point MSA indicates that areas at the northerly and easterly portions of the East of 101 Area, including the easterly portions of the Project Area, are outside of a four-minute travel time from Fire Station #62. Cumulative development in the East of 101 Area (including the Project) is expected to necessitate relocation of Fire Station #62 to provide better response times to the entire East of 101 Area. A relocated Fire Station #62 could provide SSFFD with the ability to modify existing deployment to better support response time performance, which may be affected by traffic congestion or incident complexity. A relocated Fire Station would likely be similar in size as compared to the existing approximately 7,600 square foot Station #62, but would likely need to be configured to accommodate three apparatus bays and the ability to support an on-duty crew of seven personnel to meet modern operational and housing needs. Such a configuration would provide the opportunity to reconfigure existing fire company or ambulance deployment, which may include relocated or new personnel. Although there are no finalized plans for construction of a new fire station at this time, preliminary City planning efforts indicate that a new fire station site would need to be approximately ½ acre in size and more centrally located in the East of 101 Area than the current Station #62 site. It is reasonable to conclude that construction of such a new fire station would occur on a relatively small industrial infill site and would not be expected to result in individually significant environmental effects.

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[9] Pursuant to Anderson First Coalition v. City of Anderson (2005) [130 Cal.App.4th 1173], the appellate court held that paying a "fair-share fee" is permissible as effective mitigation if the fees are "part of a reasonable plan of actual mitigation that the relevant agency commits itself to implementing."

[10] Oyster Point Specific Plan Update MSA, Michael Baker International, December 2017

Regulatory Requirements

Regulatory Requirement Services 2A - Compliance with Fire Code: Individual projects pursuant to the Master Plan Update will be required to comply with the City's Fire Code (Chapter 15.24 of the Municipal Code), and the City Fire Marshall's code requirements regarding on-site access for emergency vehicles.

Regulatory Requirement Services 1 - Public Safety Impact Fees: Genentech will be required to pay the City of South San Francisco's Public Safety Impact Fees as applicable at the time of new construction.

Mitigation Measures

No Project-specific mitigation measures needed beyond payment of Public Safety Impact Fees. For cumulative environmental effects, it is unlikely that construction of a new fire station to be located on a small industrial infill site in the central portion of the East of 101 Area would result in any significant environmental effects requiring mitigation.

Pursuant to CEQA Guidelines Section 15131, the economic effects of a project shall not be treated as significant effects on the environment. However, "*economic or social information may be included in an EIR or may be presented in whatever form the lead agency desires*." In this case, the need for a new or relocated fire station to improve fire protection service and provide better response times to serve cumulative development throughout the entire East of 101 Area is unlikely to result in either direct or indirect environmental effects. The limiting factors involved in developing a new or relocated fire station are primarily economic, only.

Under the current development impact fee structure, the City of South San Francisco's Public Safety Impact Fees, which are payable at the time of new building permits, do not provide present-day funds in a timely manner to offset the near-term costs of a new fire station. Furthermore, the aggregate of Public Safety Impact Fees expected to be paid over time by new cumulative development, including the Project, are not likely sufficient to fund property acquisition and construction costs associated with a new or relocated fire station. As noted in the 2017 Oyster Point Municipal Services Assessment, "it is anticipated that the station [relocated Station #62] will be funded via a special tax district,[11] but no such special tax district is currently established. To provide needed funds for a new and/or relocated fire station, it is anticipated that the City will need to establish a Community Facilities District (CFD) pursuant to the Mello-Roos Community Facilities Act of 1982, providing for a special property tax to be levied on those properties in the East of 101 Area benefitting from a new or relocated fire station. These special taxes can be used to secure bonds issued for purposes of financing near-term construction of the fire station. Any special taxes levied through a CFD must be approved by two-thirds of the voters within such a district (i.e., two-thirds of the benefitting property owners within the East of 101 Area). An updated and increased Public Safety Impact Fee applicable to the East of 101 Area (or potential in-lieu contributions associated with property dedication) could also offset costs associated with construction and on-going fire protection and emergency response services needed to serve new cumulative development.

Recreation

Public Services 3: The Project would increase the number of employees in the Project Area over time, gradually increasing the demand for recreational space within or near the Project Area. However, the existing Campus contains substantial public and private open space areas, and the Project includes plans for increasing open spaces with plazas, pathways, and common open space to serve new

[11] Oyster Point Specific Plan Update MSA, Michael Baker International, December 2017, page 57

employees. Impacts related to recreational open space would be less than significant. (**Less than Significant**)

The Master Plan Update's Urban Design chapter includes a specific focus on open space and walkability, intended to strengthen the campus environment within the Project Area. These design elements include establishing an important outdoor area at the Upper Campus as an identifiable Campus center that connects the new Employee Center to other locations in the Project Area with pedestrian paths, interconnecting smaller open spaces within each neighborhood campus with a system of secondary pedestrian paths; and adding new outdoor spaces that complement each new building. The proposed pedestrian network is intended to provide a more integrated and walkable campus, and coordination of pedestrian connections with shuttle-bus stop locations will enhance neighborhood and Campus connectivity. The design of new pathways is intended to increase the coherence of the Campus with common elements such as trees, paving, seating and overlooks, and to offer choices for walking between and among neighborhood campuses. The pedestrian system also includes walkways that are recreational in nature, connecting to the Bay Trail and Wind Harp via pathways along hillsides and bluffs. This recreational element of the pedestrian network offers an additional realm of experience, accenting the natural setting and environment of the Campus.

Cumulative

Genentech and the Bay Conservation and Development Commission (BCDC) have entered into several permits that support on-going use of the Bay Trail by the public, on property within the Genentech Campus but subject to BCDC jurisdiction. Generally, these permits authorize Genentech to construct, use and maintain a public access trail (the Bay Trail) within the 100-foot band of BCDC jurisdiction along the Bay shoreline, inclusive of connecting trails, handicapped access, landscaping, site furnishings (including benches, garbage cans, picnic areas and BBQ grills), as well as public access parking spaces and public access signs.[12] These Bay Trail amenities provide benefits to Genentech employees, but also to the general public seeking open space and nature-based recreation.

Any changes or additions to the Bay Trail improvements within the Genentech Campus will be subject to BCDC consideration and approval of amended permit conditions. Through on-site provision of recreational opportunities, payment of in-lieu fees to support off-site recreational opportunities as required by SSF Municipal Code, and required BCDC jurisdictional permit approval processes, the Project will not result in significant environmental impacts related to parks or recreation facilities.

Regulatory Requirements

Regulatory Requirement Services 3 - Parkland Acquisition and Construction Fees: Genentech will be required to pay Parkland Acquisition and Construction fees pursuant to Chapter 8.67 of the SSF Municipal Code.

These fees are based on the average fair market value of land and average construction costs for improved parkland, at a ratio of one-half acre of parkland per one thousand new employees (using the current employment-based formula provided in SSFMC Section 8.67.060).

Mitigation Measures

No mitigation measures would be required beyond payment of Parkland Acquisition and Construction fees. The Parkland Acquisition and Construction fees are intended to offset the financial effects related to increased demand for parks and recreational facilities resulting from cumulative development.

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[12] BCDC Permit #MOS-9, August 24, 2006, and BCDC Permit Nos. 18-74(A) and 18-74(B) originally issued in January 1975 and as amended through December 2009 and recorded on January 14, 2010

Cumulative Effects on Public Services

Cumulative effects related to public services are fully addressed under the topics of police, fire protection and parks and recreation in Impacts Public Services 1, 2 and 3, above.

17
Transportation

This chapter of the EIR evaluates the potential impacts of the Master Plan Update (the Project) related to transportation. This chapter describes the existing conditions in and near the Project Area, evaluates the extent to which transportation and traffic conditions may be affected by implementation of the Project, and identifies mitigation measures, where needed, to address these potential impacts.

Information for the transportation and traffic analysis as presented in this EIR is primarily derived from the following sources:

- Genentech Master Plan Update, Transportation Impact Assessment, Fehr and Peers, July 2019 (**Appendix 17A**)
- Genentech Campus Mode Share and Parking Report, Nelson|Nygaard, Fall of 2017 (**Appendix 17B**)

Environmental Setting

This section describes the existing transportation and circulation setting near the Genentech Campus: the existing roadway network, intersection operating conditions, transit network and service, pedestrian conditions, and bicycle conditions.

Roadway Facilities

The Genentech Campus (Project Area) is located in South San Francisco, east of Highway 101 (US-101). Regional access to the Project Area is provided via US 101 and Oyster Point Boulevard to the north, and US-101 and East Grand Avenue to the south. **Figure 17-1** depicts the location of the Project Area and the surrounding regional transportation system. Local access to the Project Area is provided via Grand Avenue, Forbes Boulevard, Allerton Avenue and DNA Way. **Figure 17-2** shows the Project Area in relationship to the local roadway system.

Key local roadways near the Project Area are described below.

US-101

US-101 is an eight-lane freeway that extends from San Francisco south through San Mateo County and beyond. In South San Francisco, it is located approximately 1.2 miles west of the Genentech Campus. Within the study area, US-101 has northbound off-ramps at South Airport Boulevard at Wondercolor Lane, at East Grand Avenue/Executive Drive, and at Dubuque Avenue south of Oyster Point Boulevard. Northbound on-ramps are provided South Airport Boulevard at Wondercolor Lane, at Grand Avenue, and at Oyster Point Boulevard. Southbound off-ramps are provided at Oyster Point Boulevard/Gateway Boulevard, Airport Boulevard and Produce Avenue. Southbound on ramps are provided at Airport Boulevard north of Oyster Point Boulevard, on Dubuque Avenue and at Produce Avenue. Near the Project, US-101 carries about 220,000 vehicles per day.

Figure 17-1
Regional Transportation Routes

Figure 17-2
Project Area and Local Roadway System

Source: Fehr & Peers, 2019

I-380

I-380 is a two- mile, eight to ten lane east-west freeway connector between US-101 and I-280 in San Bruno and South San Francisco. I-380 terminates at South Airport Boulevard and North Access Road in South San Francisco. I-380 carries about 161,000 vehicles per day.

Oyster Point Boulevard

Oyster Point Boulevard extends east from US-101 as a six-lane arterial street to Harbor Way and Forbes Boulevard. It becomes four lanes east of Forbes Boulevard. Oyster Point Boulevard is the northern access route to the Campus and carries approximately 19,000 vehicles per day.

East Grand Avenue

East Grand Avenue is an east-west arterial street. It has six travel lanes west of Gateway Boulevard, and four travel lanes east of Gateway Boulevard and two travel lanes east of Haskins Way. US-101 freeway ramps at East Grand Avenue enable access to the campus from the south. East Grand Avenue carries about 17,000 vehicles per day.

Airport Boulevard

Airport Boulevard runs roughly parallel to US-101 in South San Francisco. Freeway ramps south of Grand Avenue provide alternate access to the Campus from the south. Airport Boulevard carries approximately 24,000 vehicles per day.

Gateway Boulevard

Gateway Boulevard is a four-lane arterial connecting East Grand Avenue with South Airport Boulevard and Oyster Point Boulevard. Gateway Boulevard carries approximately 12,000 vehicles per day.

South Airport Boulevard

South Airport Boulevard is a six-lane arterial that runs north/south roughly parallel to US-101, between the I-380 freeway ramps and Gateway Boulevard.

Forbes Boulevard

Forbes Boulevard is a four-lane street extending north from East Grand Avenue, then running east into the campus, forming the northern segment of the campus loop road. East of Allerton, Forbes Boulevard has two lanes and bicycle lanes.

Harbor Way

Harbor Way is a three-lane street extending south from East Grand Avenue, connecting to Mitchell Avenue and Utah Avenue.

Gull Road

Gull Road is a two-lane road connecting Oyster Point Boulevard with Forbes Boulevard. It has narrow bicycle lanes. Gull Road is signalized at its intersections with Oyster Point Boulevard and Forbes Boulevard.

DNA Way

DNA Way is a two-lane road connecting East Grand Avenue with Forbes Boulevard passing through the Genentech Campus.

Allerton Avenue

Allerton Avenue is a two-lane road connecting East Grand Avenue with Forbes Boulevard along the western edge of the Genentech Campus.

Cabot Road

Cabot Road is a two-lane road connecting DNA Way and Allerton Avenue.

Mitchell Avenue

Mitchell Avenue is a two-lane road connecting Harbor Way and Gateway Boulevard/South Airport Boulevard.

Utah Avenue

Utah Avenue is a four-lane east-west Street, connecting Airport Boulevard with Harbor Way and with East Grand Avenue via Littlefield Avenue. Littlefield Avenue is a two-lane north-south road.

Intersection Operations

Twenty-seven (27) study locations were selected for evaluation of the Project.[1] The study area for the traffic analysis was selected based on local traffic patterns, input from the City of South San Francisco and engineering judgment. The selection of these intersections captures the transportation facilities where motorists are most likely to experience impacts due to a net increase or diversion of trips associated with the Project. **Figure 17-3** shows the 27 Study Area intersections. **Figure 17-4** displays the existing traffic volumes for the AM and PM peak hours for those intersections, as well as existing lane configurations and traffic controls (signals, stop signs, etc.)

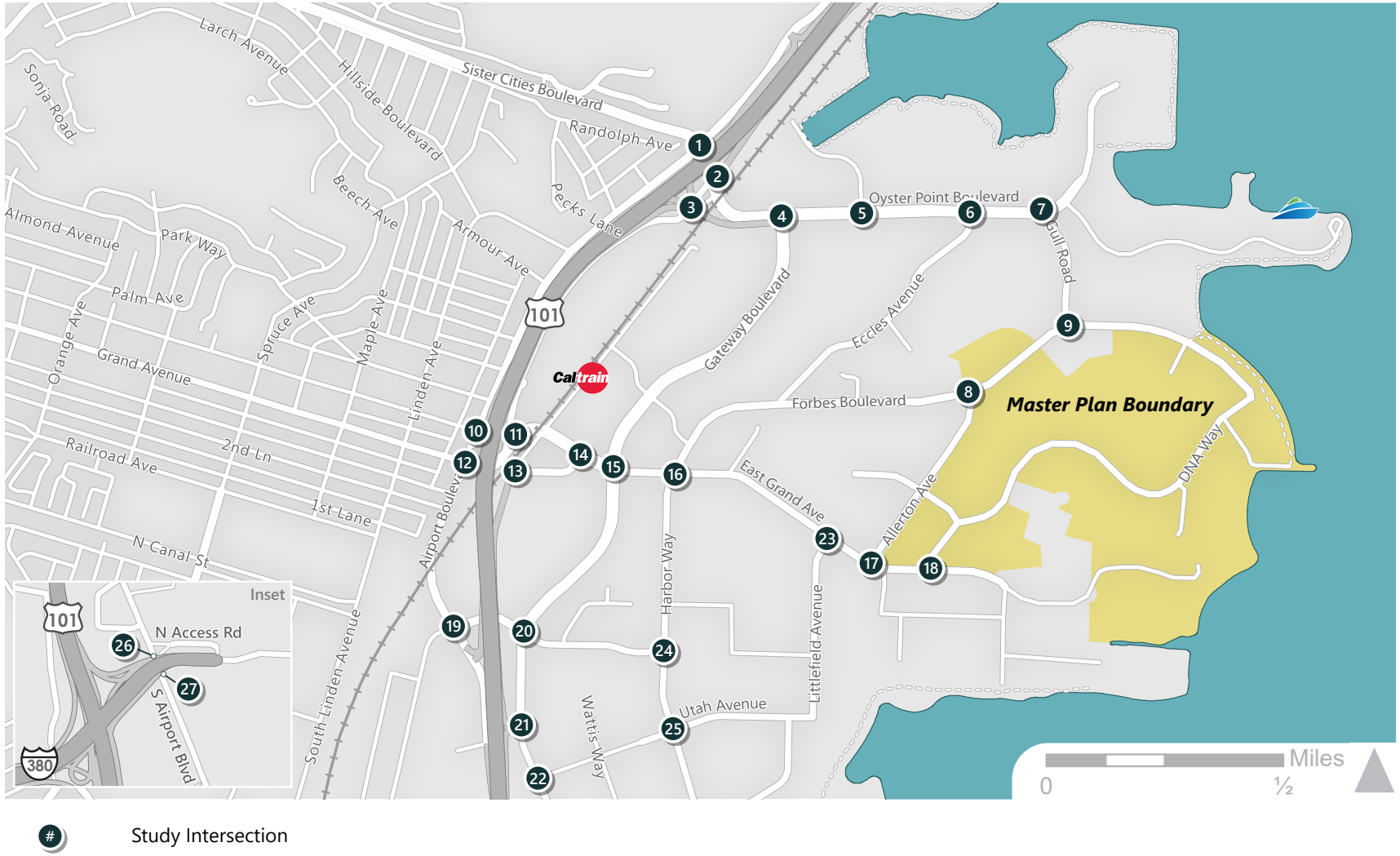
Table 17-1 presents the existing level of service conditions for the study area intersections. As shown in Table 17-1, all study intersections operate at acceptable level of service (LOS) in the AM and PM peak hour, except the following:

- East Grand Avenue/DNA Way (#18) operates at LOS F during the PM peak hour for the side street stop
- South Airport Boulevard/Mitchell Avenue/Gateway Boulevard (#20) operates at LOS F during the PM peak hour
- Utah Avenue/Harbor Way (#25) operates at LOS F during the AM peak hour

Additionally, two study intersections meet peak hour signal warrants under existing conditions:

- The intersection of East Grand Avenue/Allerton Avenue (#17) meets the peak-hour signal warrant during the PM peak hour.
- The intersection of East Grand Avenue/DNA Way (#18) meets the peak-hour signal warrant during the AM and PM peak hours.

[1] The intersection at Oyster Point Boulevard/Eccles Avenue (Intersection #6) consists of two coordinated signals offset from each other: the intersection at Oyster Point Boulevard and Eccles Avenue, as well as the signal at the driveway to 329-333 Oyster Point Boulevard. The reported delay reflects conditions at the worse operating of the two signals.



Study Intersection

Figure 17-3
Study Area Intersections

Source: Fehr & Peers, 2019

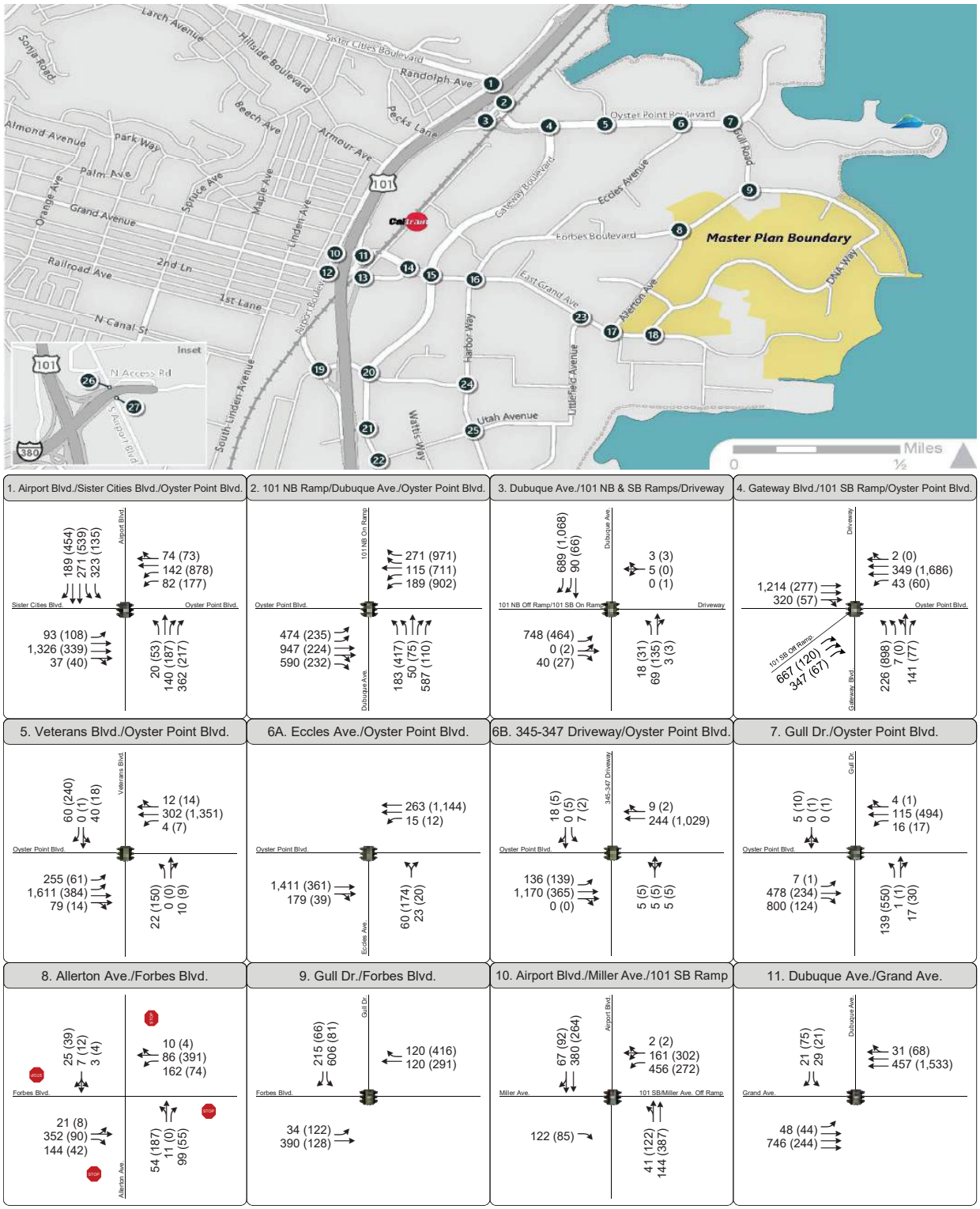


Figure 17-4
Peak Hour Traffic and Lane Configurations
Existing Conditions

Source: Fehr & Peers, 2019

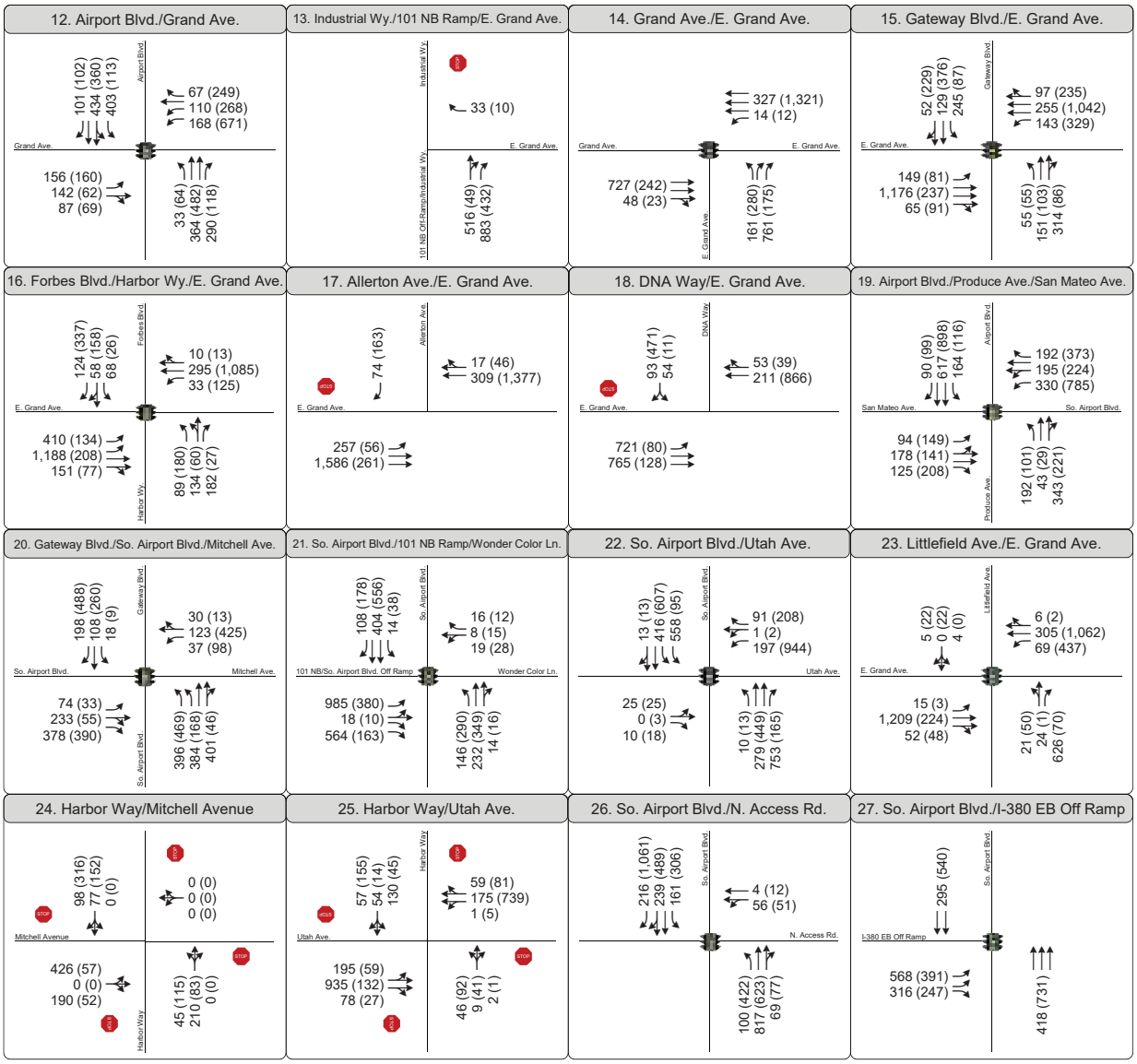


Figure 17-4B
Peak Hour Traffic and Lane Configurations
Existing Conditions

Source: Fehr & Peers, 2019

Table 17-1: Peak Hour Intersection Levels Of Service – Existing Conditions

	Intersection	Traffic Control	Peak Hour	Average Delay	LOS
1	Airport Boulevard/Sister Cities Boulevard/Oyster Point Boulevard	Signal	AM	26.5	C
			PM	52.8	D
2	Dubuque Avenue/101 NB On Ramp/Oyster Point Boulevard	Signal	AM	21.0	C
			PM	20.4	C
3	Dubuque Avenue/101 NB Off Ramp/101 SB On Ramp	Signal	AM	12.4	B
			PM	12.5	B
4	Oyster Pt. Boulevard/Gateway Boulevard	Signal	AM	36.0	D
			PM	28.2	C
5	Oyster Point Boulevard/Veterans Boulevard	Signal	AM	13.2	B
			PM	20.9	C
6	Eccles Avenue/Oyster Point Boulevard	Signal	AM	14.6	B
			PM	16.6	B
7	Gull Drive/Oyster Point Boulevard	Signal	AM	28.0	C
			PM	41.1	D
8	Allerton Avenue/Forbes Boulevard	AWSC	AM	13.6	B
			PM	16.2	C
9	Forbes Boulevard/Gull	Signal	AM	11.5	B
			PM	9.0	A
10	Airport Boulevard/Miller Avenue/101 SB Off Ramp	Signal	AM	29.0	C
			PM	39.2	D
11	Grand Avenue/Dubuque Avenue	Signal	AM	8.6	A
			PM	7.2	A
12	Airport Boulevard/Grand Avenue	Signal	AM	46.1	D
			PM	50.6	D
13	101 NB Off-Ramp/Industrial Way/Industrial Way/East Grand Avenue	SSYC	AM	12.2	B
			PM	8.6	A
14	East Grand Avenue/Grand Avenue	Signal	AM	7.2	A
			PM	7.4	A
15	Gateway Boulevard/East Grand Avenue	Signal	AM	23.2	C
			PM	52.1	D
16	Harbor Way/Forbes Boulevard/East Grand Avenue	Signal	AM	35.9	D
			PM	46.5	D

Table 17-1: Peak Hour Intersection Levels Of Service – Existing Conditions

	Intersection	Traffic Control	Peak Hour	Average Delay	LOS
17	East Grand Avenue/Allerton Avenue	SSSC	AM	9.7	A
			PM	25.6	D
18	East Grand Avenue/DNA Way	SSSC	AM	12.3	B
			PM	**71.5**	**F**
19	Produce Avenue/Airport Boulevard/San Mateo Avenue/So. Airport Boulevard	Signal	AM	40.8	D
			PM	41.7	D
20	South Airport Boulevard/Gateway Boulevard/Mitchell Avenue	Signal	AM	37.5	D
			PM	**>80**	**F**
21	South Airport Boulevard/101NB/South Airport Boulevard Off Ramp/Wonder Color Ln.	Signal	AM	28.9	C
			PM	38.3	D
22	South Airport Boulevard/Utah Avenue	Signal	AM	30.1	C
			PM	34.6	C
23	Grand Avenue/Littlefield Avenue	Signal	AM	45.6	D
			PM	14.9	B
24	Mitchell Road / Harbor Way	Signal	AM	31.5	D
			PM	11.5	B
25	Utah Avenue/Harbor Way	AWSC	AM	**68.4**	**F**
			PM	21.9	C
26	I-380 Westbound Ramp/South Airport Boulevard	Signal	AM	12.3	B
			PM	19.3	B
27	I-380 Eastbound Ramp/South Airport Boulevard	Signal	AM	24.2	C
			PM	29.6	C

Notes:

Bold indicates unacceptable LOS E or F, or meets peak hour signal warrants

Delay reported as seconds per vehicle.

LOS based on the methodology in the Highway Capacity Manual, 2010. Intersections 4, 6, 10, 11, 12, 26 and 27 were analyzed based on HCM 2000. For signalized and all-way stop controlled intersections, the delay shown is the weighted average for all movements in seconds per vehicle. For side-street stop controlled (SSSC) and side street yield controlled (SSYC) intersections, the delay shown is the worst operating approach delay.

Calculations based on weekday counts and signal timings provided by the City of South San Francisco from May 2016

Source: Fehr & Peers, 2019

Vehicle Queuing Distances

Table 17.2 presents vehicle queues near US-101 ramps. Existing queues exceed storage distances at the following intersections

- #2: Dubuque Avenue/101 NB On Ramp/Oyster Point Boulevard, during the AM peak hour
- #4: 101 SB Off Ramp/Gateway Boulevard/Oyster Point Boulevard, during the AM peak hour

- #12: Airport/Grand Avenue, during the AM peak hour
- #19: Produce Avenue/Airport Boulevard/San Mateo Avenue, during the AM and PM peak hour, and
- #26: I-380 Westbound Ramp/South Airport Boulevard, during the PM peak hour

Table 17.2 Existing Vehicle Queues Near US-101

Intersection		Storage Distance[1]	AM Peak Hour Existing	PM Peak Hour Existing
#1 Airport Boulevard/Sister Cities Boulevard/Oyster Point Boulevard				
SB	Left	320	130	70
SB	Through	320	110	220
SB	Right	320	60	220
#2 Dubuque Avenue/101 NB On Ramp/Oyster Point Boulevard				
NB	Left	260	80	150
NB	Through	260	50	70
NB	Right	240	190	10
EB	Left	170	**210**	100
EB	Through	240	**420**	100
EB	Right	240	60	50
WB	Left	500	100	370
WB	Through	900	100	620
WB	Right	500	30	150
#3 Dubuque Avenue/101 NB Off Ramp/101 SB On Ramp				
EB	Left/Through	260	220	140
#4 101 SB Off Ramp/Gateway Boulevard/Oyster Point Boulevard				
NEB	Through	3000	270	60
NEB	Right	350	**>350**	80
EB	Through/Right	900	640	100
#10 Airport Boulevard/Miller Avenue/101 SB/Miller Avenue Off Ramp				
WB	Left/Through	750	210	230
#12 Airport/Grand Avenue				
SB	Left	280	**>280**	120
SB	Through	280	**280**	170
SB	Right	280	50	50
#14 East Grand Avenue/Grand Avenue				
NB	Right	420	160	30
NB	Left	240	140	240

Table 17.2 Existing Vehicle Queues Near US-101

Intersection		Storage Distance[1]	AM Peak Hour Existing	PM Peak Hour Existing
#19 Produce Avenue/Airport Boulevard/San Mateo Avenue				
WB	Left	220	200	**420**
WB	Through	220	180	**240**
WB	Right	80	**90**	**120**
#20 South Airport Boulevard/ Gateway Boulevard				
EB	Left	130	100	40
EB	Through	500	360	100
EB	Right	500	150	60
#21 South Airport Boulevard/101 NB/South Airport Boulevard Off Ramp/Wondercolor Lane				
EB	Left/Through	750	730	250
EB	Right	750	150	30
#26 I-380 Westbound Ramp/South Airport Boulevard				
NB	Through	120	0	0
NB	Left	120	10	60
SB	Right	120	40	**340**
#27 South Airport Boulevard/I-380 EB				
EB	Left/Through	1000	180	160
SB	Through	120	30	40

Notes:
Storage Distance and Queues in feet per lane
Source: Fehr & Peers, 2019

Freeway Operations

Most vehicle trips to and from the Project site occur via US-101. The HCS software was used to analyze existing freeway operations at four segments:

- north of Oyster Point Boulevard (south of northbound exits 426B and north of southbound exit 425C)
- between Oyster Point Boulevard and Grand Avenue,
- between Grand Avenue and Produce Avenue, and
- south of Produce Avenue (south of northbound exit 424 and north of southbound exit 423B)

HCS analyzes mainline operations only; auxiliary lanes were not analyzed. **Table 17-3** presents existing level of service for freeway segments during the peak hours. All freeway segments near the Project site operate acceptably under existing conditions, except for US-101 northbound south of Produce Avenue in the AM peak hour.

Table 17-3: Peak Hour Freeway Segment Levels of Service – Existing Conditions

US 101 Segment					Existing		
Segment		Lanes	Capacity	Peak Hour	Volume	V/C	LOS
North of Oyster Point Boulevard	NB	4	9,600	AM	7,722	0.88	E
		4	9,600	PM	8,065	0.92	E
	SB	4	9,600	AM	8,553	0.97	E
		4	9,600	PM	7,212	0.82	D
Oyster Point Boulevard to Grand Avenue	NB	4	9,600	AM	7,717	0.88	E
		4	9,600	PM	7,332	0.83	D
	SB	4	9,600	AM	8,223	0.94	E
		4	9,600	PM	8,049	0.92	E
Grand Avenue to Produce Avenue	NB	5	12,000	AM	7,490	0.68	C
		5	12,000	PM	6,966	0.64	C
	SB	4	9,600	AM	7,614	0.87	D
		4	9,600	PM	7,473	0.85	D
South of Produce Avenue	NB	4	9,600	AM	**8,795**	**1.01**	**F**
		4	9,600	PM	7,066	0.81	D
	SB	5	12,000	AM	7,589	0.69	C
		5	12,000	PM	7,495	0.68	C

Notes:

V/C = Volume to Capacity Ratio

Bold indicates unacceptable LOS F

Existing volumes based on weekday counts of US-101 mainline from May 10-12 2016, retrieved via Caltrans Performance Measurement System (PeMS), with 100 percent volume observed. Freeway volumes balanced to match ramp counts provided by City of South San Francisco

Assumes a capacity of 2,400 vehicles per hour (vph) based on LOS E capacity for 70 mph freeways in HCM 2010

Analysis excludes northbound auxiliary lanes between I-380 and South Airport Boulevard, South Airport Boulevard and Grand Avenue, Grand Avenue and Oyster Point Boulevard, and Oyster Point Boulevard and Bayshore Boulevard. Analysis excludes southbound auxiliary lanes between Oyster Point Boulevard and Grand Avenue and between Produce Avenue and I-380.

Source: Fehr & Peers, 2019

Table 17-4 presents existing levels of service for freeway ramps during the peak hours. As shown, all study freeway ramps operate at acceptable LOS under existing conditions.

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Table 17-4: Peak Hour Freeway Ramp Levels of Service – Existing Conditions

		US 101 Ramp				Existing		
Interchange		Ramp Type	Lanes	Capacity	Peak Hour	Volume	V/C	LOS
Oyster Point Boulevard	NB	On Ramp	2 + 1 HOV	2,200	AM	793	0.36	B
					PM	1,226	0.56	C
		Off Ramp	1	1,500	AM	788	0.53	C
					PM	493	0.33	B
	SB	On Ramp	2	2,200	AM	694	0.32	B
					PM	1,024	0.47	B
		Off Ramp	1 + 1 HOV	1,500	AM	1,014	0.68	C
					PM	187	0.12	A
Grand Avenue	NB	On Ramp	1	2,000	AM	1,626	0.81	D
					PM	817	0.41	B
		Off Ramp	2	2,800	AM	1,399	0.50	B
					PM	481	0.17	A
	SB	Off Ramp	1	1,500	AM	619	0.41	B
					PM	576	0.38	B
Produce Avenue/South Airport Boulevard	NB	On Ramp	1	2,000	AM	262	0.13	A
					PM	483	0.24	A
		Off Ramp	2	2,800	AM	1,567	0.56	C
					PM	553	0.20	A
	SB	On Ramp	2	4,000	AM	1,126	0.28	A
					PM	1,943	0.49	B
		Off Ramp	1	1,500	AM	583	0.39	B
					PM	351	0.23	A

Notes:

V/C = Volume to Capacity Ratio

Bold indicates unacceptable LOS E or F

Existing volumes based on weekday counts from May 2016, provided by City of South San Francisco

Assumes an off-ramp capacity of 1,500 vph for one lane and 2,800 vph for two lane, based on HCM 2010; diamond on-ramp capacity of 2,200 vph for one lane and 4,000 vph for two lanes; and looped on-ramp capacity of 2,000 vph. On-ramp capacity may be limited by downstream congestion on mainline freeway segments, while off-ramp capacity may be limited by downstream congestion on surface streets and at intersections.

Source: Fehr & Peers, 2019

Transit

The Project Area is not directly served by a publicly operated regional rail, ferry or bus transit service. However, commuter rail service (Caltrain and BART), ferry service (WETA), and bus service (SamTrans) is provided to the greater vicinity of the Project Area. BART and Caltrain stations and the WETA ferry terminal are located outside of a comfortable half-mile walking distance, and no SamTrans bus service exists east of US-101 in South San Francisco. The Project Area therefore relies on supplementary public and private shuttle

services to connect employees on Campus with regional transit as well as employee residences and satellite park-and-ride lots. Existing local transit services are shown on **Figure 17-5** and are described in detail below.

Regional Public Transit Service

According to the 2017 Genentech South San Francisco Campus Mode Share and Parking Report, approximately 43 percent of Genentech employees commute by modes other than driving alone. Of those non-single occupant commutes, approximately 27 percent of Genentech employees commute via transit or shuttle services, totaling about 2,800 daily trips. The following transit services operate within South San Francisco and are accessible from the Project Area.

BART

BART provides regional rail service between the East Bay, San Francisco and San Mateo County, connecting between San Francisco International Airport and Millbrae Intermodal Station to the south, San Francisco to the north, and Oakland, Richmond, Pittsburgh/Bay Point, Dublin/Pleasanton and Fremont in the East Bay. The South San Francisco Station is located approximately four miles northwest of the Project at Mission Road and McLellan Drive. BART trains operate on 15-minute headways during peak hours and 20-minute headways during off-peak hours.

Caltrain

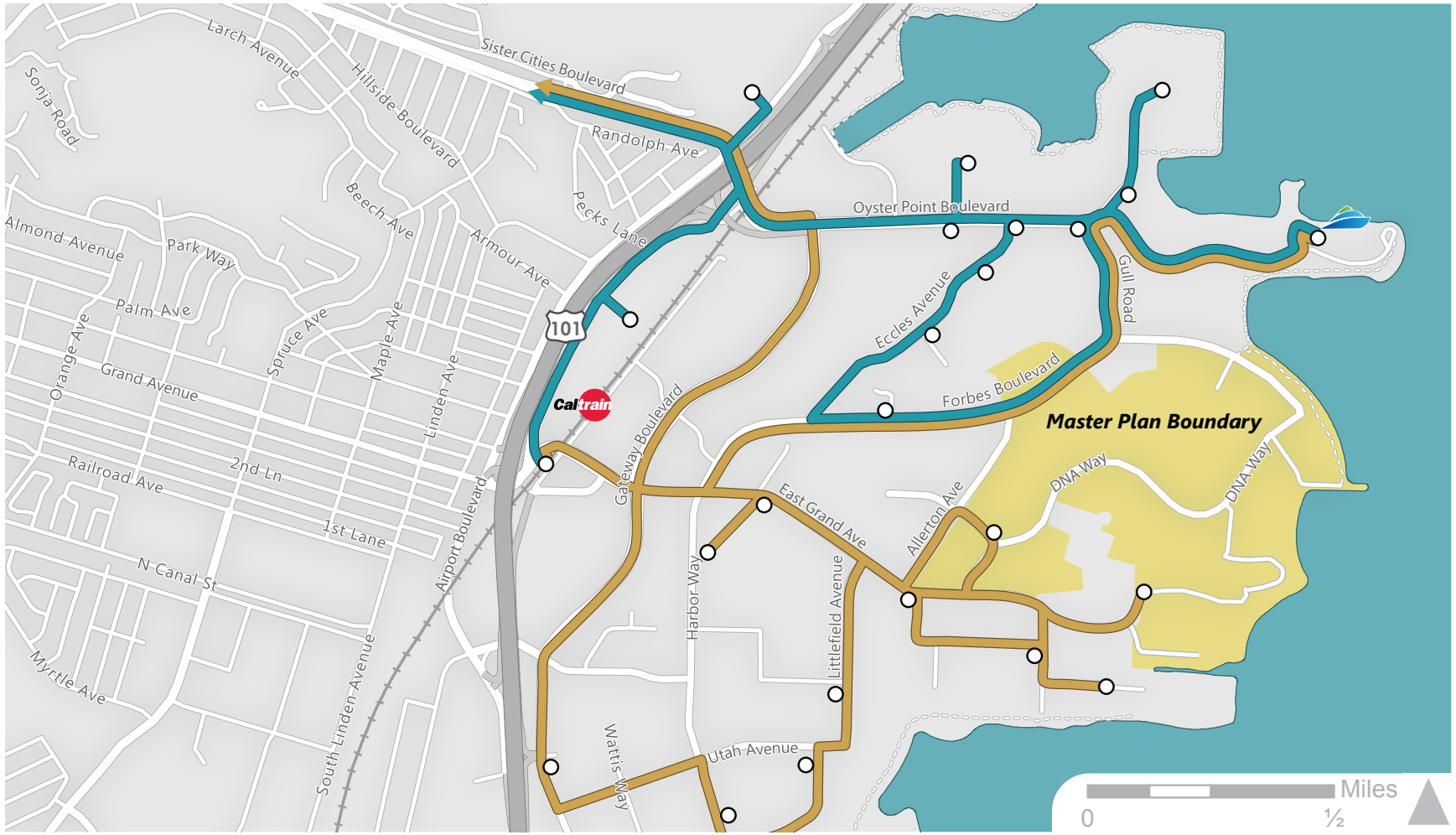
Caltrain provides passenger rail service on the Peninsula between San Francisco and San Jose, and limited service trains to Morgan Hill and Gilroy during weekday commute periods. The South San Francisco Caltrain Station is currently located approximately 1.5 miles west of the Project at 590 Dubuque Avenue, on the east side of US-101, immediately north of East Grand Avenue. By 2020, Caltrain plans to relocate the South San Francisco Caltrain Station several hundred feet to the south near the Grand Avenue/Airport Boulevard intersection. The South San Francisco Caltrain Station serves local and limited trains, with 23 northbound and 23 southbound weekday trains. The South San Francisco Caltrain Station provides weekday service from 5:40 AM to 12:00 AM, with 60-minute headways during off-peak times.

Water Emergency Transportation Authority

Water Emergency Transportation Authority (WETA) provides commuter ferry service between Oakland/Alameda ferry terminals and the South San Francisco Ferry Terminal at Oyster Point. There are three morning departures from Oakland/Alameda to South San Francisco, and three evening departures from South San Francisco to Oakland/Alameda.

San Mateo County Transit District

San Mateo County Transit District (SamTrans) provides bus and rail service (through Caltrain) in San Mateo County. Routes 292 and 297 stop about two miles from the Project site along South Airport Boulevard.



Oyster Point Shuttles

Utah-Grand Shuttles

Figure 17-5
Local Transit System Services

Source: Fehr & Peers, 2019

Peninsula Traffic Congestion Relief Alliance

Peninsula Traffic Congestion Relief Alliance (also known as Commute.org) provides shuttle service for first/last mile connections between BART and Caltrain stations and the WETA ferry terminal and local employers in the East of 101 Area. The Oyster Point shuttles connects Caltrain, BART and ferry riders to Oyster point, Forbes Boulevard and Eccles Avenue during peak commute hours, between 6:30 AM and 10:00 AM, and between 3:00 PM and 6:00 PM. The Utah-Grand shuttles connect Caltrain, BART and ferry riders to East Grand Avenue and Utah Avenue. This line provides service during peak commute hours, between 5:30 AM and 9:30 AM. Both shuttle services provide 30-minute headways. The nearest stops are located at the East Grand Avenue turnaround adjacent to Building 43 (served by the Utah-Grand area shuttles), Allerton Avenue/Cabot Road (served by the Utah- Grand area shuttles) and Forbes Boulevard/Carlton Court (served by the Oyster Point area shuttles).

Genentech Private Transit Services

Genentech operates over 20 commuter bus routes (GenenBus) for its employees who live throughout the San Francisco Bay area. GenenBus coaches connect employees from San Mateo, Santa Clara, San Francisco, Marin, Alameda, Contra Costa and Solano counties to the South San Francisco campus. GenenBus also provides first/last mile connections to the South San Francisco Ferry terminal, the Glen Park BART station, and the Millbrae BART/Caltrain station. GenenBuses serve peak commute periods and operate between the hours of 5:00 AM-10:00 AM and between 3:00 PM-8:00 PM at 45- to 90-minute headways for regional service and 15-25 minutes for first-/last-mile shuttles to BART and Caltrain.

Genentech also operates seven intra-campus shuttle (DNA Shuttle) routes for employees to travel between campus buildings as well as to parking and GenenBus stops. The DNA Shuttle connects the Upper Campus, Lower Campus, Mid Campus, South Campus, West Campus and Gateway Campus areas. DNA Shuttles operate between the hours of 6:00 AM and 7:30 PM at 5- to 10-minute headways.

Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, trails and pedestrian signals.

Outside of the Project Area

West of US-101, Downtown South San Francisco has a dense street grid and is generally walkable. Sidewalks are provided on all streets. East Grand Avenue has several special pedestrian treatments, such as mid-block crosswalks, special pavement markings at crosswalks, curb extensions and pedestrian scale lighting to make the street more attractive.

East of US-101, the larger street grid and wider streets results in less walkable conditions. Many of the wider streets in the East of 101 area have long pedestrian crossings that are a challenge for pedestrians to navigate, particularly crossing US-101. Several pedestrian improvements are planned in the East of 101 area. The South San Francisco Downtown Station Area Plan calls for a pedestrian and bicycle rail crossing underpass connecting the Grand Avenue/Airport Boulevard intersection to the new Caltrain station. The South San Francisco Pedestrian Plan calls for the closure of sidewalk gaps in the area, prioritizing Forbes Boulevard, Allerton Avenue and East Grand Avenue.

Within the Project Area

On-street pedestrian facilities along the periphery of the Project Area range in condition and are sometimes absent. Sidewalks are generally narrow and lack street trees or landscape buffers from traffic. Sidewalk gaps are present along several streets within or adjacent to the Project Area boundary. These sidewalk gaps exist along portions of the east side of Allerton Avenue between East Grand Avenue and Cabot Road, the south

side of East Grand Avenue east of Haskins Way, the south side of Forbes Boulevard near Gull Road and west of Allerton Avenue, and the west side of Gull Road between Oyster Point Boulevard and Forbes Boulevard.

Within the Project Area boundary, pedestrian activity is most heavily concentrated around the Upper Campus, while the Lower Campus, Mid Campus and South Campus experience pockets of high pedestrian activity. Several pedestrian crossings are provided across DNA Way, Forbes Boulevard and East Grand Avenue at signalized intersections and mid-block to facilitate a walkable campus. Many of these crosswalks include enhancements such as bulb outs, high-visibility crosswalks, Rapid-Rectangular Flashing Beacons and median refuges. Walkways and stairways are provided to connect campus neighborhoods, buildings and courtyards.

A segment of the San Francisco Bay Trail is located along the eastern edge of the Project Area boundary and runs adjacent to the San Francisco Bay shoreline. The Bay Trail is a public pedestrian and bicycle trail that is planned to extend around the entire San Francisco Bay. To the north of the Project Area boundary, the Bay Trail connects to the South San Francisco Ferry Terminal. Currently, there are gaps in the Bay Trail to the north of Brisbane and just south of South San Francisco, but the Bay Trail is complete throughout South San Francisco and through the Project Area.

Bicycle Facilities

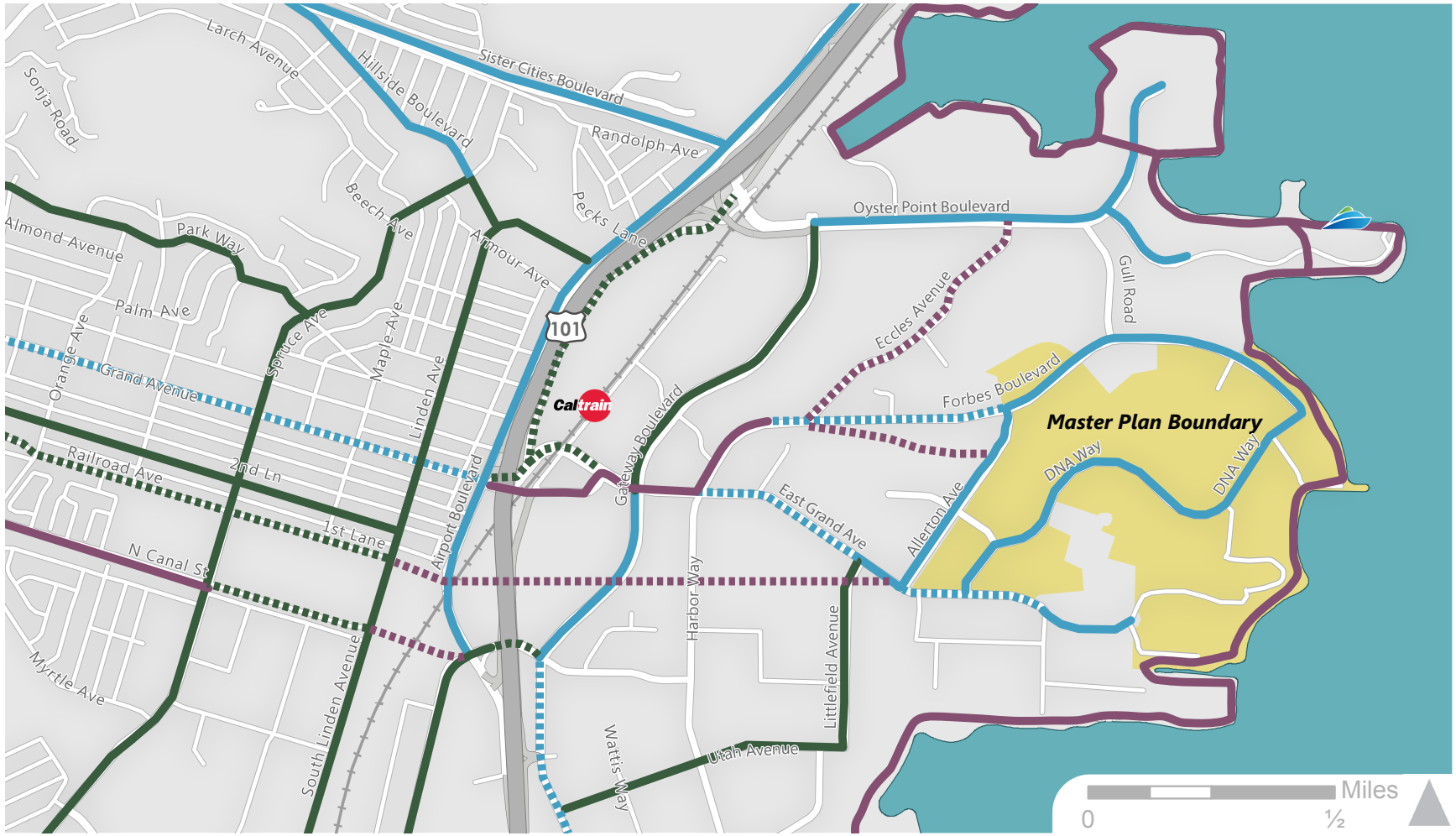
Bicycle facilities consist of separated bikeways, bicycle lanes, routes, trails, and paths, as well as bike parking, bike lockers, and showers for cyclists. On-street bicycle facilities are generally grouped into four categories:

- Class I: Provides a completely separated right-of-way for the exclusive use of cyclists and pedestrians with cross-flow minimized (e.g., off-street bicycle paths).
- Class II: 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: Provides for shared use with motor vehicle traffic; however, are often signed or include a striped bicycle lane.
- Class IV: Provides a right-of-way designated exclusively for bicycle travel adjacent to a roadway and protected from vehicular traffic. Types of separation include, but are not limited to, grade separation, flexible posts, inflexible physical barriers or on-street parking.

Outside of the Project Area

Approximately one to two percent of Genentech workers bike to work, and some transit riders use bicycles as means of accessing the Project Area from BART, Caltrain and the ferry terminal. Commute lengths, lack of continuous low stress bicycle facilities, and topography present barriers to bicycling.

Near the Project Area, the bicycle network is only partially complete. Current on street bicycle in the area, but outside the Project boundaries (as designated by the South San Francisco Bicycle Master Plan (2011)), are shown **in Figure 17-6** and are discussed below.



Bike Path/Trail
Proposed Bike Path/Trail
Bike Lane
Proposed Bike Lane
Bike Route
Proposed Bike Route

Figure 17-6
Local Bicycle and Trail Facilities

Source: South San Francisco Bicycle Master Plan, Fehr & Peers, 2019

- East Grand Avenue has Class II bike lanes between Littlefield Avenue and Allerton Avenue and between Haskins Way and the South Campus entrance; Class II bike lanes are planned for the remainder of East Grand Avenue and Grand Avenue.
- The San Francisco Bay Trail is a Class I facility along the Bayfront perimeter of Oyster Point and Point San Bruno, part of a planned 400-mile regional trail system.
- Oyster Point Boulevard and Sister Cities Boulevard have Class II bike lanes, except along the US-101 overcrossing where facilities are planned.
- Gateway Boulevard has Class II bike lanes between East Grand Avenue and Airport Boulevard.
- Airport Boulevard has Class II bike lanes between Miller Avenue and Sister Cities Boulevard.

Bicyclists primarily access the Project Area via East Grand Avenue, Oyster Point Boulevard and the San Francisco Bay Trail.

The City of South San Francisco Bicycle Master Plan identifies a number of planned bicycle improvements near the Project Area, including the closure of bike lane gaps along East Grand Avenue and Forbes Boulevard, and the addition of new Class I bike trails along railroad corridors paralleling East Grand Avenue and Forbes Boulevard. The South San Francisco Downtown Station Area Plan calls for a pedestrian and bicycle rail crossing underpass across US 101 and the Caltrain corridor, connecting Downtown South San Francisco and the West of 101 area to the new Caltrain station and East of 101 area. This underpass is being implemented as part of the new and upgraded Caltrain station, currently under construction.

Within the Project Area

Current on-street bicycle facilities in the Project Area (as designated by the South San Francisco Bicycle Master Plan of 2011), are generally complete:

- DNA Way has Class II buffered bike lanes between East Grand Avenue and Forbes Boulevard.
- East Grand Avenue has Class II bike lanes between Littlefield Avenue and Allerton Avenue and between Haskins Way and the South Campus entrance; Class II bike lanes are planned for the remainder of East Grand Avenue and Grand Avenue.
- Forbes Boulevard has Class II buffered bike lanes between Allerton Avenue and DNA Way.
- Allerton Avenue has Class II buffered bike lanes between Forbes Boulevard and East Grand Avenue.
- The San Francisco Bay Trail is a Class I facility, and is complete along the Bayfront perimeter of the Project Area.

The Project Area includes approximately 300 bicycle parking spaces, including bike lockers, bike cages, and bike racks. Bicycle parking is provided at most buildings around the Genentech Campus. Several internal pathways within the Project Area are accessible to bicyclists, such as a multi-use path that parallels Forbes Boulevard, and the Bay Trail.

Regulatory Setting

The City of South San Francisco has jurisdiction over all local City streets and City-operated traffic signals within the study area. Several regional agencies, including C/CAG, the Congestion Management Agency in San Mateo County and the Metropolitan Transportation Commission (MTC), coordinate and establish funding priorities for intra-regional transportation improvement programs. Freeways serving South San Francisco (US 101, I-380 and I-280), associated local freeway ramps and local surface highway segments are under the jurisdiction of the State of California Department of Transportation (Caltrans). Transit service providers such

as BART, Caltrain, SamTrans, and WETA (ferry service), have jurisdiction over their respective services. These agencies, their responsibilities and funding sources are more specifically described below.

Federal

Many, if not most of the regionally serving transportation projects and programs in the area rely on some level of federal funding. The primary sources of federal funds are MAP-21 and its successor programs, and the Fixing America's Surface Transportation (FAST) Act.

Moving Ahead for Progress in the 21st Century Act

The Moving Ahead for Progress in the 21st Century Act (MAP-21, P.L. 112-141), was signed into law in July of 2012. MAP-21 is the first long-term highway authorization enacted since 2005, and provides funding for surface transportation programs. MAP-21 is a milestone for the U.S. economy and the nation's surface transportation program. MAP-21 creates a streamlined and performance-based surface transportation program, and builds on many of the highway, transit, bike, and pedestrian programs and policies previously established. To allow time for development and consideration of a long-term reauthorization of surface transportation programs, Congress enacts short-term extensions of MAP-21.

Fixing America's Surface Transportation Act

Fixing America's Surface Transportation (FAST) Act was signed into law in December 2015, which authorizes funding for highways, highway and motor vehicle safety, public transportation, rail, and research and technology programs, and provides a dedicated source of federal dollars for freight projects. The FAST Act expands the scope of consideration of the metropolitan planning process to include consideration of intercity transportation (including intercity buses, intercity bus facilities and commuter vanpool providers).

State

State Transportation Improvement Program

The State Transportation Improvement Program (STIP) is the main process for short-term programming and funding of transportation projects in California, and is developed and adopted by the California Transportation Commission. Much of the federal and State funding for individual transportation projects is dependent upon those projects being included in the STIP.

Bay Area Region

Regional Transportation Plan

The regional transportation planning agency and Metropolitan Planning Organization (MPO) for the nine-county Bay Area region is the Metropolitan Transportation Commission (MTC). MTC is the authorized clearinghouse for State and federal transportation improvement funds. Each of the region's Congestion Management Agencies (CMAs) forwards proposed capital improvement project lists to MTC, which reviews these lists and prepares a regional priority list to the California Transportation Commission (CTC) and/or the Federal Highway Administration (FHWA) for selection of projects to receive funding. Funded projects are then included in the Regional Transportation Plan (RTP) prepared by MTC. The RTP developed by the MTC is subsequently incorporated into the larger Statewide STIP.

The current RTP for the Bay Area region is *Plan Bay Area 2040* (PBA 2040), which was jointly approved by the ABAG Executive Board and by MTC in July 2017. PBA 2040 includes the region's year 2040 RTP and the Bay Area region's Sustainable Communities Strategy (SCS) and represents the latest iteration of a regional planning process that has been in place for decades. PBA 2040 is a state-mandated, integrated long-range transportation, land-use and housing plan intended to support a growing economy, provide more housing

and transportation choices, and reduce transportation-related pollution in the nine-county San Francisco Bay area. PBA 2040 is also subject to the requirements of California Senate Bill 375, which requires the RTP to be much more tightly interwoven with regional housing, jobs and land use projections. The intent of PBA 2040 is to create a long-range plan that demonstrates how the transportation network and land use development can work together to reduce greenhouse emissions and create more complete, livable, sustainable communities with sufficient affordable housing, more transportation choices and easier access to vital services and amenities, such as public transit, shopping, schools, parks, recreation, health care and more.

Regional Transportation Improvement Plan

The Regional Transportation Improvement Plan (TIP) lists MTC's near-term transportation projects, programs and investment priorities for the region's surface transportation system that have a federal interest, along with locally and state-funded projects that are regionally significant. The TIP signifies the start of implementation of the programs and policies approved in the Bay Area's long-range transportation plan. It does this by identifying specific projects over a four-year timeframe that will help move the region toward its transportation vision. Locally funded transit operations and pavement maintenance are generally not included in the TIP.

The Bay Area's 2017 TIP includes approximately 700 transportation projects, and a total of approximately $6.3 billion in committed federal, state, regional and local funding over the four-year TIP period through fiscal year 2020. Regional Transportation Improvement Plan (RTIP) includes, but is not limited to the following major transportation projects within San Mateo County:

- **US 101 and Interstate 280 corridors**: Various interchange improvements are considered under the RTIP. The County share of the STIP is programmed for improvements to the US 101/Willow Road interchange and the US 101/ SR 92 interchanges. Due to the limitation for expansion, most improvements in these corridors will be for improved operations and management of the existing system.
- **SR 92 corridor**: Projects focusing on the Route 92 corridor include operational improvements at the Route 92/ Route 82 (El Camino Real) interchange, and operational improvements for the US 101/ Route 92 interchange where conditions are extremely congested.
- **Caltrain Modernization**: The Caltrain Modernization Program, scheduled to be operational by 2020, will electrify and upgrade the performance, operating efficiency, capacity, safety and reliability of Caltrain's commuter rail service. In the future, the infrastructure developed as part of the Caltrain Modernization Program will also accommodate California's statewide high-speed rail service. Caltrain and high-speed rail will primarily share Caltrain's existing tracks, operating on a blended system. The Caltrain Modernization Program includes the electrification of the existing Caltrain corridor between San Francisco and San Jose; the installation of an advanced signal system that includes federally mandated safety improvements; and the replacement of Caltrain's diesel trains with high-performance electric trains called Electric Multiple Units.
- **Caltrain State of Good Repair Program**: The Caltrain SOGR program includes a number of projects with the shared goal of maintaining efficient and reliable railroad operations. These include replacing and rehabilitating track and related civil structures, as well as signal and communication equipment that have reached the end of their useful lives. The SOGR program also includes station rehabilitation and improvements, ongoing rehabilitation of existing Caltrain rolling stock, and periodic assessment of the entire route to ensure the rail system is maintained in a state of good repair and is kept in good working order.
- **Alternative Modes of Transportation**: The 2017 TIP includes funding for pedestrian enhancement projects, bicycle route improvement projects and safe routes to school educational projects in various locations throughout San Mateo County. These projects promote alternative transportation

modes and improve pedestrian and bicyclists safety. Example projects include transit accessibility improvements for bicyclists and pedestrians, pedestrian facility enhancements, and improvements to the countywide bicycle network.

- **SR 82 Complete Streets Project in South San Francisco**: The 2017 TIP includes funding to develop a major complete streets project on the El Camino Real Highway, which strives to establish a balance between transportation modes by providing bike and pedestrian enhancements in support of the Grand Boulevard concept.

San Francisco Bay Trail Plan

The San Francisco Bay Trail Plan (Association of Bay Area Governments 1989) and Enhanced San Francisco Bay Area Water Trail Plan (California Coastal Conservancy 2011) provide guidance to the development of a shared-use bicycle and pedestrian path that will in the future allow continuous travel around the San Francisco Bay.

County/Multi-County Plans and Programs

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 authorized to set State and federal funding priorities for improvements affecting the San Mateo County Congestion Management Program (CMP) roadway system. The CMP roadway system components in South San Francisco include U.S. 101, I-280, and SR 82 (El Camino Real). C/CAG also reviews transportation impact analyses included in environmental clearance documents for land use applications prepared by jurisdictions in San Mateo County to ensure that impacts to the CMP Roadway System are adequately addressed. Although State law no longer requires congestion management programs, San Mateo County (like all other counties in the Bay Area), has opted to continue with its CMP.

C/CAG has set the level of service standards for US 101 segments near the Specific Plan site, and has adopted guidelines to reduce the number of net new vehicle trips generated by new developments. These guidelines apply to all developments that generate 100 or more net new peak-hour vehicular trips on the CMP network and are subject to CEQA review. The goal of the guidelines is that the developer and/or tenants will reduce the demand for all new peak hour trips (including the first 100 trips) projected to be generated by the development.

San Mateo Transportation Authority

The San Mateo County Transportation Authority was formed in 1988 with the passage of the voter-approved half-cent sales tax for countywide transportation projects and programs, known as Measure A. In 2004, county voters overwhelmingly approved a reauthorization of Measure A through 2033. The Transportation Authority's role is to administer proceeds from Measure A taxes to fund a broad spectrum of transportation-related projects and programs. The TA is an independent agency and is governed by an appointed board of seven directors, who are elected officials, representing the county, cities and the San Mateo County Transit District. The San Mateo County Transportation Authority (TA) has developed the *Strategic Plan 2014-2019* that outlines the vision, goals and implementation procedures for Measure A funds over the next five years. The final *Strategic Plan 2014-2019* was adopted by the TA Board on Dec. 4, 2014.

San Mateo County Transit District / Measure W

The San Mateo County Transit District (District) is the administrative body for the principal public transit and transportation programs in San Mateo County. These programs include SamTrans bus service (including Redi-Wheels paratransit service), Caltrain commuter rail and the San Mateo County Transportation Authority. Caltrain and the TA have contracted with the District to serve as their managing agency, under the direction

of their boards of directors. In November 2018, the voters of San Mateo County approved Measure W, which imposes a one half-cent sales tax on all qualified retail transactions in San Mateo County, both in the incorporated and unincorporated areas, for a period of 30 years. The proceeds from this measure are to be used to pay for transportation-related improvement projects throughout the County as specified in the District's Congestion Relief Plan. Proceeds must be invested in five identified transportation-related categories including: highway projects throughout the County; major arterial and local roadway improvements in key congested areas; bicycle, pedestrian and active transportation projects; infrastructure and services designed to improve transit connectivity; and support for operations and capital needs of public transit services (including SamTrans bus and paratransit services, and Caltrain).

Peninsula Corridor Joint Powers Board

The Peninsula Corridor Joint Powers Board (Board) owns and operates Caltrain. The Board consists of representatives from San Francisco, San Mateo and Santa Clara counties. Caltrain's *Strategic Plan* establishes a common vision for the agency, and frames key policy, service and investment decisions. The most recent Strategic Plan was adopted by the Board on September 4, 2014.

Pursuant to the Strategic Plan, the San Mateo County Transportation Authority's (TA) Board of Directors authorized funds to rebuild the South San Francisco Caltrain Station and awarded a contract for the South San Francisco Station Improvement Project. Construction on the project is underway. Caltrain, in coordination with the City of South San Francisco, is preparing to replace the existing South San Francisco Station with a new center boarding platform connecting to a pedestrian underpass. The pedestrian underpass will allow passengers to access trains without crossing on the rails. Moving the station south of its current location allows for a wider center boarding platform as well as additional improvements that enhance the value of the station. The new underpass will meet American Accessibility Act standards. A new parking lot on the east side of the station will facilitate dropping off and picking up employees in the nearby biotech hub and a plaza that connects the station to Grand Avenue and downtown South San Francisco.

City of South San Francisco

The City of South San Francisco is responsible for planning, constructing and maintaining local public transportation facilities, including all City streets, City-operated traffic signals, sidewalks and bicycle facilities. These local services are funded primarily by gas-tax revenue and developer Impact Fees.

City of South San Francisco General Plan Transportation Element

The City of South San Francisco General Plan (1999) defines transportation and land use policies for the City. The General Plan strives to manage traffic congestion and encourage riding transit, walking, and biking. Transportation Element policies specifically relevant to the Project include:

Street System Standards:

- ***Policy 4.2-G-1:*** Undertake efforts to enhance transportation capacity, especially in growth and emerging employment areas such as in the East of 101 area
- ***Policy 4.2-G-5***: Use the South San Francisco Downtown Station Area Specific Plan as a guide for detailed implementation of General Plan transportation policies for the Downtown Station Area. (Amended by City Council, 2015)
- ***Policy 4.2-G-8***: Use the Bicycle Master Plan to identify, schedule, and implement roadway improvements that enhance bicycle access. (Amended by Resolution 26-2014, adopted February 12, 2014)

- ***Policy 4.2-G-9***: Use the Pedestrian Master Plan to identify, schedule, and implement roadway improvements that enhance pedestrian access (Amended by Resolution 26-2014, adopted February 12, 2014)
- ***Policy 4.2-G-10***: Make efficient use of existing transportation facilities and, through the arrangement of land uses, improved alternate modes, and enhanced integration of various transportation systems serving South San Francisco, strive to reduce the total vehicle-miles traveled.
- ***Policy 4.2-G-12***: Provide fair and equitable means for paying for future street improvements including mechanisms such as development impact fees. (Amended by City Council Resolution 98-2001, adopted September 26, 2001)
- ***Policy 4.2-G-13***: Strive to maintain LOS D or better on arterial and collector streets, at all intersections, and on principal arterials in the CMP during peak hours.
- ***Policy 4.2-G-14***: Accept LOS E or F after finding that (1) there is no practical and feasible way to mitigate the lower level of service; and (2) uses resulting in the lower level of service are of clear, overall public benefit.
- ***Policy 4.2-G-15***: Exempt development within one-quarter mile of a Caltrain or BART station, or a City-designated ferry terminal, from LOS standards.
- ***Policy 4.2-I-6***: Incorporate as part of the City's Capital Improvement Program (CIP), needed intersection and roadway improvements to enhance mobility in the East of 101 Area. These improvements shall include consideration of bike lanes and pedestrian routes. The East of 101 Traffic Study, prepared by the City in April 2001, identifies improvements that would result in better traffic flow and a reduction of congestion during peak hours. Improvements have been proposed and evaluated at the following intersections:
    - Bayshore Boulevard and US 101 South Hook Ramp(s)
    - Bayshore Boulevard and Sister Cities/Oyster Point Boulevard
    - Dubuque Avenue and Oyster Point Boulevard
    - Eccles Avenue and Oyster Point Boulevard
    - Gull Drive and Oyster Point Boulevard
    - Airport Boulevard and Miller Avenue/US 101 Southbound off-ramp
    - Airport Boulevard and Grand Avenue
    - Dubuque Avenue and East Grand Avenue
    - DNA Way and East Grand Avenue
    - Forbes Boulevard/Harbor Way and East Grand Avenue
    - East Grand Avenue and Grandview Drive
- ***Policy 4.2-I-7a***: Establish a traffic improvement fee to fund transportation improvements in the East of 101 area. The fee should be updated to also fund enhancements to pedestrian and bicycle infrastructure, consistent with the objectives of the Bicycle Master Plan and Pedestrian Master Plan (Amended by City Council Resolution 98-2001 and 27-2014)
- ***Policy 4.2-I-9***: Where appropriate, consider up-fronting portions of improvement costs where the City's economic development interests may be served.

Alternative Transportation Systems and Parking

- ***Policy 4.3-I-16***: Favor Transportation Systems Management programs that limit vehicle use over those that extend the commute hour.
- ***Policy 4.3-I-18***: Establish parking standards to support trip reduction goals by (1) allowing parking reductions for projects that have agreed to implement trip reduction methods, such as paid parking, and for mixed-use development, and (2) requiring projects larger than 25 employees to provide preferential parking for carpools and vanpools.

Transit Policies:

- ***Policy 4.4-I-1***: Develop a Downtown multi-modal transit center southeast of the Grand Avenue/Airport Boulevard intersection, with a relocated Caltrain Station as its hub.
- ***Policy 4.4-I-2***: Ensure that detailed plans for the multi-modal center include direct pedestrian access from Downtown; shuttle drop-offs and pedestrian access from businesses east of the station; Sam-Trans bus and taxi drop-off patrons from bus routes along Airport Boulevard; and clear visibility from Downtown and Grand Avenue.
- ***Policy 4.4-I-4***: Encourage SamTrans to increase the shuttle or bus-service to East of 101 Area to serve the area's growing employment base. This area is a major employment center and has the largest employers in North San Mateo County.
- ***Policy 4.4-I-5:*** As part of any revisions to the Oyster Point Marina Specific Plan, explore the feasibility of providing or reserving site for a ferry terminal.

Transportation Demand Management

Transportation Demand Management (TDM) programs are provided by employers to reduce the amount of peak period traffic by encouraging their employees to use modes other than the single-occupant automobile for transportation to the workplace and to travel during non-peak times. The largest increases in work-related trip diversion to alternative modes are likely to be through carpooling and employer shuttle programs, on which TDM efforts should be focused. The General Plan establishes an incentives-based land use program with density bonuses for projects meeting identified TDM objectives that do not discriminate between small and large employers.

South San Francisco Complete Streets Policy

The City of South San Francisco adopted its Complete Streets Policy (2012) to serve all street users.

- ***Resolution 86-2012***: Create and maintain complete streets that provide safe, comfortable, and convenient travel along and across streets including streets, roads, highways, bridges, and other portions of the transportation system through a comprehensive, integrated transportation network that serves all categories of users, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods, users and operators of public transportation, seniors, children, youth, and families

City of South San Francisco Bicycle Master Plan[2]

The City of South San Francisco Bicycle Master Plan (2011) identifies and prioritizes street improvements to enhance bicycle access. The plan analyzes bicycle demand and gaps in bicycle facilities, and recommends

[2] The City is currently working toward preparation of a combined Bicycle and Pedestrian Master Plan, intended to update and combine these two documents

improvements and programs for implementation. The Bicycle Master Plan establishes the following policy related to the Project:

- ***Policy 3.2-1***: All development projects shall be required to conform to the Bicycle Transportation Plan goals, policies and implementation measures.

City of South San Francisco Pedestrian Master Plan

The City of South San Francisco Pedestrian Master Plan (2012) identifies and prioritizes street improvements to enhance pedestrian access. The plan analyzes pedestrian demand and gaps in pedestrian facilities, and recommends improvements and programs for implementation. The Pedestrian Master Plan establishes the following policy related to the Project:

- ***Policy 5.1-1***: All development projects shall be required to conform to the Pedestrian Master Plan goals, policies and implementation measures.

East of 101 Study and Transportation Improvement Fee Program

The City of South San Francisco East of 101 Study was prepared and adopted by the City in 2011 to establish a source of funding for future capital improvements to the transportation system in the City. The East of 101 Study and its associated transportation improvement fee program include funding for a variety of transportation improvement projects located in the East of 101 area. Near the Project, the Plan calls for a range of improvements at study intersections, such as the installation of traffic signals at the East Grand Avenue/Allerton Avenue and East Grand Avenue/DNA Way intersections, and lane modifications to the East Grand Avenue/Harbor Way/Forbes Boulevard intersection. Transportation improvement fees may also fund enhancements to bicycle and pedestrian infrastructure, consistent with the Bicycle Master Plan and Pedestrian Master Plan.

City of South San Francisco Downtown Station Area Specific Plan

The City of South San Francisco Downtown Station Area Specific Plan (2015) defines transportation and land use policies for the downtown area. The plan identifies transportation improvements for all modes to support transit-oriented development around a new location for the South San Francisco Caltrain station near the Grand Avenue/Airport Boulevard intersection.

South San Francisco Municipal Code

City of South San Francisco Transportation Demand Management Ordinance

The City of South San Francisco TDM Ordinance (Chapter 20.400 Transportation Demand Management) applies to all non-residential development expected to generate 100 or more average daily trips (based on the Institute of Traffic Engineers (ITE) trip generation rates), or a project seeking a floor area ratio (FAR) bonus. The Ordinance requires that all non-residential projects resulting in more than 100 average daily trips must meet a minimum alternative mode use (percent of total trips) of 28 percent, and identifies higher thresholds for projects requesting a FAR bonus. The ordinance identifies a number required and optional trip reduction measures for inclusion in a TDM Plan. The ordinance requires an annual survey program to ensure that desired transportation mode shares are achieved.

Genentech Master Plan Zoning District

South San Francisco Municipal Code, Chapter 20.260 (Genentech Master Plan zoning district) includes administrative provisions (section 20.260.0060) which provide that development projects within the Genentech Master Plan zoning district shall be in accordance with all applicable provisions of this ordinance, including payment of the following fees:

- Contributions to the Oyster Point Interchange: Genentech shall continue to contribute to the Oyster Point Interchange, in accordance with the existing requirements of the Oyster Point contribution formula, established by Resolution 71-84. These requirements shall apply to all discretionary land use approvals, including Minor Use Permits and Conditional Use Permits issued pursuant to Section 20.260.006–Administration and Chapter 20.490–Use Permits, and approvals pursuant to Administrative Review under subsection (A) where additional vehicle trips will be generated.
- Contributions to the Capital Improvement Program: Genentech shall continue to contribute its fair share toward the costs of capital improvement projects that support Genentech's development activity, in accordance with the financing policies established in the East of 101 Area Plan.
- East of 101 Traffic Fee: Genentech shall contribute to East of 101 traffic improvements in accordance with the existing requirements of the East of 101 Traffic Fee contribution formula established by Resolution 101-2005, or as that resolution may be amended. This requirement shall apply to all discretionary land use approvals, including Administrative Review, Minor Use Permits and Conditional Use Permits issued pursuant to Section 20.260.006–Administration.

Impacts and Mitigation Measures

Thresholds of Significance

City of South San Francisco and San Mateo County C/CAG guidelines were used to identify thresholds of significance to determine whether implementation of the Project would result in significant environmental impacts. The Project would have a significant transportation or circulation impact if it were to:

1. Exceed 100 net new peak hour trips on the Congestion Management Program roadway system (C/CAG criteria)
2. Conflict with applicable plans, ordinances or policies establishing measures of effectiveness for the performance of the circulation system. These thresholds are specifically defined as:
    a. If signalized intersection operations and all-way-stop operations would deteriorate from operating at an acceptable LOS (LOS D or better) to an unacceptable operation (LOS E or F) with the addition of project traffic
    b. If uncontrolled turn movements or side-street stop-controlled approach operations at intersections would deteriorate from operating at LOS E or better to LOS F and total volumes passing through the intersection would increase by at least one percent if at least one leg is connected to a Caltrans ramp, and two percent otherwise. Side street stop criteria are applicable only for approaches with more than 25 trips during any peak traffic hour
    c. If the Project would increase the total traffic volume passing through an intersection by two percent or more, at an intersection with signalized or all-way stop operations already at a baseline LOS E or F, or when a side street stop controlled approach is at a baseline LOS F. Side street stop criteria are applicable only for approaches with more than 25 trips during any peak traffic hour
    d. If Project traffic would increase baseline volumes at an unsignalized intersection to meet peak hour volume signal warrant criteria levels, or to meet pedestrian/school crossing signal warrant criteria levels
    e. If the Project would increase traffic entering an unsignalized intersection by two percent or more, at an intersection with baseline traffic levels already exceeding peak hour volume signal warrant criteria levels

3. Increase volumes on a given traffic movement downstream of Caltrans facilities by one percent or more, and in doing so would either cause vehicle queues to exceed existing storage space for that movement, or would contribute to existing vehicle queues that exceed storage space for that movement
4. Degrade operation of the US 101 freeway or freeway ramps from LOS E to LOS F with at least a one percent increase in volumes, or increase volumes by more than one percent on a freeway segment or a freeway ramp with baseline LOS F operation, or make a considerable contribution to a cumulative degradation of the US 101 freeway or freeway ramps operations, according to the same criteria
5. Substantially increase transportation hazards due to a geometric design feature or incompatible uses, or result in inadequate emergency access.
6. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, bicycle and pedestrian facilities.
7. If the project would make a considerable contribution to a cumulative impact, based on the same criteria

The above significance criteria primarily relate to vehicular delay and traffic congestion. However, statewide legislation will render impacts based on vehicular delay no longer a significant impact under CEQA in the near future. Senate Bill (SB) 743 changes CEQA transportation impact analysis significance criteria to eliminate auto delay, LOS, and similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts under CEQA (although a jurisdiction may choose to maintain these measures under its General Plan). The proposed changes in CEQA Guidelines to implement SB 743 present Vehicle Miles Traveled (VMT) as an appropriate measure of transportation impacts. At present, the City of South San Francisco has not adopted VMT as a transportation impact criterion or established appropriate VMT significance thresholds. As a result, a VMT analysis is not included as part of this EIR CEQA analysis, but is presented for informational purposes toward the end of this chapter.

Approach to the Analysis

Analysis Scenarios

This analysis evaluates the weekday AM peak hour traffic period between 7:00 AM and 9:00 AM) and the weekday PM peak hour traffic period (4:00 PM and 6:00 PM). Traffic counts were conducted during May 2016 by the City of South San Francisco as a part of the South San Francisco Model Update. Freeway counts were based on the Caltrans Performance Measurement System (PeMS) during the same timeframe.[3] Study intersections were evaluated for the following scenarios:

- Existing Conditions: Existing May 2016 traffic volumes for local roadways provided by the City
- Existing Plus Project Conditions: Existing traffic volumes plus new traffic from the Project
- Cumulative No Project Conditions: Projected conditions in 2040 without the Project
- Cumulative Plus Project Conditions: Projected conditions in 2040 with the Project

[3] Traffic volumes have increased at some intersections since conducting these counts due to employment growth associated with new developments and increased occupancy of existing real estate. This growth is consistent with expectations in the cumulative land use scenario. A comparison of 2018 traffic volumes to 2016 traffic volumes was not performed in this analysis due to atypical conditions associated with the temporary closure of the South Airport Boulevard Bridge from May 2018 through November 2018 and ongoing construction throughout the study area.

This analysis intends to be representative of existing conditions at the time of the Notice of Preparation for this EIR. Transportation conditions have continued to change while this analysis occurred. In particular, the on-going construction in the downtown area and construction along Oyster Point Boulevard and East Grand Avenue have temporarily disrupted traffic patterns. As some of these developments have been completed, traffic volumes during the peak hours may have changed. However, while these new developments are not fully captured in the existing conditions analysis, they are reflected in the cumulative analysis.

Analysis Methods

This transportation impact analysis studies the effects of the Project on a variety of transportation services and facilities, including vehicle operations, transit service, pedestrian facilities and bicycle facilities. This analysis evaluates the operating characteristics of intersections using LOS. LOS is a quantitative description of an intersection's performance based on the average delay per vehicle. Intersection levels of service range from LOS A, which indicates free flow or excellent vehicle flow conditions with short delays, to LOS F, which indicates congested or overloaded vehicle flow conditions with extremely long delays. The City of South San Francisco General Plan establishes LOS A through LOS D as acceptable operations, while LOS E and LOS F are considered unsatisfactory. LOS for the study intersections were analyzed using the Highway Capacity Manual (HCM) 2000 and 2010 methodology and the Synchro traffic analysis software, based on direction from City staff and to maintain consistency with previous studies. Freeway analysis was performed using the HCM 2010 methodology and HCS software.

While HCM methodology and Synchro traffic analysis software represent the state of the practice in evaluating isolated intersection operations, this methodology presents some limitations for both signalized and unsignalized intersections. Under highly congested conditions, use of deterministic traffic modeling tools such as Synchro may not fully reflect the extent of vehicular queuing and spillover effects between intersections. Similarly, these tools cannot anticipate how drivers may react to day-to-day variations in traffic conditions. Finally, this analysis is predicated on data collected on specific days; while existing conditions were counted on "typical" weekdays, traffic flows may vary by up to ten percent from day to day.

Signalized Intersections

The method from Chapter 16 of the HCM bases signalized intersection operations on the average control delay experienced by motorists traveling through it. Control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. This method uses various intersection characteristics (such as traffic volumes, lane geometry, and signal phasing) to estimate the average control delay. **Table 17-5** summarizes the relationship between average delay per vehicle and LOS for signalized intersections according to the 2010 HCM methodology.

Table 17-5 Signalized Intersection LOS Criteria

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length	≤ 10
B	Operations with low delay occurring with good progression and/or short cycle lengths	> 10 and ≤ 20
C	Operations with average delays resulting from fair progression and/or longer cycle length - Individual cycle failures begin to appear	> 20 and ≤ 35
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (V/C) ratios - Many vehicles stop and individual cycle failures are noticeable	> 35 and ≤ 55
E	Operations with high delay values indicating poor progression, long cycle lengths and high V/C ratios. Individual cycle failures are frequent occurrences	> 55 and ≤ 80
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	> 80

Source: Transportation Research Board, 2010, Highway Capacity Manual – Special Report 209

Unsignalized Intersections

Traffic conditions at the unsignalized study intersections (stop sign and yield sign-controlled intersections) were evaluated using the method from Chapter 17 of the HCM. With this method, operations are defined by the average control delay per vehicle (measured in seconds) for each stop-controlled approach that must yield the right-of-way. At four-way stop-controlled intersections, the control delay is calculated for the entire intersection and for each approach. The delays and corresponding LOS for the entire intersection are reported. At two-way stop-controlled intersections, the movement with the highest delay and corresponding LOS is reported. **Table 17-6** summarizes the relationship between delay and LOS for unsignalized intersections.

Table 17-6: Unsignalized Intersection LOS Criteria

Description	Average Control Delay Per Vehicle (Seconds)
Little or no traffic delays	≤ 10
Short traffic delays	> 10 and ≤ 15
Average traffic delays	> 15 and ≤ 25
Long traffic delays	> 25 and ≤ 35
Very long traffic delays	> 35 and ≤ 50
Extreme traffic delays with intersection capacity exceeded	> 50

Source: Transportation Research Board, 2010, Highway Capacity Manual – Special Report 209

Travel Demand Associated with Project

Travel demand refers to the new vehicle, transit, bicycle and pedestrian traffic that would be generated by the Project. This analysis provides a forecast of the AM and PM peak hour trips that would be generated by new uses associated with Project.

Existing Vehicle Trip Generation Estimates

Existing Genentech-specific trip generation rates were developed based on traffic cordon counts conducted on the Genentech Campus in June 2016, and cordon counts of individual people and parking counts conducted in the *Fall 2015 Campus Mode Share and Parking Report.*[4] These existing trip rates are inclusive of all Genentech trips. Trips within the cordon associated with non-Genentech land uses were subtracted from the total counts based on building size and trip generation rates by the Institute of Transportation Engineers (ITE) *Trip Generation, 9th Edition*. Existing trip rates by Genentech land uses (office, lab and manufacturing) were disaggregated from the total cordon trips according to the proportional differences between their respective ITE rates. The resulting existing Genentech-specific trip generation rates shown in **Table 17-7** account for Genentech's trip generation characteristics by land use and Genentech's TDM program, which currently captures approximately 42 percent of all trips via alternative travel modes other than single occupancy vehicles.

Table 17-7: Existing Genentech Campus Vehicle Trip Generation Rates

	AM Peak Hour			PM Peak Hour		
Land Use	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Office	0.63	0.12	0.75	0.13	0.44	0.58
Lab/Amenity	0.46	0.13	0.60	0.08	0.33	0.41
Manufacturing	0.13	0.07	0.20	0.08	0.07	0.16

Notes:

1. Vehicle trip generation rates are per 1,000 square feet
2. Existing generation rates based on cordon counts conducted during June 2016. Trips within the cordon associated with non-Genentech land uses were subtracted from the total based on building size and trip generation rates by the Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition. Rates by Genentech land use (office, lab and manufacturing) were disaggregated from the total cordon trips according to the proportional differences between their respective ITE rates.
3. Existing trip generation rates assume a 58 percent single-occupancy vehicle / 42 percent alternative mode share per the Fall 2016 Genentech South San Francisco Campus Mode Share and Parking Report.
4. Amenity trips assumed to be fully internalized; employee trips incorporated into lab totals based on similar employee densities.

By applying these Genentech-specific trip generation rates to the existing land uses within the Genentech Campus, the total number of existing vehicle trips are calculated to be 2,543 vehicle trips in the AM peak hour and 1,867 vehicle trips in the PM peak hour, as shown in **Table 17-8**.

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Table 17-8: Existing Vehicle Trips, Genentech Campus							
		AM Peak Hour			PM Peak Hour		
Land Use	1,000 Square Feet	In	Out	Total	In	Out	Total
Office	1,566	983	189	1,172	208	694	902
Lab/Amenity	1,864	862	249	1,111	158	606	764
Manufacturing	1,285	172	88	260	108	93	201
Total:	**4,715**	2,017	526	**2,543**	474	1,393	**1,867**

Project Trips

Trip Cap

As fully described in the Project Description of this EIR, Genentech is proposing to establish a "Trip Cap" equivalent to the total number of drive-alone vehicle trips as previously calculated for buildout of the Campus pursuant to the prior 2007 Master EIR and the 2002 Britannia East Grand (now South Campus) EIR. These prior EIRs estimated the number of AM peak hour drive-alone vehicle trips that would be generated at a buildout of approximately 6.0 million square feet of building space within the former Campus boundaries and approximately 804,500 square feet of building space at Britannia East Grand /South Campus, as shown below in **Table 17-9**.

Table 17-9: Calculation of Trip Cap, Based on Prior EIR Trip Assumptions				
Land Use	Buildout (SF)	AM Peak Trip Rate	Trips at Buildout	Total AM Peak Hour Trips
Genentech Campus Master Plan (per 2007 MEIR) [1]				
Office	2,629,395	0.95	2,498	
Lab	2,002,482	0.59	1,181	
Mfg.	1,041,668	0.48	500	
Amenity	322,000			
	6,000,000		4,179	**4,719**
Britannia East Grand (per 2002 EIR) [2]				
Total Buildout	804,530		1,037	**1,037**
Total Approved Building Space and AM Peak Hour Trips	**6,804,530**			**5,216**

Source:
1: 2007 Genentech Campus Master Plan MEIR, buildout per Table 3-1, AM trip rate per Table 4.7-11
2. 2002 Britannia East Grand Project EIR, Table 6.9

The Genentech-proposed Trip Cap would hold this number of AM peak hour trips (5,216 total drive-alone trips) constant, while increasing the underlying entitlement from approximately 6.8 million square feet up to 9 million square feet of building space. Given the existing number of AM peak hour vehicle trips generated at the Campus is 2,543 total trips, the net increase in Project-related trips can only be a maximum of 2,763 AM peak hour trips (i.e., a Trip Cap of 5,216 trips, minus 2,543 existing trips = 2,673 net new Project trips in the

AM peak hour). To achieve this Trip Cap, Genentech proposes to implement TDM programs for all of its employees at levels that can reduce drive-alone trips such that this Campus-wide Trip Cap is not exceeded.

Project Trip Generation

Project-specific trip generation rates were derived by allocating the proposed maximum allowable new trips under the Trip Cap across the proposed new land uses. Project trips were allocated among the various land uses using the same relative trip generation rates as under Existing conditions, as indicated in **Table 17-10**.

Table 17-10: Project Trip Generation (Based on Trip Budget Reductions)

Project-Specific Trip Generation Rates (based on Trip Cap)		**AM Peak Hour**			**PM Peak Hour**		
Office		0.57	0.11	0.68	0.12	0.40	0.53
Lab/Amenity		0.42	0.12	0.54	0.08	0.30	0.37
Manufacturing		0.12	0.06	0.18	0.08	0.07	0.14
Project Trip Generation							
	1,000 Square Feet	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Office	2,424,000	1,389	267	1,656	294	981	1,274
Lab/Amenity	1,869,000	789	228	1,017	145	555	700
Manufacturing	-	-	-	-	-	-	-
Total:	**4,293,000**	2,178	495	**2,673**	439	1,536	**1,974**
Plus Existing Trips (see Table 17-7)				2,543			
Total Trips, per Trip Cap				**5,216**			

Notes:

Amenity trips assumed to be fully internalized; employee trips incorporated into lab totals based on similar employee densities.

Project trip generation rates assume a 47 percent alternative mode share in accordance with the necessary alternative mode share to remain under the proposed Trip Cap.

The Trip Cap will also provide Genentech and the City of South San Francisco with flexibility to modify and adapt the land use mix within the Campus over time depending upon future needs, while holding a constant "cap" on the number of net new AM peak-hour vehicle trips that the ultimate land use mix can generate. The Trip Cap is used as a proxy, or means by which the maximum land use development under the Master Plan Update is measured. By holding the Trip Cap constant, a variety of land use scenarios can be accommodated at the Campus without exceeding the previously assumed off-Campus traffic effects. The maximum development capacity of the Master Plan Update, as analyzed in this EIR, is achieved when the Trip Cap is reached and additional TDM reductions cannot be implemented. This approach serves as incentive for Genentech to maintain a high TDM rate (or a low rate of drive-alone trips), because each TDM-reduced trip counts as a "credit" against the Trip Cap.

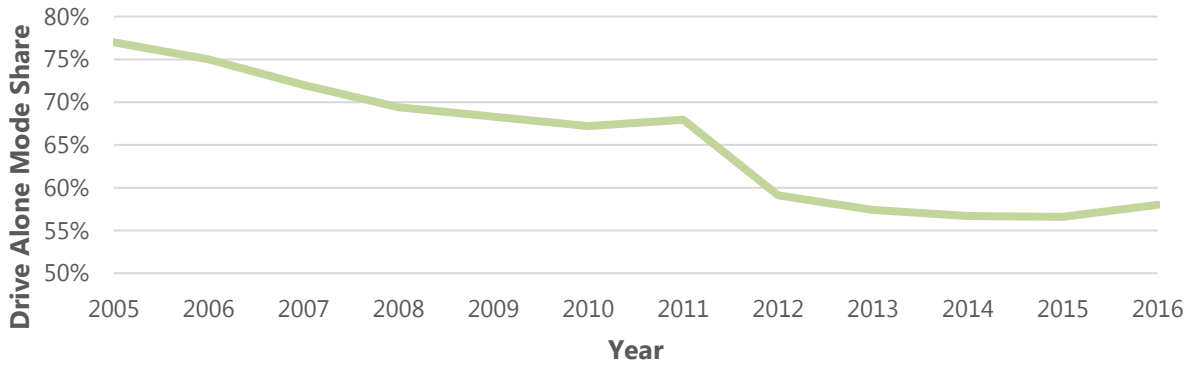
TDM Program

The City of South San Francisco requires that all non-residential development expected to generate an average of 100 or more daily vehicle trips implement TDM measures to reduce vehicle traffic. C/CAG guidelines require developments that generate 100 or more peak hour trips to implement TDM measures that have the capacity to mitigate new peak hour trips. Pursuant to the City's Municipal Code requirements, a project the size of the current Campus (which has an average FAR of 0.52) would be required to achieve a 30

percent trip reduction rate, and buildout of the Master Plan Update (which would achieve an FAR of 1.0) would be required to achieve a 35 percent trip reduction rate.

Since 2006, Genentech has implemented a TDM program for their facilities, entitled gRide, to facilitate and encourage employees to use alternative commute options. The program's goal is to increase the percentage of employees using alternative forms of transportation, reducing the number of single occupancy cars coming to and parking at the Campus. The gRide program has been very successful in encouraging non-single occupancy vehicle trips. Since 2005, the share of employee Campus arrivals to work via drive alone vehicles has fallen from approximately 77 percent to around 58 percent, as shown **in Table 17-11**.

Table 17-11: Drive Alone Commute Mode Share, 2005-2016



Source: Genentech, 2005-2016

This drive-alone mode share corresponds to a current TDM rate of 42 percent, far exceeding the City requirement. Additionally, Genentech provides a series of initiatives that seek to improve employees' work experience, and in particular to address the adverse effects of long commute times. These initiatives encourage teams and managers within Genentech to consider how a flexible work environment can best be achieved on an individual and team level, and to experiment with strategies that serve different employee populations with work flexibility options. According to Genentech's August 2018 Employee Work Environment Survey, Genentech's workforce chooses a flexible work option over commuting to the Campus an average of 13% of the time, further reducing the number of Campus arrivals during the AM peak hour commute period by approximately 755 trips. With 42% of its workers arriving to the Campus via one of the existing TDM programs and the additional trip reductions based on workers choosing a flexible work option, Genentech is currently operating at a current total trip reduction rate of approximately 51%.

In order to remain under the proposed Trip Cap (see above), the Project-specific TDM mode share of net new arrivals to the Campus would need to be the equivalent of 47 percent of all AM peak hour Campus arrival trips at buildout. To achieve these TDM rates, Genentech's existing TDM program will need to increase in capacity commensurate with new employee growth, and increase its overall non-single occupant mode share split for Campus arrivals by an additional approximately 10 percent.

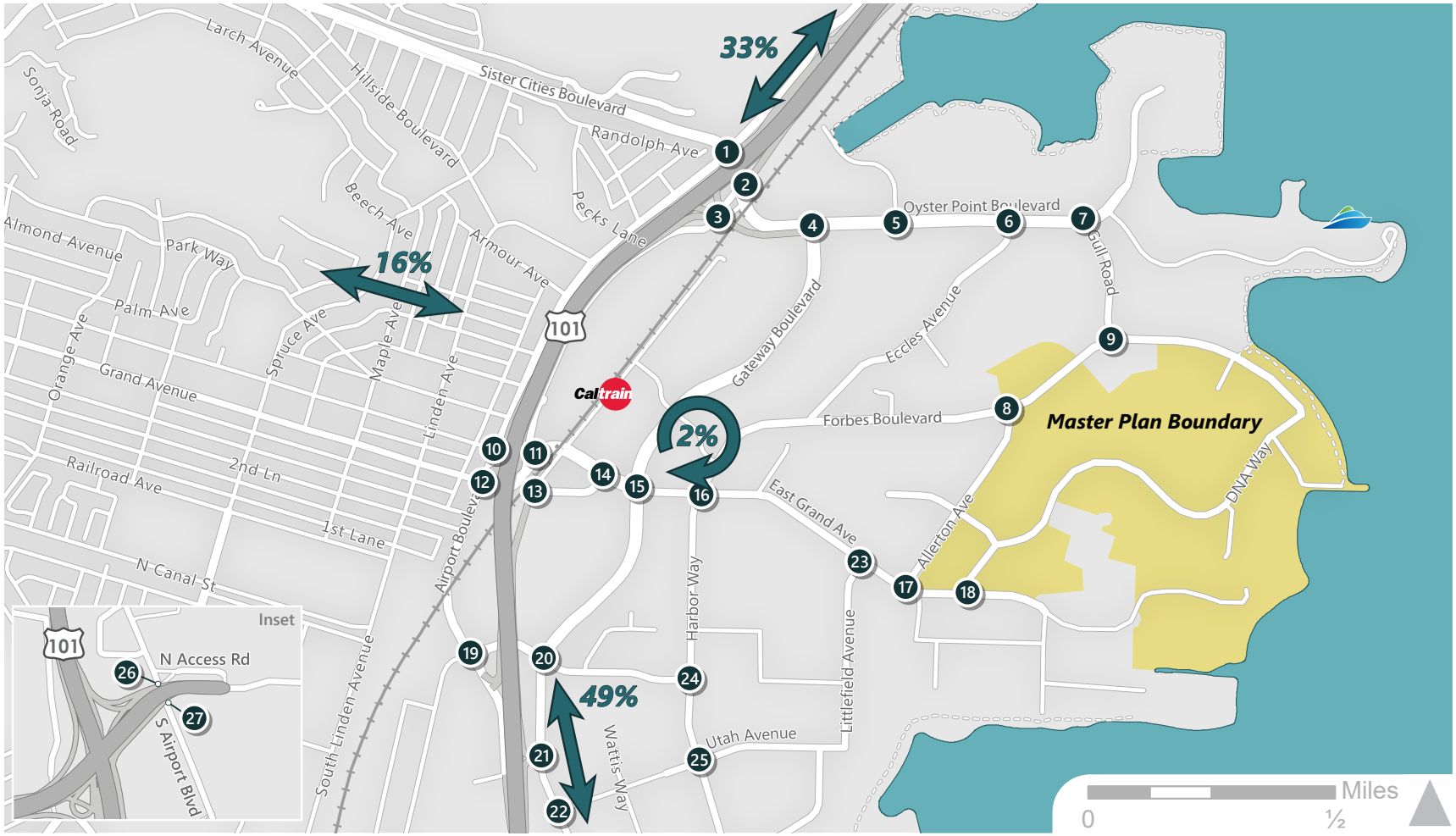
The Master Plan Update presents a Genentech TDM goal of achieving a 50 percent reduction in Campus-wide arrivals via drive alone vehicle trips at buildout (or a 50 percent alternative mode split), plus additional flexible work initiatives to further reduce peak hour trips to the Campus. Genentech's TDM goal of achieving a 50 percent trip reduction rate for Campus arrivals, and additional reductions in peak hour trips resulting from flexible work initiatives, is expected to result in a total trip reduction rate of approximately 57 percent.

This trip reduction rate would substantially exceed City Municipal Code requirements, and would also exceed the 47 percent reduction in Campus arrivals needed to meet the Trip Cap.

Given the scale of the existing gRide program, Genentech has available capacity within its current TDM program to absorb additional participants, and will most likely meet or exceed the necessary trip reductions to remain below the Trip Cap without requiring a substantial number of new programs. The Genentech TDM program includes a number of strategies that will likely continue, and a menu of additional strategies that Genentech may use to refine or add to the existing program, as needed. As multiple TDM measures are implemented concurrently, they will have synergistic results in reducing drive-alone trips as needed to remain below the Trip Cap.

Vehicle Trip Distribution and Assignment

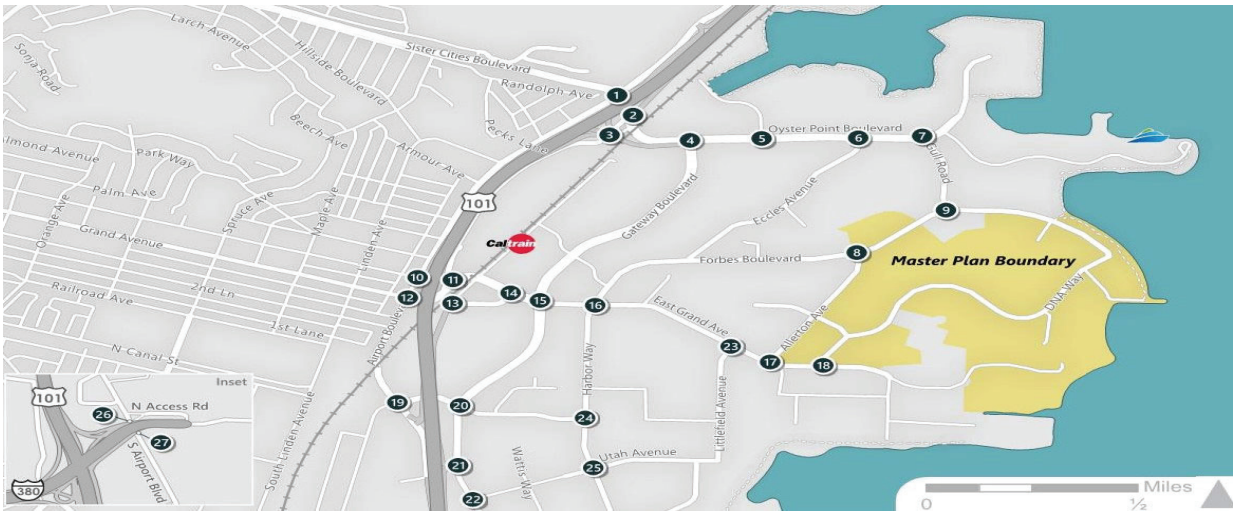
The geographic distribution of Project-generated trips was determined based on the City of South San Francisco Traffic Model and observed Genentech employee home locations. Accordingly, 33 percent of Project-generated trips are expected to travel to/from locations north of the Project via US-101, 49 percent of Project-generated trips are expected to travel to/from locations south of the Project via US-101 and South Airport Boulevard, and 16 percent are expected to travel to/from locations west of the Project via Sister Cities Boulevard and Grand Avenue. The remaining two percent of vehicle trips are assumed to both originate and end within the East of 101 Area. These patterns were used as the basis for assigning Project-generated vehicle trips to the local streets in the study area, using the City of South San Francisco Traffic Model. **Figure 17-7** presents the distribution of vehicle trips, and **Figure 17-8** presents peak hour traffic and lane configurations for the Project, only.

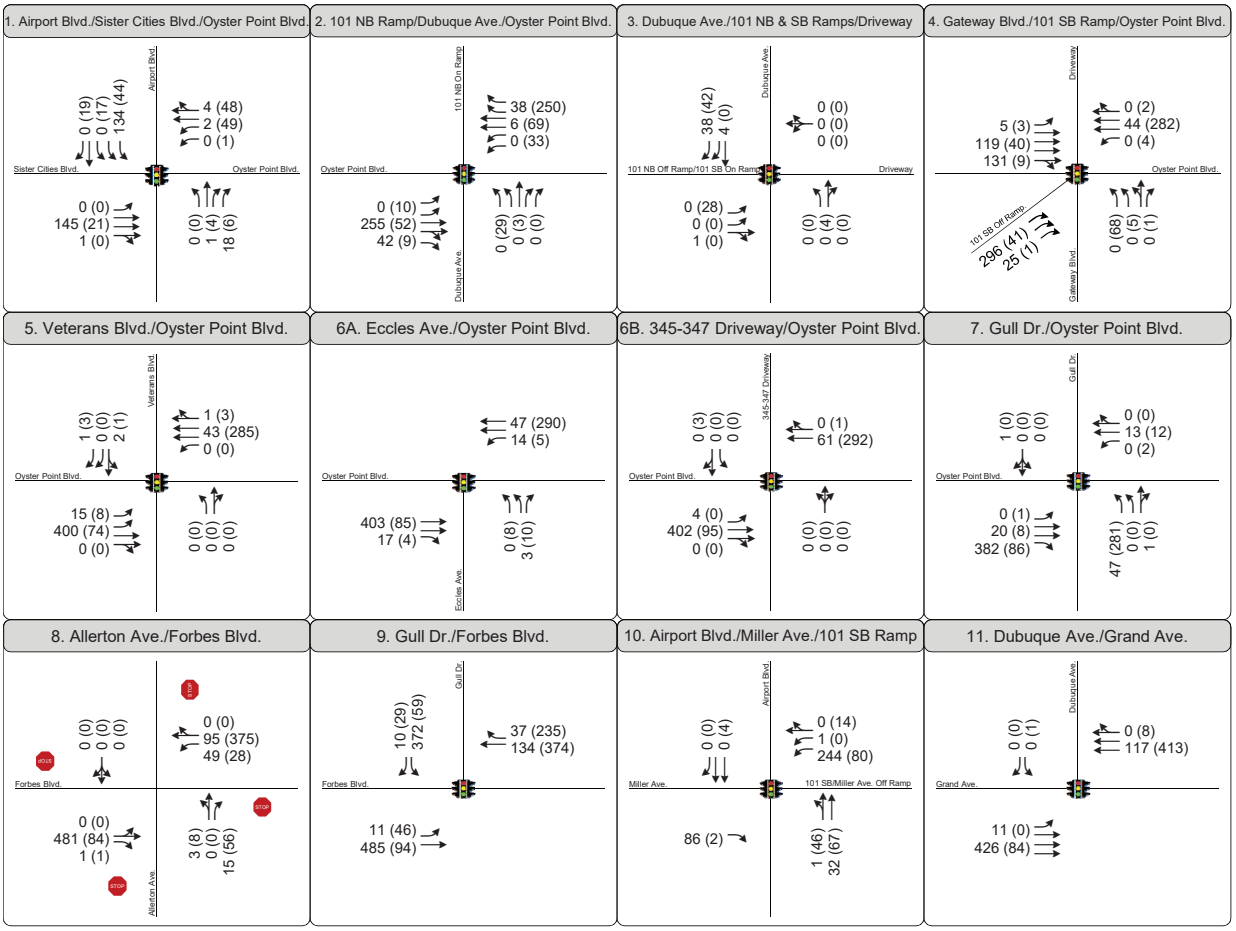


Trip Distribution

Figure 17-7
Vehicle Trip Distribution

Source: Fehr & Peers, 2019





LEGEND

- # Study Intersection
- AM (PM) Peak Hour Traffic Volume
- Lane Configuration
- STOP Stop Sign
- Signalized

Figure 17-8
Peak Hour Traffic and Lane Configurations
Project Trips, only

Source: Fehr & Peers, 2019

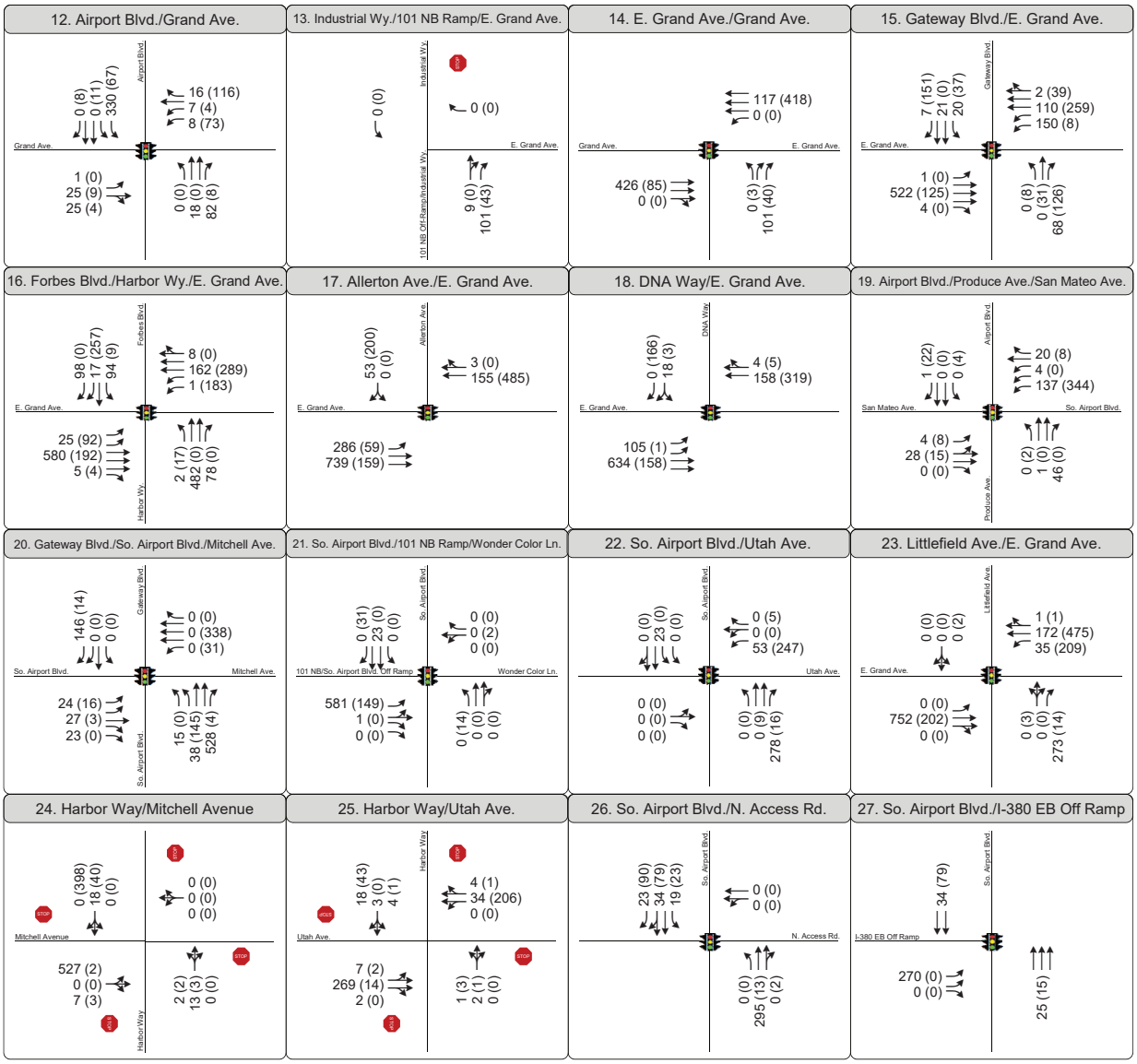


Figure 17-8B
Peak Hour Traffic and Lane Configurations
Project Trips, only

Source: Fehr & Peers, 2019

Project Impact Analysis

Local Intersection Level of Service/Queuing (Existing plus Project)

Impact Trans 1: The Project would contribute traffic to intersections in the Project vicinity that would result in conflicts with applicable plans, ordinances or policies that establish measures of effectiveness for intersection levels of service (LOS) or queuing at twenty (20) of the 27 traffic study intersections. Regulatory requirements and/or mitigation measures have been identified that are capable of reducing these impacts at 13 of the 20 affected intersections, but no feasible or certain improvements have been identified as capable of reducing impacts to a less than significant level at 7 affected study intersections. (**Significant and Unavoidable**)

Intersection Level of Service

Based on the analysis of traffic operations at study intersections, the Project would generate traffic that would cause established measures of effective intersection operations (either based on LOS, signal warrant criteria or queuing thresholds) to be exceeded at twenty (20) local intersections. The impact of Project-generated traffic at each of the adversely affected intersections is described below.

- *LOS at Airport Boulevard/Sister Cities Boulevard/Oyster Point Boulevard (#1):* The Project would cause intersection operations to deteriorate from LOS D to LOS F in the PM peak hour.
- *Queuing at Dubuque Avenue/101 NB On-Ramp/Oyster Point Boulevard (#2)*: The Project would cause a greater than one percent increase in traffic volumes on the AM eastbound through movement, contributing to queues that already exceed the available storage length.
- *Queuing at 101 SB Off-Ramp/Gateway Boulevard/ Oyster Point Boulevard/ (#4):* The Project would contribute more than one percent of total volumes to the northeast-bound right turn movement and to the shared eastbound through/right movement in the AM peak hour, which would cause queues to exceed available storage space, and the Project's contribution of traffic would further contribute to these queues.
- *LOS at Oyster Point Boulevard/Eccles Avenue (#6):* The Project would cause intersection operations to deteriorate from LOS B to LOS F in the AM peak hour.
- *LOS at Oyster Point Boulevard/Gull Drive (#7):* The Project would cause intersection operations to deteriorate from LOS C to LOS F in the AM peak hour, and from LOS D to LOS E in the PM peak hour.
- *LOS and Signal Warrant at Forbes Boulevard/Allerton Avenue (#8)*: The Project would cause intersection operations to deteriorate from LOS B in the AM and PM, to LOS F in both the AM and PM peak hours. The Project would also increase the approach volume on Allerton Avenue by greater than two percent. This intersection would exceed signal warrant criteria for peak-hour traffic volumes under Existing plus Project conditions in the AM and PM.
- *LOS at Gull Drive/Forbes Boulevard (#9)*: The Project would cause intersection operations to deteriorate from LOS B to LOS F in the AM peak hour.
- *LOS at Airport Boulevard/Miller Avenue/US-101 SB Off-Ramp (#10)*: The Project would cause intersection operations to deteriorate from LOS D to LOS E in the PM peak hour.
- *LOS and Queuing at Airport Boulevard/Grand Avenue (#12)*: The Project would cause intersection operations to deteriorate from LOS D to LOS E in both the AM and the PM peak hours. The Project would also extend queues on the southbound left turn movement in the AM hour that already exceed storage capacity, and would contribute more than one percent of total volume to those queues.

- *LOS at Gateway Boulevard/East Grand Avenue (#15)*: The Project would cause intersection operations to deteriorate from LOS D to LOS E in the PM peak hour.
- *LOS at East Grand Avenue/Harbor Way/Forbes Boulevard (#16)*: The Proposed Project would cause intersection operations to deteriorate from LOS D to LOS F in both the AM peak hour and the PM peak hour
- *LOS and Signal Warrant at East Grand Avenue/Allerton Avenue (#17):* The Project would cause intersection operations to deteriorate at the worst approach from LOS D to LOS F in the PM peak hour. The Project would also increase side street stop-controlled approach volumes on Allerton Avenue by more than two percent. This intersection exceeds signal warrant criteria for peak-hour traffic volumes under existing PM conditions, and would exceed signal warrant criteria under existing plus Project conditions in both the AM and PM peak hours.
- *LOS and Signal Warrant at East Grand Avenue/DNA Way (#18)*. The Project would increase the side street stop-controlled approach volume on DNA Way by more than two percent. This side street approach is already operating at LOS F in the PM peak hour. The Project would also cause intersection conditions to deteriorate from LOS B to LOS F in the AM peak hour. This intersection already exceeds signal warrant criteria for peak hour volume under Existing AM and PM conditions, would exceed signal warrant criteria under Existing plus Project conditions in the AM and PM peak hours.
- *LOS and Queuing at Produce Avenue/Airport Boulevard/San Mateo Avenue (#19)*: The Project would cause intersection operations to deteriorate from LOS D to LOS F in the PM peak hour. The Project would also extend queues beyond storage capacity on the westbound left turn movement in the AM and PM, and on the westbound right turn movement in the AM, and contribute more than 5 percent of total volume to these queues.
- *LOS and Queuing at South Airport Boulevard/Gateway Boulevard/Mitchell Avenue (#20)*: The Project would cause intersection operations to deteriorate from LOS D to LOS E in the AM peak hour, and would increase total intersection volume by more than two percent at this intersection in the PM peak hour, which already operates at LOS F in the PM peak hour. The Project would also extend queues in the AM peak hour past the existing storage capacity on the eastbound left turn movement, and would contribute more than one percent of total volume to queues.
- *Queuing at South Airport Boulevard/101 NB On- and Off-Ramps/Wondercolor Lane (#21):* The Project would contribute more than one percent of total volume to the eastbound shared left/through movement, resulting in queues that exceed available storage space in the AM peak hour.
- *LOS at East Grand Avenue / Littlefield Avenue (#23)*: The Project would cause operating conditions to deteriorate from LOS D to LOS F in the AM peak hour.
- *LOS and Signal Warrant at Mitchell Road / Harbor Way (#24)*: The Project would cause intersection operations to deteriorate from LOS D to LOS F in the AM peak hour and from LOS B to LOS F in the PM peak hour. The Project would also increase total intersection volume by greater than two percent. This intersection exceeds signal warrant criteria for peak hour volumes under existing AM conditions, and would exceed the same signal warrant criteria under Existing plus Project conditions in the AM and PM peak hour.
- *LOS and Signal Warrant at Utah Avenue / Harbor Way (#25)*: The Project would cause intersection operations to deteriorate from LOS C to LOS E in the PM peak hour. The Project would also increase total intersection volume by greater than two percent in both peak hours, where this intersection already operates at LOS F in the AM peak hour. This intersection exceeds signal warrant criteria for peak hour volume under Existing AM and PM conditions, and would exceed the same signal warrant criteria under Existing plus Project conditions in the AM and PM.

- *Queuing at South Airport Boulevard/I-380 Westbound Ramp (#26)*. The Project would extend queuing for the southbound right movement, which already exceeds storage capacity, and would contribute more than one percent to the movement during the PM peak hour.

Table 17-12 presents a summary of the level of service conditions at each of the study intersections under Existing and Existing plus Project conditions, and **Figure 17-9** illustrates Existing plus Project AM and PM peak-hour traffic volumes for those intersections, as well as existing lane configurations and traffic controls (signals, stop signs, etc.).

Table 17-12: Peak Hour Intersection Levels of Service – Existing Plus Project Conditions

	Intersection	Traffic Control	Peak Hour	Existing		Existing Plus Project	
				Average Delay	LOS	Average Delay	LOS
1	Airport Boulevard/Sister Cities Boulevard/Oyster Point Boulevard	Signal	AM	26.5	C	30.8	C
			PM	52.8	D	**>80**	**F**
2	Dubuque Avenue/101 NB On Ramp/Oyster Point Boulevard	Signal	AM	21.0	C	22.8	C
			PM	20.4	C	24.7	C
3	Dubuque Avenue/101 NB Off Ramp/101 SB On Ramp	Signal	AM	12.4	B	34.8	C
			PM	12.5	B	13.4	B
4	Oyster Pt. Boulevard/Gateway Blvd.	Signal	AM	36.0	D	49.4	D
			PM	28.2	C	29.2	C
5	Oyster Point Boulevard/Veterans Blvd.	Signal	AM	13.2	B	15.0	B
			PM	20.9	C	22.0	C
6	Eccles Avenue/Oyster Point Boulevard	Signal	AM	14.6	B	**>80**	**F**
			PM	16.6	B	22.3	C
7	Gull Drive/Oyster Point Boulevard	Signal	AM	28.0	C	**>80**	**F**
			PM	41.1	D	**65.5**	**E**
8	Allerton Avenue/Forbes Boulevard	AWSC	AM	13.6	B	**>80**	**F**
			PM	16.2	B	**>80**	**F**
9	Forbes Boulevard/Gull Drive	Signal	AM	11.5	B	**>80**	**F**
			PM	9.0	A	13.1	B
10	Airport Boulevard/Miller Avenue/101 SB/Miller Avenue Off Ramp	Signal	AM	29.0	C	31.3	C
			PM	39.2	D	**75.9**	**E**
11	Grand Avenue/Dubuque Avenue	Signal	AM	8.6	A	7.0	A
			PM	12.3	B	14.5	B
12	Airport Boulevard/Grand Avenue	Signal	AM	46.1	D	**55.9**	**E**
			PM	50.6	D	**58.8**	**E**

Table 17-12: Peak Hour Intersection Levels of Service – Existing Plus Project Conditions

	Intersection	Traffic Control	Peak Hour	Existing		Existing Plus Project	
				Average Delay	LOS	Average Delay	LOS
13	101 NB Off-Ramp/Industrial Way/Industrial Way/East Grand Avenue	SSYC	AM	12.2	B	12.3	B
			PM	8.6	A	8.6	A
14	East Grand Avenue/Grand Avenue	Signal	AM	7.2	A	16.6	B
			PM	7.4	A	5.9	A
15	Gateway Boulevard/East Grand Avenue	Signal	AM	23.2	C	38.7	D
			PM	52.1	D	**57.0**	**E**
16	Harbor Way/Forbes Boulevard/East Grand Avenue	Signal	AM	35.9	D	**>80**	**F**
			PM	46.5	D	**>80**	**F**
17	East Grand Avenue/Allerton Avenue	SSSC	AM	9.7	A	11.0	B
			PM	25.6	D	**>80**	**F**
18	East Grand Avenue/DNA Way	SSSC	AM	12.3	B	**>80**	**F**
			PM	**71.5**	**F**	**>80**	**F**
19	Produce Avenue/Airport Boulevard/San Mateo Avenue/South Airport Boulevard	Signal	AM	40.8	D	41.6	D
			PM	41.7	D	**>80**	**F**
20	South Airport Boulevard/Mitchell Avenue & Gateway Boulevard	Signal	AM	37.5	D	**55.9**	**E**
			PM	**>80**	**F**	**>80**	**F**
21	South Airport Boulevard/101 NB/South Airport Boulevard Off Ramp/Wonder Color Lane	Signal	AM	28.9	C	52.6	D
			PM	38.3	D	45.7	D
22	South Airport Boulevard/Utah Avenue	Signal	AM	30.1	C	29.5	C
			PM	34.6	C	38.1	D
23	Grand Avenue/Littlefield Avenue	Signal	AM	45.6	D	**>80**	**F**
			PM	14.9	B	19.2	B
24	Mitchell Road / Harbor Way	AWSC	AM	31.5	D	**>80**	**F**
			PM	11.5	B	**70.3**	**F**
25	Utah Avenue/Harbor Way	AWSC	AM	**68.4**	**F**	**>80**	**F**
			PM	21.9	C	**49.3**	**E**
26	I-380 Westbound Ramp/South Airport Boulevard	Signal	AM	12.3	B	11.5	B
			PM	19.3	B	22.9	C
27	I-380 Eastbound Ramp/South Airport Boulevard	Signal	AM	24.2	C	28.4	C
			PM	29.6	C	29.0	C

Table 17-12: Peak Hour Intersection Levels of Service – Existing Plus Project Conditions

Intersection	Traffic Control	Peak Hour	Existing		Existing Plus Project	
			Average Delay	LOS	Average Delay	LOS

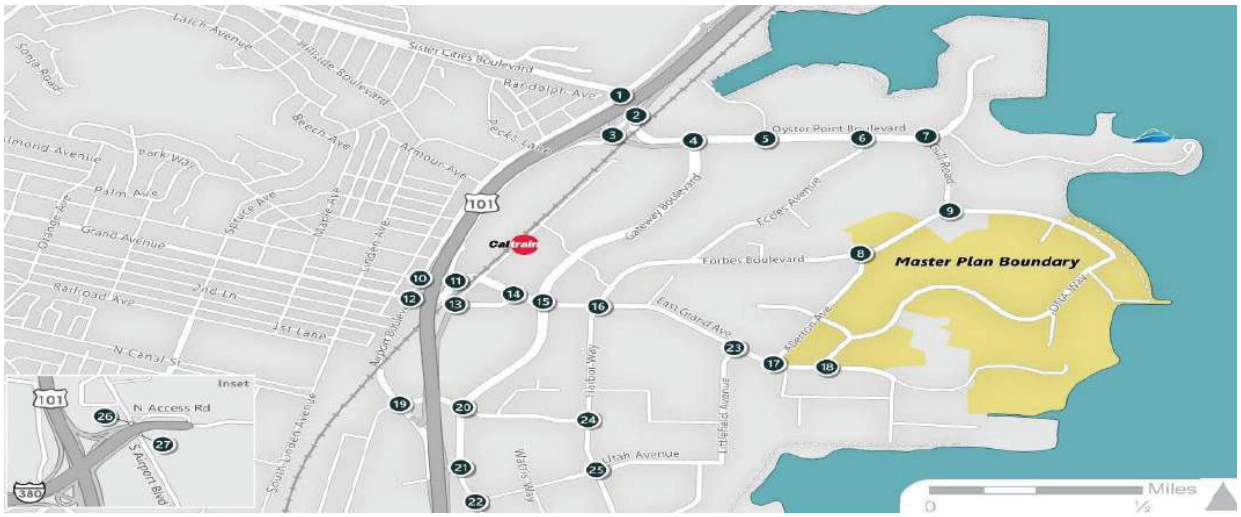
Bold indicates unacceptable LOS E or F. **Highlight** indicates significant impact.

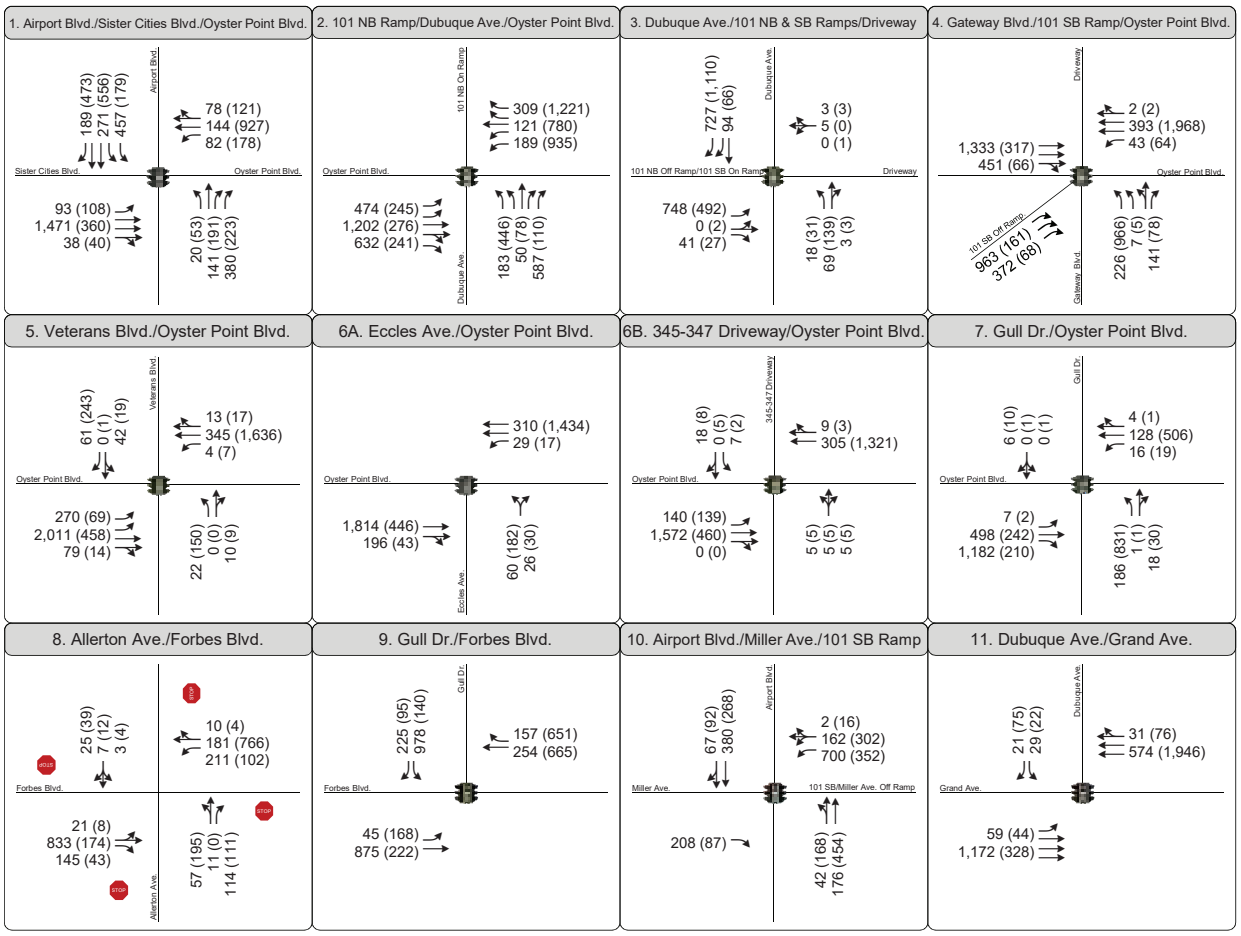
Delay reported as seconds per vehicle.

LOS based on the methodology in the Highway Capacity Manual, 2010. Intersections 4, 6, 10, 11, 12, 26 and 27 were analyzed based on HCM 2000. Calculations based on weekday counts and signal timings provided by the City of South San Francisco from May 2016

For signalized and all-way stop controlled intersections, the delay shown is the weighted average for all movements in seconds per vehicle. For side-street stop controlled (SSSC) and side street yield controlled (SSYC) intersections, the delay shown is the worst operating approach delay.

Source: Fehr & Peers, 2019





LEGEND

- # Study Intersection
- AM (PM) Peak Hour Traffic Volume
- Lane Configuration
- Stop Sign
- Signalized

Figure 17-9
Peak Hour Traffic and Lane Configurations
Existing plus Project Conditions

Source: Fehr & Peers, 2019

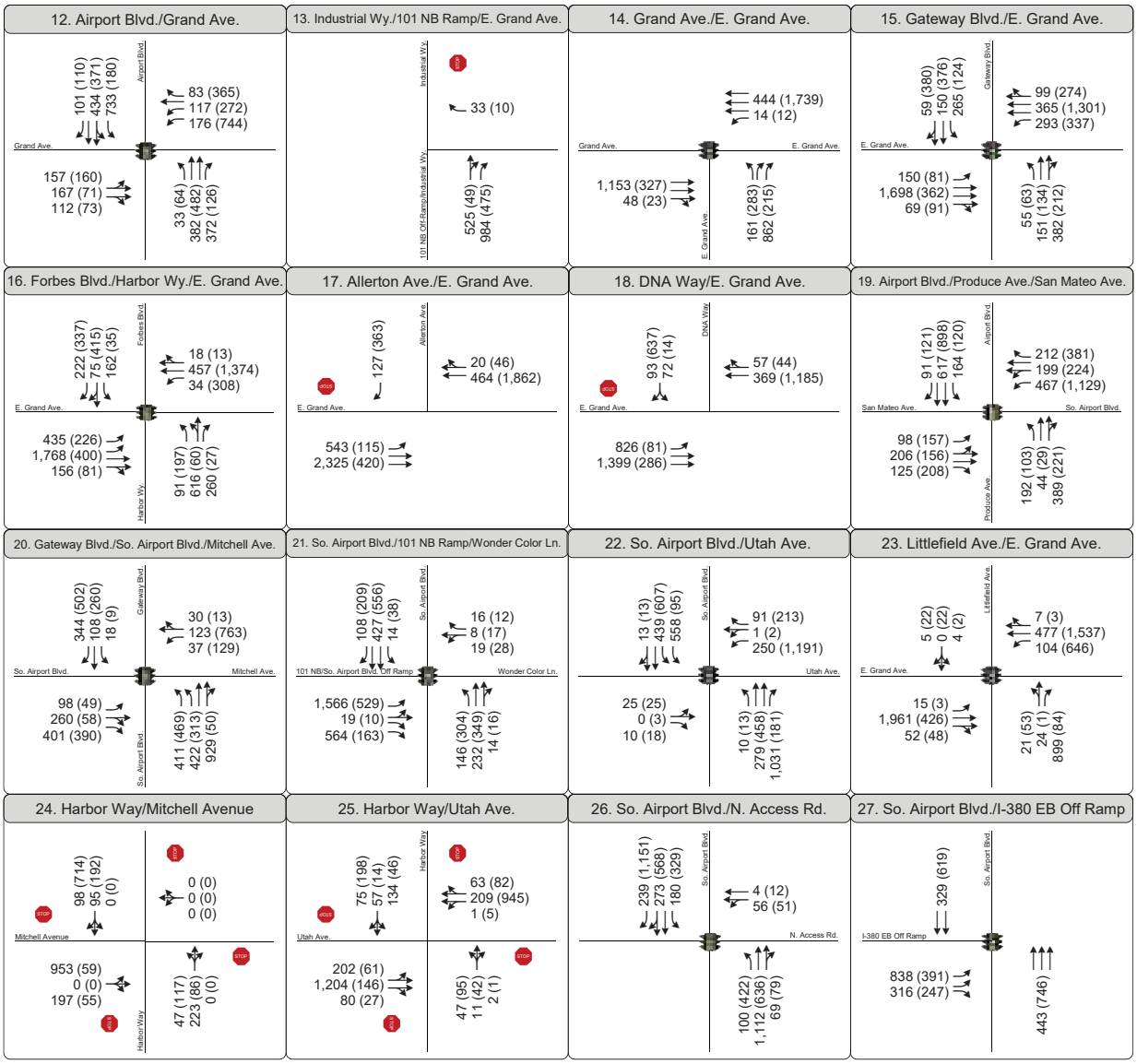


Figure 17-9B
Peak Hour Traffic and Lane Configurations
Existing plus Project Conditions

Source: Fehr & Peers, 2019

Table 17-13 presents a summary of vehicle queues at study area intersections near US-101 ramps under Existing and Existing plus Project conditions. The Project would extend or contribute to queues beyond existing storage distances at the following intersections:

- Dubuque Avenue/101 NB On Ramp/Oyster Point Boulevard (#2)
- 101 SB Off Ramp/Gateway Boulevard/Oyster Point Boulevard (#4)
- Airport Blvd./Grand Avenue (#12)
- Produce Avenue/Airport Boulevard/San Mateo Avenue (#19)
- South Airport Boulevard/ Gateway Boulevard (#20)
- South Airport Boulevard/101 NB/South Airport Boulevard off Ramp/Wondercolor Lane (#21), and
- I-380 Westbound Ramp/South Airport Boulevard (#26)

Table 17.13 Existing Plus Project, 95th Percentile Vehicle Queues Near US-101

Intersection		Storage Distance[1]	AM Peak Hour Existing	AM Peak Hour Existing + Project	PM Peak Hour Existing	PM Peak Hour Existing + Project
#1 Airport Boulevard/Sister Cities Boulevard/Oyster Point Boulevard						
SB	Left	320	130	220	70	100
SB	Through	320	110	110	220	230
SB	Right	320	60	60	220	170
#2 Dubuque Avenue/101 NB On Ramp/Oyster Point Boulevard						
NB	Left	260	80	80	150	160
NB	Through	260	50	50	70	70
NB	Right	240	190	190	10	10
EB	Left	170	**210**	210 (0%)	100	100
EB	Through	240	**420**	**580 (26.9%)**	100	130
EB	Right	240	60	160	50	50
WB	Left	500	100	100	370	400
WB	Through	900	100	100	620	720
WB	Right	500	30	30	150	250
#3 Dubuque Avenue/101 NB Off Ramp/101 SB On Ramp						
EB	Left/Through	260	220	220	140	150
#4 101 SB Off Ramp/Gateway Boulevard/Oyster Point Boulevard						
NEB	Through	3000	270	470	60	70
NEB	Right	350	**>350**	**>350 (7.2%)**	80	80
EB	Through/Right	900	640	**910 (8.8%)**	100	130
#10 Airport Boulevard/Miller Avenue/101 SB/Miller Avenue Off Ramp						
WB	Left/Through	750	210	320	230	250

Table 17.13 Existing Plus Project, 95th Percentile Vehicle Queues Near US-101

Intersection		Storage Distance[1]	AM Peak Hour Existing	AM Peak Hour Existing + Project	PM Peak Hour Existing	PM Peak Hour Existing + Project
#12 Airport Boulevard/Grand Avenue						
SB	Left	280	**>280**	**>300 (81.9%)**	120	220
SB	Through	280	**280**	**>300 (0%)**	170	180
SB	Right	280	50	30	50	30
#14 East Grand Avenue/Grand Avenue						
NB	Right	420	160	310	30	30
NB	Left	240	140	140	240	240
#19 Produce Avenue/Airport Boulevard/San Mateo Avenue						
WB	Left	220	200	**250 (41.5%)**	**420**	**480 (43.8%)**
WB	Through	220	180	210	**240**	210 (0%)
WB	Right	80	**90**	**100 (10.4%)**	**120**	**80 (2.1%)**
#20 South Airport Boulevard/ Gateway Boulevard						
EB	Left	130	100	**130 (32.4%)**	40	60
EB	Through	500	360	400	100	100
EB	Right	500	150	160	60	70
#21 South Airport Boulevard/101 NB/South Airport Boulevard Off Ramp/Wondercolor Lane						
EB	Left/Through	750	730	**>750 (58.0%)**	250	390
EB	Right	750	150	210	30	30
#26 I-380 Westbound Ramp/South Airport Boulevard						
NB	Through	120	0	0	0	0
NB	Left	120	10	10	60	60
SB	Right	120	40	50	**340**	**400 (8.5%)**
#27 South Airport Boulevard/I-380 EB						
EB	Left/Through	1000	180	310	160	160
SB	Through	120	30	30	40	40

Notes:

95th Percentile Queues based on the methodology in the Highway Capacity Manual, 2010 analyzed with Synchro software. Intersections 4, 6, 10, 11, 12, 26, and 27 were analyzed based on HCM 2000. Queues do not take into account downstream spillover from adjacent intersections. Storage Distance and Queues in feet per lane.

Gray highlight indicates a significant change in queues.

Source: Fehr & Peers, 2019

Five study intersections meet peak hour signal warrants under Existing plus Project conditions:

- The intersection of Allerton Avenue/Forbes Boulevard (#8) does not meet signal warrant under Existing conditions, but will meet the peak hour signal warrant during the AM and PM peak hour under Existing plus Project.

- The intersection of East Grand Avenue/Allerton Avenue (#17) meets the peak hour signal warrant during the Existing PM peak hour, and will meet peak hour signal warrants during the AM and PM peak hour under Existing plus Project conditions.
- The intersection of East Grand Avenue/DNA Way (#18) meets the peak hour signal warrant during the Existing AM and PM peak hours and will continue to meet signal warrants under Existing plus Project conditions.
- The intersection of Mitchell Road/Harbor Way (#24) meets the peak hour signal warrant during the Existing AM peak hour, and will meet peak hour signal warrants during the AM and PM peak hour under Existing plus Project conditions.
- The intersection of Utah Avenue/Harbor Way (#25) meets the peak hour signal warrant during both AM and PM peak hour under Existing conditions, and will continue to meet peak hour signal warrants during the AM and PM peak hour under Existing plus Project conditions.

Regulatory Requirements

The City of South San Francisco *East of 101 Study* was prepared and adopted by the City in 2011 to establish a source of funding for future capital improvements to the transportation system in the East of 101 Area. The East of 101 Study and its associated transportation improvement fee program includes funding for a number of intersection improvement projects that, when implemented, would mitigate certain of the Project's local intersection impacts, as indicated below.

Regulatory Requirement Transportation 1A - Assumed Signal Timing Adjustments: The Project Sponsor shall pay South San Francisco's East of 101 Transportation Impact Fees, representing their fair-share contribution toward the following traffic signal timing adjustments already included in the East of 101 Traffic Impact Fee Program:

a) Airport Boulevard/Sister Cities Boulevard/Oyster Point Boulevard (#1). Adjust the signal timing at the intersection to allow the southbound right-turn movement to overlap with the eastbound left turn movement. This timing adjustment would improve intersection operations to an acceptable LOS D. (**LTS**)

b) Dubuque Avenue/101 NB off-ramp/Oyster Pt. Boulevard (#2). Adjust the signal timing at the intersection to provide additional green time for the eastbound movement in the AM, and to provide additional green time for the westbound movement in the PM. This signal timing would reduce the queue compared to the existing conditions. The queue would still exceed available storage space, but the Project would not further extend queues beyond existing conditions. However, this intersection is under the jurisdiction of Caltrans and the City cannot ensure this mitigation is implemented. (**conservatively SU**)

c) Gateway Boulevard/East Grand Avenue (#15). Adjust the signal timing at this intersection to convert the eastbound left turn phase from a lagging phase to a leading phase. This timing adjustment would reduce delay to an acceptable LOS D. (**LTS**)

d) East Grand Avenue/Littlefield Avenue (#23): Optimize the signal timing, allowing the northbound right-turn movement to overlap with the westbound left-turn movement, and change the existing northbound through/left-turn lane to allow northbound through/left/right turn movements. These measures would improve intersection operations to an acceptable LOS D in the AM peak hour. (**LTS**)

Regulatory Requirement Transportation 1B - East of 101 Transportation Impact Fee Improvements: The Project Sponsor shall pay South San Francisco's East of 101 Transportation Impact Fees, representing their fair-share contribution toward the following intersection improvements already included in the East of 101 Traffic Impact Fee Program:

a) Oyster Point Boulevard/Eccles Avenue (#6). Add an eastbound right-turn lane and provide a northbound configuration that includes a northbound right-turn lane, a northbound left-turn lane and a 100-foot northbound left-turn pocket, in conjunction with optimized signal timing. Because the addition of an eastbound right-turn lane would lengthen pedestrian crossing distances and overlap with an existing bike lane, a pedestrian refuge in the median and expanded green bike lane (conflict zone) markings should also be included. This measure would result in an acceptable LOS B in the AM peak hour. (**LTS**)

b) Oyster Point Boulevard/Gull Drive (#7). Extend the double northbound left-turn lanes to approximately 200 feet, add an eastbound right-turn pocket, add a second northbound left-turn lane, and adjust the signal timing to allow the eastbound right and northbound left movements to overlap. This measure would improve intersection operations to an acceptable LOS D in both the AM and PM peak hours. (**LTS**)

c) Airport Boulevard/Grand Avenue (#12): Add a second southbound left-turn lane and convert the southbound right-turn lane to a through/right lane. This measure would reduce delay and improve intersection operations to an acceptable LOS D in the AM peak hour. However, the improvements would not reduce the length of the southbound left turn queue, and as such the queuing impact would be significant and unavoidable. (**SU**)

d) East Grand Avenue/Harbor Way/Forbes Boulevard (#16): Add a westbound through lane, an eastbound right-turn lane, an eastbound through lane, and time-of-day geometry changes for northbound and southbound approaches. Because these improvements would lengthen crosswalk distances and exacerbate conflicts with bicyclists along East Grand Avenue and Forbes Boulevard, the mitigation should incorporate pedestrian refuge islands, bicycle conflict zone markings and consider the removal of slip lanes. This measure would decrease delay to an acceptable LOS D in both AM and PM peak hours. (**LTS**)

e) East Grand Avenue/Allerton Avenue (#17): Install a traffic signal, including a protected southbound left-turn movement. This measure would improve intersection operations to acceptable LOS B in the PM peak hour. (**LTS**)

f) East Grand Avenue/DNA Way (#18): Install a traffic signal and add an additional eastbound left turn lane. This measure would improve intersection operations to an acceptable LOS B in the AM peak hour and LOS C in the PM peak hour. (**LTS**)

g) Produce Avenue/Airport Boulevard/San Mateo Avenue (#19): Widen the westbound approach to consist of three dedicated left turn lanes, one through lane, and one shared through-right lane. This measure would reduce both queuing and vehicular delay to an acceptable LOS D in both the AM and PM peak hours. (**LTS**)

Mitigation Measures

In addition to the required payment of East of 101 Transportation Impact Fees, the following additional mitigation measures are identified:

Mitigation Measure Transportation 1: Additions to East of 101 Transportation Impact Fee Program: The Project applicant shall pay its fair-share toward the following intersection improvements by either; 1) fully funding the following improvement subject to fee credits if the improvement is subsequently included in the City's CIP update; or 2) paying the City's Transportation Impact Fees if the City has included these improvements in its Capital Improvement Program (CIP) prior to issuance of building permits for development that triggers these mitigation improvements:

a) 101 SB/Oyster Pt. Boulevard off Ramp (#4). Add an additional eastbound through lane, and change the signal phasing to implement an overlap phase for the northeast-bound right turn

movement. These measures would reduce queues to levels not exceeding existing conditions. However, this intersection is under the jurisdiction of Caltrans and the City cannot ensure this mitigation is implemented. (**conservatively SU**)

b) Forbes Boulevard/Allerton Avenue (#8): Install a traffic signal with optimized signal timing. This measure would improve intersection operations to an acceptable LOS A in the AM and PM peak hours. (**LTS with MM**)

c) Gull Drive/Forbes Boulevard (#9): Adjust the existing signal timing and extend the southbound left turn pocket to 500 feet. This measure would partially mitigate the impact by decreasing delay, but the intersection would continue to operate at an unacceptable LOS F during the AM peak hour. (**SU**)

d) Airport Boulevard/Miller Avenue/ US-101 SB Off-Ramp (#10). Adjusting the signal timing to lengthen northbound through and eastbound right phases. This timing adjustment would improve intersection operations to an acceptable LOS C in the PM peak hour. However, this signal is operated by Caltrans and requests to modify signal timing may not be approved. As such, this impact is conservatively assumed to be significant and unavoidable. (**conservatively SU**)

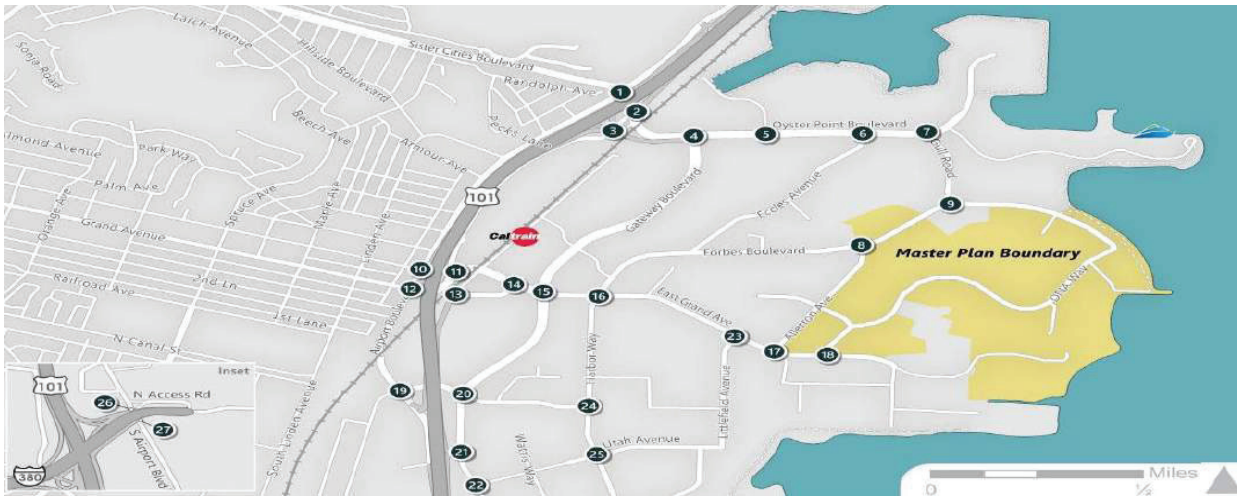
e) South Airport Boulevard/Gateway Boulevard/Mitchell Avenue (#20). Separate the existing shared northbound through/right lane into one northbound through lane and a northbound right turn lane, add one westbound through lanes, one eastbound right turn lane, one eastbound left turn lane and one southbound right turn lane. These improvements would lengthen crosswalk distances and exacerbate conflicts with bicyclists along Airport Boulevard and Gateway Boulevard; consequently, median pedestrian refuges and green bicycle conflict zone markings should be added. This measure decreases delay to an acceptable LOS C during the AM peak hour and acceptable LOS D during the PM peak hour, and reduces queuing to an acceptable level. These improvements are only partially included the East of 101 Transportation Impact Fee Program. (**LTS with MM**)

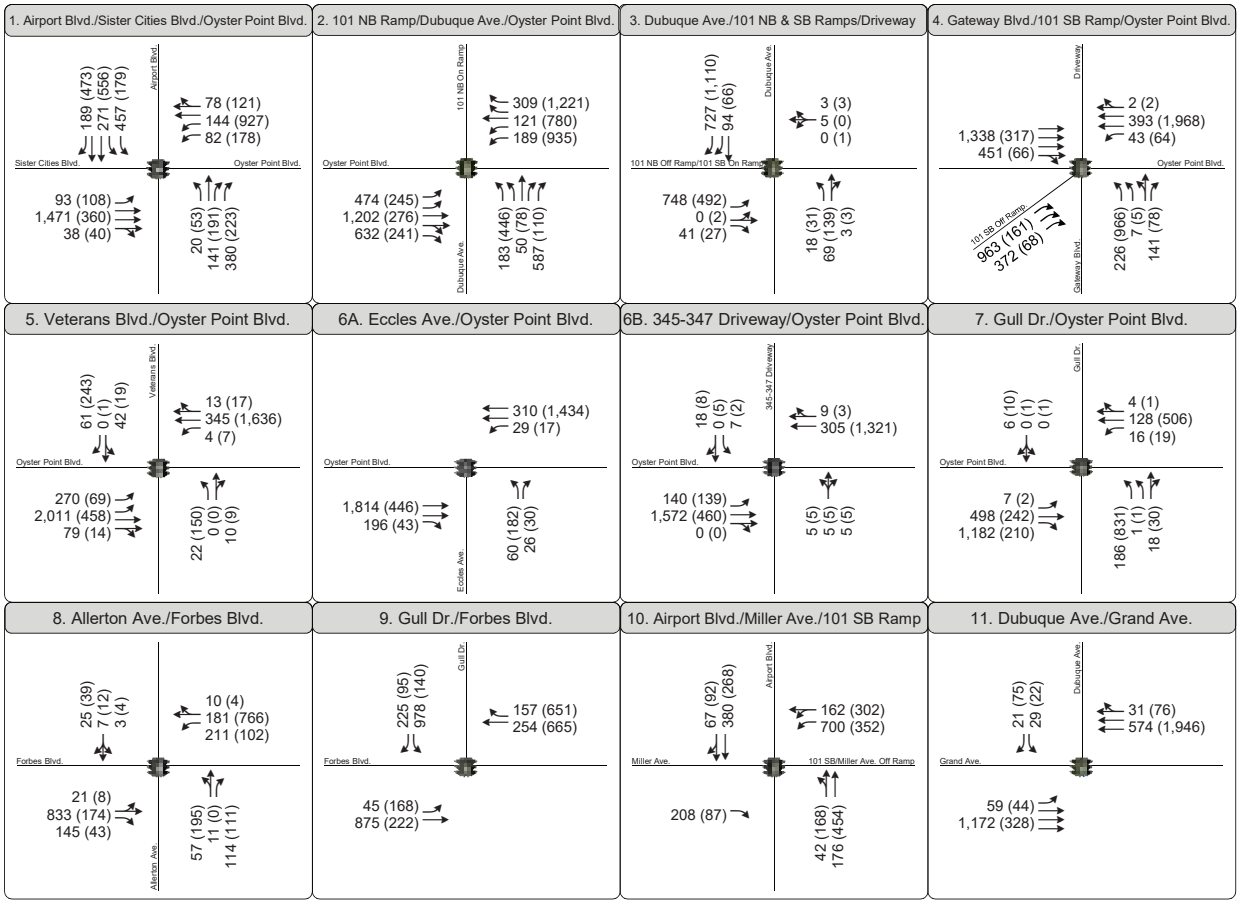
f) Mitchell Road/Harbor Way (#24): Install a traffic signal at this intersection, add a 250-foot eastbound left turn lane and a 100-foot northbound left turn lane and optimize the signal timing. This measure would improve intersection operations to LOS B in the AM peak hour and LOS A in the PM peak hour. (**LTS with MM**)

g) Utah Avenue/Harbor Way (#25): Add a traffic signal at this intersection and optimize signal timing. This measure would improve intersection operations to LOS A in both the AM and PM peak hours.[5] (**LTS with MM**)

Figure 17-10 illustrates Existing plus Project, with mitigations for AM and PM peak-hour traffic volumes at those intersections, as well as lane configurations and traffic controls (signals, stop signs, etc.).

[5] If the City chooses to include these improvements in its Capital Improvement Program (CIP), an additional design consideration may include adding left turn lanes on the Utah Ave approaches to Harbor when the intersection is signalized, to further improve traffic flow.





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#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
	Lane Configuration
STOP	Stop Sign
	Signalized

Figure 17-10
Peak Hour Traffic and Lane Configurations
Existing plus Project Conditions, with Mitigation

Source: Fehr & Peers, 2019

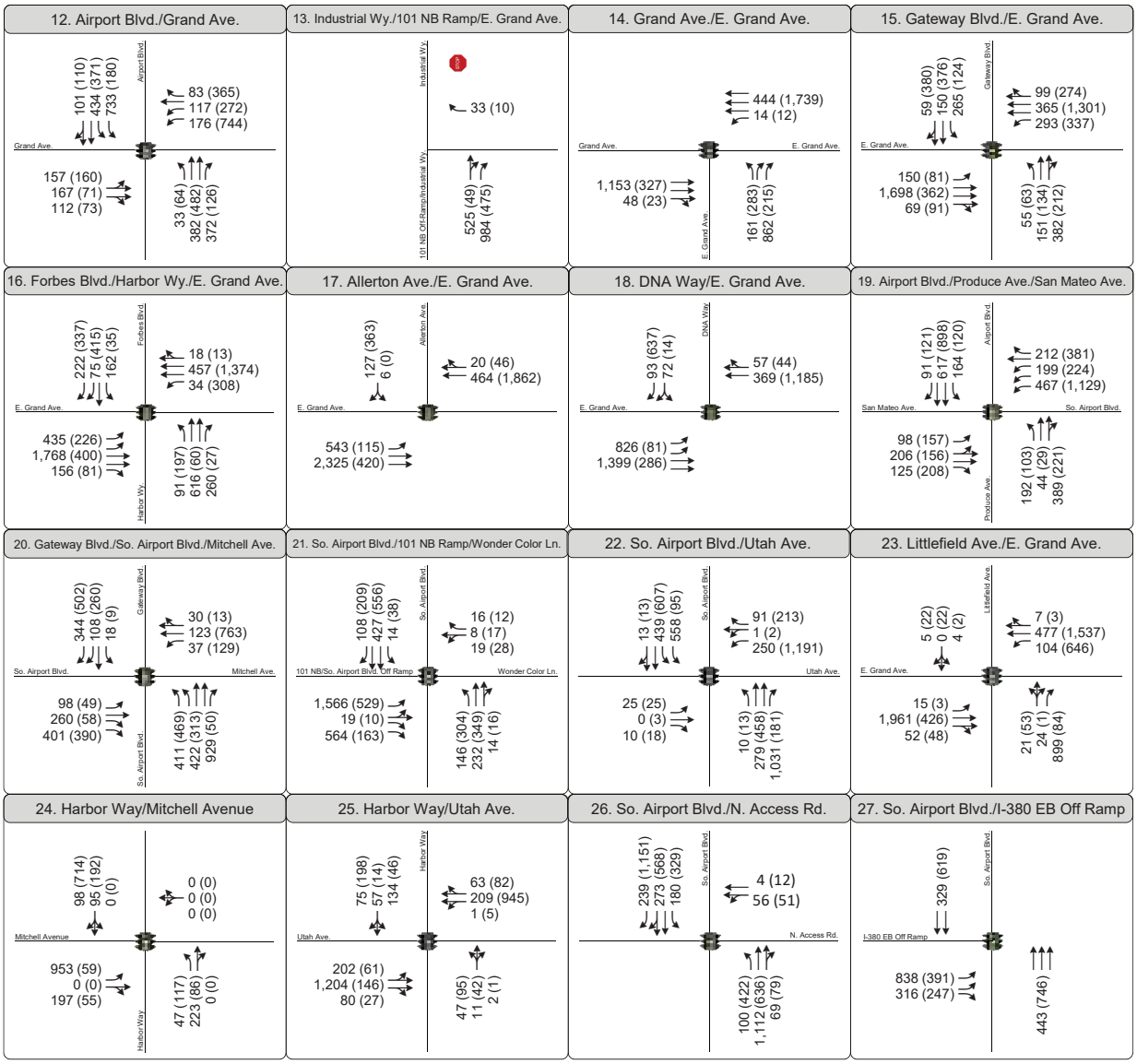


Figure 17-10B
Peak Hour Traffic and Lane Configurations
Existing plus Project Conditions, with Mitigation

Source: Fehr & Peers, 2019

Resulting Level of Service

Payment of East of 101 Traffic Fees

With payment of fair-share contributions toward those signal timing improvements and intersection improvements as included in the City's current East of 101 Transportation Impact Fee Program (Regulatory Requirements Transp 1A and Transp 1B), the Project's impacts at the following 9 intersections would be reduced to a less than significant level:

- Airport Boulevard/Oyster Point Boulevard (#1)
- Oyster Point Boulevard/Eccles Avenue (#6)
- Oyster Point Boulevard/Gull Drive (#7)
- Gateway Boulevard/East Grand Avenue (#15)
- East Grand Avenue/Harbor Way/Forbes Boulevard (#16)
- East Grand Avenue/Allerton Avenue (#17)
- East Grand Avenue/DNA Way (#18)
- Produce Avenue/Airport Boulevard/San Mateo Avenue (#19)
- East Grand Avenue/Littlefield Avenue (#23)

Additions to East of 101 Transportation Impact Fee Program

Improvements at the following list of intersections are not currently included under the City's East of 101 Transportation Impact Fee Program or Capital Improvement Program (CIP). The Project applicant shall implement their fair-share towards these intersections improvements either by fully funding improvements at these intersections subject to fee credits if the improvements are subsequently included in the City's CIP update; or by paying the City's Transportation Impact Fees if the City's then-current CIP includes these improvements at the time of issuance of building permits which trigger these improvements. With either of these approaches to payment of fair-share contributions toward improvements as identified in Mitigation Measures Transp 1C, the Project's impacts at the following 4 intersections would be reduced to a less than significant level:

- Forbes Boulevard/Allerton Avenue (#8)
- South Airport Boulevard/Gateway Boulevard/Mitchell Avenue (#20)
- Mitchell Road/Harbor Way (#24)
- Utah Avenue/Harbor Way (#25)

Significant and Unavoidable Impacts

Of the 20 intersections that would be adversely affected by Project-generated traffic, improvements identified in Regulatory Requirements Transp 1A and 1B, and Mitigation Measure Transp 1 would effectively reduce impacts to less than significant levels at 13 of these intersections. However, either there are no feasible improvements capable of reducing the Project's impacts, or implementation of mitigation improvements are within the jurisdiction of a separate agency (Caltrans) at five (7) intersections, and impacts would remain significant and unavoidable at the following locations:

- 101 NB/Oyster Pt. Boulevard off Ramp (#2): Adjusting the signal timing would improve intersection operations to an acceptable LOS. However, this signal is operated by Caltrans and requests to modify signal timing may not be approved. As such, this impact is conservatively assumed to be significant and unavoidable. (**conservatively SU**)

- 101 SB/Gateway Blvd./Oyster Pt. Boulevard Off Ramp (#4): Although the improvements identified in Mitigation Measure Transp-1B would reduce queues lengths to less than significant levels, these improvements are within the jurisdiction of Caltrans and requests to modify this intersection may not be approved. As such, this impact is conservatively assumed to be significant and unavoidable. (**conservatively SU**)
- Gull Drive/Forbes Boulevard (#9): Even with improvements identified under Mitigation Measure Transp 1C, the intersection would continue to operate at an unacceptable LOS F during the AM peak hour. There are no other feasible mitigations at this intersection since limited right-of-way is available to widen Gull Drive or Forbes Boulevard. Impacts at this intersection would remain significant and unavoidable. (SU)
- Airport Boulevard/Miller Avenue/ US-101 SB Off-Ramp (#10): Adjusting the signal timing would improve intersection operations to an acceptable LOS C in the PM peak hour. However, this signal is operated by Caltrans and requests to modify signal timing may not be approved. As such, this impact is conservatively assumed to be significant and unavoidable. (**conservatively SU**)
- Airport Boulevard/Grand Avenue (#12): Although the improvements identified in Mitigation Measure Transp-1B would reduce vehicle delay and LOS to a less than significant level, these improvements cannot reduce the length of the southbound left turn queue to which the Project contributes, and queuing impacts would remain significant and unavoidable. (**SU**)
- South Airport Boulevard/US-101 On- and Off-Ramps/ Wondercolor Drive (#21): Due to constrained right-of-way, there are no feasible mitigation measures for this location and the impact would be significant and unavoidable. (**SU**)
- South Airport Boulevard / I-380 Westbound ramp (#26). Due to constrained right-of-way and downstream queuing on the I-380 westbound ramp, there are no feasible mitigation measures for this location and the impact would be significant and unavoidable. (**SU**)

Freeway Ramps (Existing plus Project)

Impact Transportation 2: Although the Project would generate more than 100 peak hour trips onto the Congestion Management Program roadway network, it would not result in conflicts with applicable plans, ordinances or policies that establish measures for effective levels of service at freeway ramp locations. (**Less than Significant**)

Based on the analysis of traffic operations at freeway ramps near the study area, these freeway ramps would continue to operate at acceptable LOS under Existing plus Project conditions, as shown on **Table 17-14**.

Table 17-14: Peak Hour Freeway Ramp Levels Of Service – Existing Plus Project Conditions

US 101 Ramp			Existing			Existing plus Project			
	Peak Hour		Volume	V/C	LOS	Volume	V/C	LOS	% Contrib.
Oyster Point Boulevard	NB On	AM	793	0.36	B	828	0.38	B	4%
		PM	1,226	0.56	C	1,475	0.67	C	17%
	NB Off	AM	788	0.53	C	788	0.53	C	0%
		PM	493	0.33	B	522	0.35	B	6%
	SB On	AM	694	0.32	B	694	0.32	B	0%
		PM	1,024	0.47	B	1,064	0.48	B	4%
	SB Off	AM	1,014	0.68	C	1,292	0.86	D	22%
		PM	187	0.12	A	228	0.15	A	18%
Grand Avenue	NB On	AM	1,626	0.81	D	1,708	0.85	D	5%
		PM	817	0.41	B	997	0.50	BC	18%
	NB Off	AM	1,399	0.50	B	1,495	0.53	CB	6%
		PM	481	0.17	A	517	0.18	A	7%
	SB Off	AM	619	0.41	B	840	0.56	C	26%
		PM	576	0.38	B	641	0.43	B	10%
Produce Avenue	NB On	AM	262	0.13	A	262	0.13	A	0%
		PM	483	0.24	A	508	0.25	A	5%
	NB Off	AM	1,567	0.56	C	2,141	0.76	D	27%
		PM	553	0.20	A	693	0.25	A	20%
	SB On	AM	1,126	0.28	A	1,240	0.31	B	9%
		PM	1,943	0.49	B	2,285	0.57	C	15%
	SB Off	AM	1,151	0.39	B	1,178	0.41	B	4%
		PM	1,921	0.23	AC	1,921	0.23	AC	0%

Notes:

V/C = Volume to Capacity Ratio.

Bold indicates unacceptable LOS F. **Highlight** indicates significant impact.

Existing volumes based on weekday counts from May 2016, provided by City of South San Francisco. Assumes an off-ramp capacity of 1,500 vph for one lane and 2,800 vph for two lane, based on HCM 2010; diamond on-ramp capacity of 2,200 vph for one lane and 4,000 vph for two lanes; and looped on-ramp capacity of 2,000 vph. On-ramp capacity may be limited by downstream congestion on mainline freeway segments, while off-ramp capacity may be limited by downstream congestion on surface streets and at intersections.

Source: Fehr & Peers, 2019

Mitigation Measures

None needed

Resulting Level of Significance

The C/CAG Agency Guidelines for implementation of the 2015 Congestion Management Program specifies that local jurisdictions must ensure that Project sponsors mitigate peak-hour traffic impacts on the CMP network. These C/CAG Guidelines apply to developments that generate more than 100 peak-hour trips on the CMP roadway network. Consistent with C/CAG guidelines, the Project will implement a TDM program that is consistent with, and exceeds City requirements. That TDM program will further reduce its contribution of trips on the CMP network, including its contributions of traffic to freeway ramps.

Freeway Segments (Existing plus Project)

Impact Transportation 3: The Project would generate more than 100 peak hour trips onto the Congestion Management Program roadway network, resulting in conflicts with applicable plans, ordinances or policies that establish measures for effective levels of service along two freeway segments. No feasible improvements have been identified as capable of reducing impacts to less than significant levels. (**Significant and Unavoidable**)

Table 17-15 presents existing freeway segment levels of service during peak hours. All freeway segments near the Project site operate acceptably under Existing conditions except for the segment of northbound 101 south of Produce Avenue during the AM peak hour. The Project would increase freeway volumes by one to eight percent on these freeway segments. The impact of Project-generated traffic at each of the adversely affected freeway segments is described below.

- *Southbound US-101 north of Oyster Point Boulevard*: The Project would degrade operations on this segment of the US-101 freeway from LOS E to LOS F in the AM peak hour, with a 5.1% increase in volume
- *Northbound US-101 south of Produce Avenue*: The Project would degrade operations on this segment of the US-101 freeway by increasing traffic volume by as much as 5 percent on this freeway segment with a baseline LOS F operation

Table 17-15: Peak Hour Freeway Segment Levels Of Service – Existing Plus Project Conditions

US 101 Segment			Existing			Existing plus Project			
	Peak Hour		Volume	V/C	LOS	Volume	V/C	LOS	% Contrib.
North of Oyster Point Boulevard	NB	AM	7,722	0.88	E	7,844	0.89	E	1.6%
		PM	8,065	0.92	E	8,497	0.96	E	6.0%
	SB	AM	8,553	0.97	E	**9,097**	**1.04**	**F**	**5.1%**
		PM	7,212	0.82	D	7,318	0.83	D	1.4%
Oyster Point Boulevard to Grand Avenue	NB	AM	7,717	0.88	E	7,799	0.89	E	1.1%
		PM	7,332	0.83	D	7,542	0.86	D	3.1%
	SB	AM	8,223	0.94	E	8,482	0.97	E	2.8%
		PM	8,049	0.92	E	8,154	0.93	E	1.3%
Grand Avenue to Produce Avenue	NB	AM	7,490	0.68	C	8,159	0.75	D	8.2%
		PM	6,996	0.64	C	7,178	0.66	C	1.5%
	SB	AM	7,614	0.87	D	7,728	0.88	E	2.5%
		PM	7,473	0.85	D	7,911	0.90	E	5.5%
South of Produce Avenue	NB	AM	**8,795**	**1.01**	**F**	**9,260**	**1.06**	**F**	**5.0%**
		PM	7,066	0.81	D	7,165	0.82	D	1.5%
	SB	AM	7,589	0.69	C	7,703	0.70	D	1.4%
		PM	7,495	0.68	C	8,084	0.74	D	7.3%

Notes:

V/C = Volume to Capacity Ratio.

Bold indicates unacceptable LOS F. **Highlight** indicates significant impact.

Existing volumes based on weekday counts of US-101 mainline from May 2016, retrieved via Caltrans Performance Measurement System (PeMS) with 100 percent volume observed. Freeway volumes balanced to match ramp counts provided by City of South San Francisco. Assumes a capacity of 2,400 vehicles per hour (vph) based on LOS E capacity for 70 mph freeways in HCM 2010.

Source: Fehr & Peers, 2019

Mitigation Measures

None available

Resulting Level of Significance

As there are no feasible mitigation measures for these impacts to freeway segments due to constrained right-of-way and a corresponding inability to add traffic capacity or reduce vehicular delays, these impacts remain significant and unavoidable. The C/CAG Agency Guidelines for implementation of the 2015 Congestion Management Program specifies that local jurisdictions must ensure that Project sponsors mitigate traffic impacts during the peak hour on the CMP network. These C/CAG Guidelines apply to developments that generate more than 100 peak-hour trips on the CMP roadway network. Consistent with C/CAG guidelines, the Project will implement a TDM program that is consistent with, and exceeds City requirements. That TDM program will serve to reduce its otherwise greater contribution of trips on the CMP network, including increased traffic on US-101 freeway segments.

Roadway Design Hazards / Internal Vehicle Circulation

Impact Transp-4: The Project's on-site vehicle circulation system would not present a design hazard. (**Less than Significant**)

On-Site Streets

Existing City streets within the Project Area were originally designed and constructed to accommodate industrial related traffic:

- Forbes Boulevard is a four-lane street (2 lanes in each direction) with a center median and Class II bike lanes,
- Allerton Avenue is a two-lane road with a center median and Class II bike lanes,
- DNA Way is a two-lane without median but with clearly demarcated Class II bike lanes, and
- Gull Road is a two-lane road also with bike lanes.

These Project Area roadways provide sufficient vehicular circulation to serve the Project's circulation needs, and no additional streets or street improvements are expected to be necessary to address any design hazards of the circulation system.

Freight and Service Circulation

The Project assumes that existing manufacturing activity will remain at levels relatively similar to current use, that the number of manufacturing-related freight trips to and from the Project Area will not change substantially, and that freight services will likely remain focused in the Lower and West Campuses. Genentech will maintain efficient freight mobility to serve manufacturing and service needs by continuing to rely on East Grand Avenue and Oyster Point Boulevard for regional access. These arterial roads are designed to accommodate a high volume of larger-sized vehicles.

Pursuant to the Master Plan Update (the Project), new or relocated driveways that will serve loading docks will be located along the perimeter or rear of buildings, where interference with building entrances, pedestrian flow and parking maneuvers can be minimized. With implementation of these Project designs, freight and service circulation to and within the Project Area will not present a circulation design hazard.

Parking

To minimize potential circulation hazards related to accessing new parking within the Project area, the Master Plan Update proposes to accommodate increased parking demands through the following locational strategies:

- New parking structures will generally be distributed at important Project Area entry points. This will minimize on-Campus traffic and promote a safe internal pedestrian environment.
- The amount of new parking provided within the Upper Campus will be limited. Primary access to any Upper Campus parking structures will be limited to the exterior edges of the Upper Campus neighborhood. This will reduce vehicle circulation and enable partial closure of DNA Way through the Upper Campus.
- Each new parking structure will be linked with the on-Campus DNA Shuttle system to provide frequent, easy and direct shuttle connections from parking garages to office and lab buildings.
- Direct and easy pedestrian access will link each new parking structure to nearby buildings, with clearly delineated, off-street pedestrian pathways. Pedestrian connections should not rely on use of surface parking lot drive aisles as a path of pedestrian travel.

- Those parking spaces along the shoreline that are reserved for use by the general public to access the Bay Trail shall be retained accordance with agreements reached between Genentech, the City of South San Francisco and the Bay Conservation and Development Commission.

With implementation of these Project designs and locational strategies, access to future parking facilities will not present a circulation design hazard.

Mitigation Measures

None required

Conflict with a Transit, Bicycle or Pedestrian System Program or Policy

Impact Transportation 5: The Project would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, bicycle and pedestrian facilities. (**Less than Significant**)

Transit Service

The Project would not introduce any conflicts with programs, plans, ordinances or policies addressing transit service. The Project's proposed TDM program would substantially increase the use and availability of transit services to its employees, fully consistent with City General Plan and Municipal Code requirements. As indicated above, the Project would result in significant and unavoidable impacts related to intersection levels of service at two intersections (Eccles Avenue/Oyster Point Boulevard, and Forbes Boulevard/Gull Drive), which are used by Commute.org shuttles services. The decreased level of service at these intersections will increase delay for public shuttle operations, but would not conflict with SamTrans plans or programs to increase shuttle or bus service to the East of 101 Area.

Proposed Pedestrian Improvements on Campus

The Master Plan Update (the Project) includes plans to strengthen the on-Campus pedestrian network to ensure an integrated and walkable Campus, and to enhance neighborhood and Campus connectivity. Some of the major on-Campus pedestrian improvements identified in the Master Plan Update include:

- Creating a primary pedestrian system that radiates to and from the Upper Campus, linking the Upper Campus hub with each neighborhood campus;
- Considering a shared-street concept whereby DNA Way is scheduled for closure to general traffic, and opened as a pedestrian environment with accommodations for shuttles and buses, only;
- Enhancing pedestrian safety and accessibility by using consistent lighting design, making walkways at least 5 feet wide (and 6 to 8 feet where such widths can be accommodated), including pedestrian safety enhancements such as bulb outs, high-visibility crosswalks, Rapid-Rectangular Flashing Beacons (RRFBs) and a median refuge at all pedestrian crosswalks across internal Campus streets;
- Minimizing conflicts between service/goods movement and pedestrian walkways using landscaping, site furnishings and changes in paving materials to identify where pedestrian and vehicular traffic is shared;
- Providing secondary-level walkways that are recreational in nature, connecting to the Bay Trail and other natural assets via less-direct recreational pathways along hillsides and bluffs; and
- Considering the appropriateness of addressing any remaining sidewalk gaps where sidewalks are not present, as part of future individual development projects.

Off-Campus Pedestrian Connections

Many of the existing pedestrian crossings of East Grand Avenue and Oyster Point Boulevard are difficult for pedestrians to navigate due to high traffic volumes and relatively long pedestrian distances. The Master Plan Update indicates Genentech's willingness to work with the City toward improved pedestrian crosswalks across East Grand Avenue to the Campus, and to improve existing pedestrian facilities that provide pedestrian connections to off-Campus locations, consistent with the City's *Pedestrian Master Plan.* Such pedestrian improvements would not be detrimental to pedestrian safety or mobility, and would be fully consistent with the City's *Pedestrian Master Plan*.

Project Area Bicycle Improvements

The existing bicycle network within the Project Area includes Class II buffered bike lanes (a separate striped lane for one-way bicycle travel on both sides of the street) on:

- DNA Way for the full length of the Campus between East Grand Avenue and Forbes Boulevard,
- on Forbes Boulevard where it runs through or adjacent to the Campus between Allerton Avenue and DNA Way, and
- on Allerton Avenue where it runs adjacent to the Campus between Forbes Boulevard and East Grand Avenue
- Additionally, the San Francisco Bay Trail is a Class I bikeway along the Bay-front, including its entire length through the Project Area

Several internal pathways within the Campus are also accessible to bicyclists. The Campus also includes bicycle parking spaces, bike lockers, bike cages and bike racks, bicycle parking is provided at most buildings within the Campus and Genentech employees have access to a bike share system, with multiple stations around the Campus. No additional bicycle network improvements are anticipated or required within the Project Area, and new/expanded bicycle-serving facilities (bike parking, lockers, etc.) are proposed as part of the Project.

Off-Campus Bikeway Connections

The South San Francisco *Bicycle Master Plan* identifies a number of planned bicycle improvements near the Project Area boundaries, including the closure of bike lane gaps along East Grand Avenue and Forbes Boulevard, and the addition of new Class I bike trails along railroad corridors paralleling East Grand Avenue and Forbes Boulevard. The Project will generate substantial new traffic volumes along East Grand Avenue and Forbes Boulevard, increasing bicycle use at locations where bike lanes are not present or lack sufficient improvements to serve demand.

Regulatory Requirements

Pursuant to the South San Francisco Municipal Code, Chapter 20.260 (Genentech Master Plan District) section 20.260.006, Genentech is required to contribute to East of 101 transportation improvements in accordance with requirements of the East of 101 Traffic Fee Program. Transportation Impact Fees may be used by the City to fund enhancements to bicycle and pedestrian infrastructure consistent with the *Bicycle Master Plan* and the *Pedestrian Master Plan*. The City's Bicycle Master Plan calls for implementation of Class II bike lanes along the full length of East Grand Avenue and Forbes Boulevard, as well as Class I bike pathways along the abandoned railroad alignment south of East Grand Avenue and near Forbes Boulevard. Payment of South San Francisco East of 101 Transportation Impact Fees represents the Project's fair-share contribution toward planned bicycle system improvements that may accommodate additional bicycle demand and may also reduce traffic impacts by paying for on- and off-site bicycle improvements designed to encourage residents, employees and visitors to bike, rather than drive. The Project's impact fees may also be used to

contribute toward transit priority improvements along affected roadways and at intersections to help reduce transit delay where feasible. Transit priority improvements may include transit signal priority, bus/shuttle stop improvements, queue jumps and/or dedicated bus lanes along these routes.

Mitigation Measures

None required. No conflicts with programs, plans, ordinances or policies addressing transit, bicycle or pedestrian facilities are identified.

Cumulative Impacts

Cumulative conditions include transportation demand resulting from reasonably foreseeable land use changes and conditions associated with funded transportation projects. The following describes these cumulative conditions.

Cumulative Baseline Land Use Conditions

The year 2040 cumulative traffic demand projections were estimated based on cumulative land use and trip generation forecasts from the City of South San Francisco Travel Model, as updated in July 2018. Cumulative baseline conditions assume no growth associated with the Genentech Campus. A summary of land use assumptions for the cumulative baseline, as well as 2016 baseline year data presented in the model, is provided in **Table 17-16**.

Table 17-16: 2016 Baseline and 2040 Cumulative Baseline Land Use, East of 101 Area

Land Use	2016 Land Use (square feet)	2040 Cumulative Land Use (square feet)	Change per Cumulative Land Use (square feet)
Commercial	609,000	1,248,000	639,000
Hotel	1,228,000	2,100,000	872,000
Industrial	7,560,000	7,591,000	31,000
Office/R&D	12,023,000	18,967,000	6,944,000
Other	40,000	487,000	447,000
Total	21,460,000	30,393,000	8,933,000

Note: Assumes 2016 baseline Genentech land use and no future Campus growth

Sources: City of South San Francisco Traffic Model, July 2018

As shown in Table 17-16, the total amount of non-residential land use within the East of 101 Area is expected to increase from around 21.5 million square feet (as of 2016) to around 30.4 million square feet between the 2016 baseline year and the 2040 cumulative horizon year. This total includes the existing office/R&D and industrial land uses at the Project site, but does not include any growth associated with the Project. The Travel Model does include land use changes associated with the City of South San Francisco's Downtown Station Area Specific Plan to the west of US-101, including new housing and commercial development. Trip generation rates used in the traffic model are derived from ITE Trip Generation 9th Edition, with adjustments accounting for the City's TDM Ordinance requirements.

While the South San Francisco Travel Model provides a high-level overview of how future changes in land use will influence transportation demand, it does not account for a range of factors that may affect travel behavior. Such factors may include roadway capacity constraints, changes in office/R&D employment

characteristics, changes in peak-hour spreading, efficacy of TDM participation rates, shifts in travel behavior due to the introduction of autonomous vehicles, or fluctuations in economic or demographic conditions at either a local or regional level.

Cumulative Baseline Transportation Improvements

Future 2040 cumulative baseline transportation conditions assumed completion of planned improvements identified in local and regional transportation plans. These improvements include:

- East of 101 Impact Fee Program: The City of South San Francisco Traffic Impact Fee program identifies future transportation capital improvements in the East of 101 Area. The Impact Fee program identifies modifications at 19 intersections, including new traffic signals at the East Grand Avenue/Allerton Avenue and East Grand Avenue/DNA Way intersections adjacent to the Project site.
- South San Francisco Caltrain Station Relocation: Caltrain and the City of South San Francisco are relocating the existing South San Francisco Caltrain Station to a new location near the Grand Avenue/Airport Boulevard intersection. The project will include a new center platform, pedestrian and bicycle underpass connection to Downtown South San Francisco, and the conversion of Poletti Way to a two-way street. The project is being undertaken in coordination with the the Peninsula Corridor Electrification Project, which will electrify and upgrade the performance, operating efficiency, capacity, safety, and reliability of Caltrain's rail service.
- South San Francisco Bicycle Master Plan Improvements: The City of South San Francisco CIP includes several bicycle improvements in the East of 101 Area pursuant to the Bicycle Master Plan, including the completion of bike lanes on Oyster Point Bouevard/Gull Drive and East Grand Avenue between US-101 and the Project site.

The City of South San Francisco has identified other potential improvements in the Bicycle Master Plan, and Pedestrian Master Plan as well as ongoing planning efforts; however, the improvements are not fully funded and are therefore not assumed in the cumulative condition.

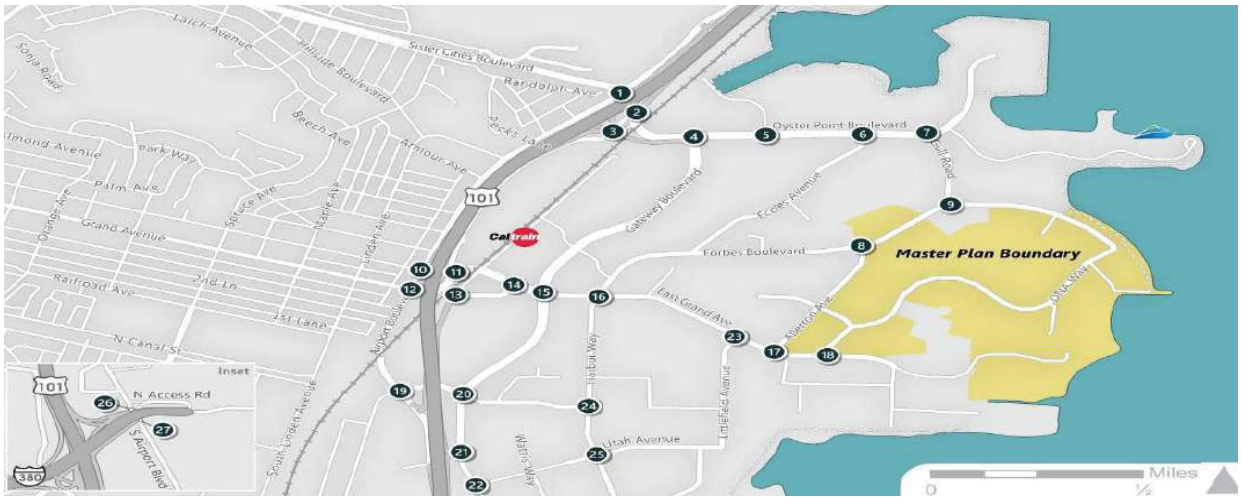
Cumulative (No Project) Intersection Conditions

Under Cumulative (No Project) conditions, the following intersections would operate at unacceptable LOS in the AM and/or PM peak hour:

- Airport Boulevard/Sister Cities Boulevard/Oyster Point Boulevard (#1) would operate at LOS F during the PM peak hour
- Dubuque Avenue/101 NB Off Ramp/101 SB On Ramp (#3) would operate at LOS F during the PM peak hour
- Oyster Pt. Boulevard/Gateway Boulevard (#4) would operate at LOS F during the AM and PM peak hours
- Allerton Avenue/Forbes Boulevard (#8) would operate at LOS E during the PM peak hours
- Airport Boulevard/Grand Avenue (#12) would operate at LOS F in the AM and PM peak hours
- Gateway Boulevard/East Grand Avenue (#15) would operate at LOS F in the PM peak hour
- Harbor Way/Forbes Boulevard/East Grand Avenue (#16) would operate at LOS F in the AM and PM peak hours
- Produce Avenue/Airport Boulevard/San Mateo Avenue/So. Airport Boulevard (#19) would operate at LOS E in the PM peak hour

- South Airport Boulevard/Gateway Boulevard/Mitchell Avenue (#20) would operate at LOS E in the PM peak hour
- South Airport Boulevard/101 NB/South Airport Boulevard Off Ramp/Wonder Color Lane (#21) would operate at LOS F in the AM and PM peak hours
- Mitchell Road/Harbor Way (#24) would operate at LOS F in both the AM and PM peak hours
- Utah Avenue/Harbor Way (#24) would operate at LOS F in the AM and PM peak hours

Figure 17-11 illustrates Cumulative no Project conditions for AM and PM traffic volumes during the peak hours at those intersections, as well as lane configurations and traffic controls (signals, stop signs, etc.).



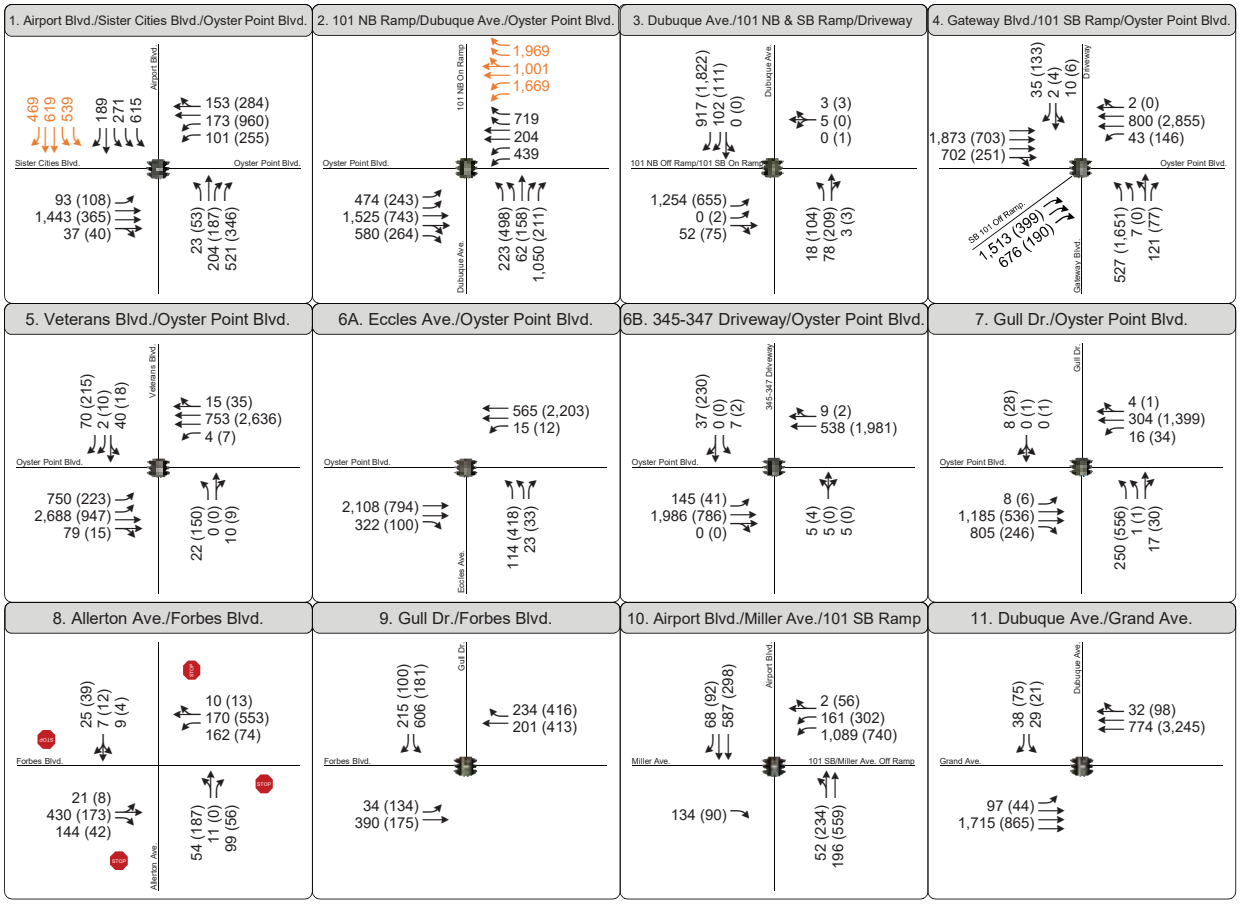


Figure 17-11
Peak Hour Traffic and Lane Configurations
Cumulative no Project Conditions

Source: Fehr & Peers, 2019

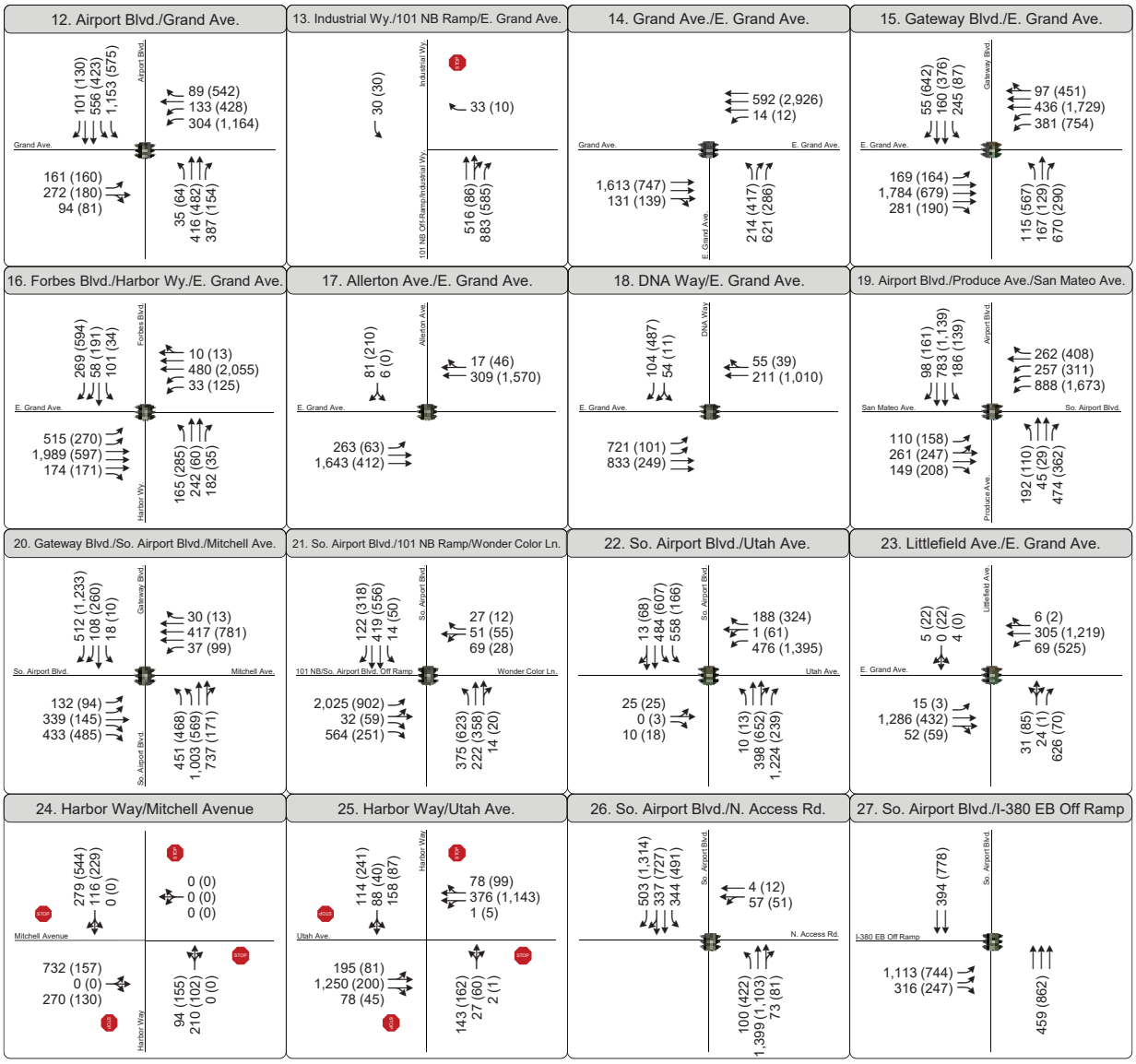


Figure 17-11B
Peak Hour Traffic and Lane Configurations
Cumulative no Project Conditions

Source: Fehr & Peers, 2019

Local Intersection Level of Service/Queuing (Cumulative plus Project)

Impact Transportation 6: The Project would contribute to cumulative traffic levels that would result in conflicts with applicable plans, ordinances or policies that establish measures of effectiveness for intersection levels of service (LOS) at 22 intersections. Mitigation measures identify improvements that could be made at 7 of the 22 affected intersections, but 4 of these improvements do not currently have an identified funding source. No feasible improvements have been identified as being capable of reducing impacts to less than significant levels under the Cumulative plus Project scenario at 15 affected study intersections. (**Significant and Unavoidable**)

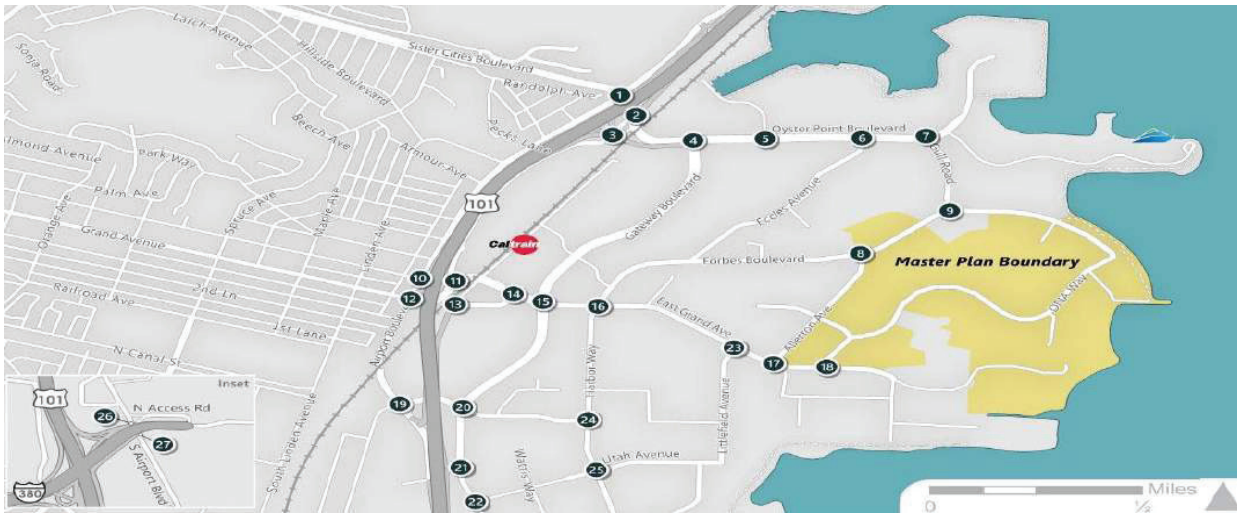
Based on the analysis of cumulative traffic operations at study intersections, the Project would individually contribute traffic at levels considered cumulatively significant at 22 of the 27 study area intersections. The impact of Project-generated traffic, when added to the Cumulative/No Project scenario at each of the adversely affected intersections, is described below.

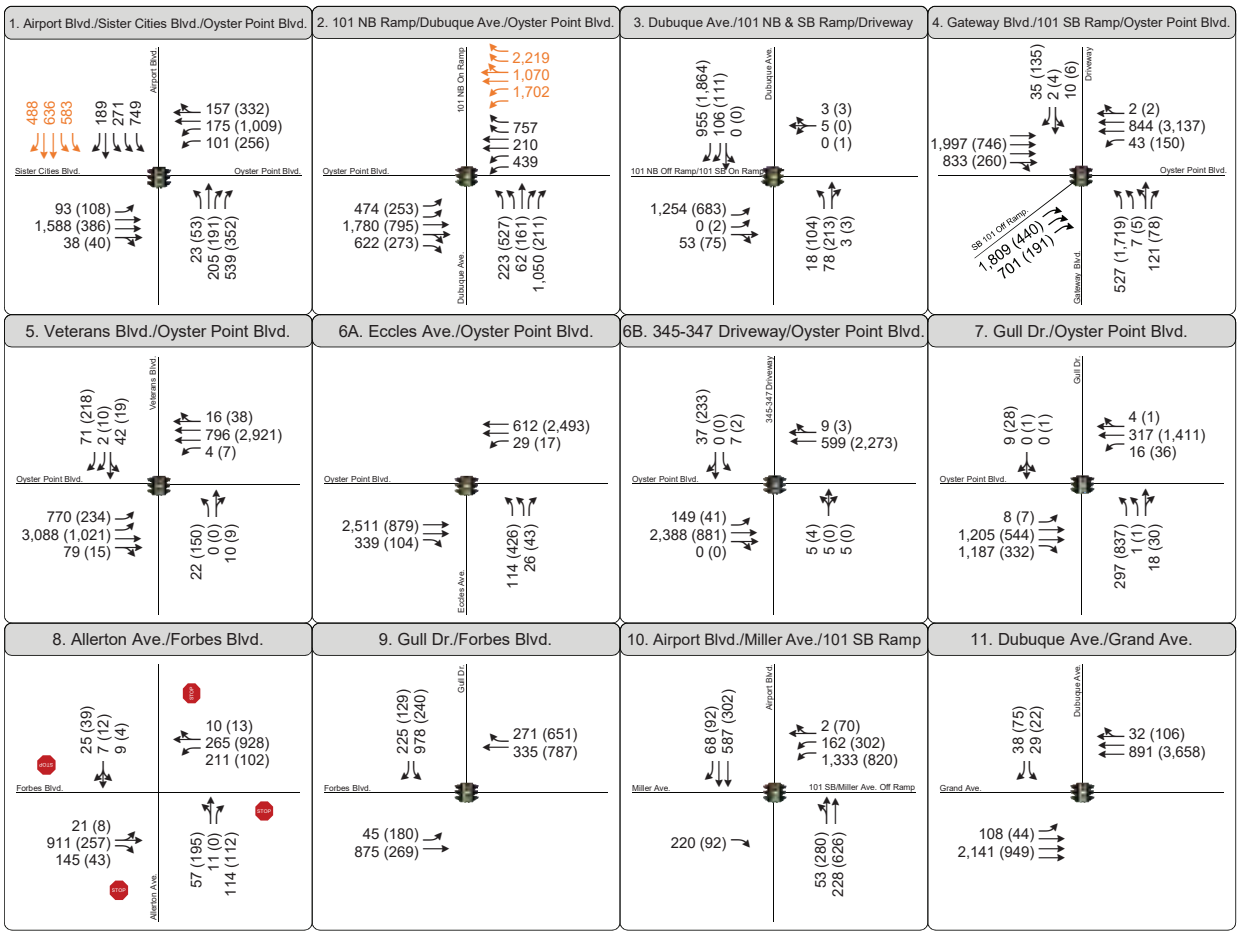
- *Airport Boulevard/Sister Cities Boulevard/Oyster Point Boulevard (#1):* The Project would increase Cumulative/No Project traffic volumes by greater than two percent at this intersection, projected to operate at LOS F in the PM peak hour and would contribute more than one percent of total vehicle volumes to the southbound left and right turn movements, which exceed available queue storage space.
- *Dubuque Avenue/US-101 northbound on-ramps (#2)*: The Project would increase Cumulative/No Project traffic volumes by more than one percent of total volumes to the eastbound through movements in the AM peak hour, and to the eastbound through, westbound left, westbound through, and westbound right movements in the PM peak hour. Each of these movements experiences queuing in excess of available storage space in the cumulative plus project condition.
- *Dubuque Avenue/US-101 northbound off-ramps* (#3). The Project would cause operations under Cumulative/No Project to decrease from LOS D to LOS E in the AM peak hour, and would increase total volumes by greater than two percent at an intersection already operating at LOS F in the PM peak hour. The Project would also contribute more than one percent of total volumes to the eastbound left/through movement, contributing to a queue exceeding available storage space.
- *Oyster Point Boulevard/Gateway Boulevard (#4):* The Project would increase Cumulative/No Project traffic volumes by greater than two percent at this intersection, projected to operate at LOS F in the AM and PM peak hours. The Project would also contribute more than one percent of total volumes to the northeast-bound right turn and eastbound through movements in the AM peak hour, contributing to an existing queue that exceeds available storage space.
- *Oyster Point Boulevard/Veterans Boulevard (#5)*: The Project would cause this intersection to decline from LOS D in the AM peak hour under Cumulative/No Project conditions, to LOS E in the AM peak hour.
- *Oyster Point Boulevard/Eccles Avenue (#6):* The Project would cause this intersection to decline from LOS B in the AM peak hour and LOS D in the PM peak hour under Cumulative/No Project conditions, to LOS E in the AM and LOS F in the PM peak hour.
- *Forbes Boulevard/Allerton Avenue (#8)*: The Project would cause this intersection to decline from LOS C in the AM peak hour and LOS E in the PM peak hour under Cumulative/No Project conditions, to LOS F in the AM and PM peak hours. This intersection would exceed signal warrant criteria for peak-hour traffic volumes under Cumulative/No Project conditions in the AM and PM
- *Gull Drive/Forbes Boulevard (#9)*: The Project would cause this intersection to decline from LOS B in the AM peak hour under Cumulative/No Project conditions, to LOS F in the AM peak hour

- *Airport Boulevard/Miller Avenue/US-101 SB Off-Ramp (#10)*: The Project would cause this intersection to decline from LOS D in the PM peak hour under Cumulative/No Project conditions, to LOS E in the PM peak hour
- *Dubuque Avenue/Grand Avenue (#11)*: The Project would cause this intersection to decline from LOS B in the PM peak hour under Cumulative/No Project conditions, to LOS E in the PM peak hour
- *Airport Boulevard/Grand Avenue (#12)*: The Project would increase Cumulative/No Project traffic volumes by greater than two percent at this intersection, projected to operate at LOS F in the AM and PM peak hour. The Project would also contribute more than one percent of total movement volume to the southbound left turn movement in the AM and PM peak hours, resulting in vehicular queuing that exceeds available storage length.
- *East Grand Avenue/Gateway Boulevard (#15)*: The Project would increase Cumulative/No Project traffic volumes by greater than two percent at this intersection, already operating at LOS F in the PM peak hour, and would cause this intersection to decline from LOS D in the AM peak hour under Cumulative/No Project conditions, to LOS F in the AM peak hour
- *East Grand Avenue/Harbor Way/Forbes Boulevard (#16)*: The Project would increase Cumulative/No Project traffic volumes by greater than two percent at this intersection, projected to operate at LOS F in the AM and PM peak hour
- *Produce Avenue/Airport Boulevard/San Mateo Avenue (#19)*: The Project would cause this intersection to decline from LOS E in the PM peak hour under Cumulative/No Project conditions, to LOS F in the PM peak hour, and would increase Cumulative/No Project traffic volumes by greater than two percent at this intersection. The Project would also contribute more than one percent of total volumes to the westbound left turn movement, contributing to AM and PM peak hour queues that exceed available storage space.
- *South Airport Boulevard/Gateway Boulevard (#20)*: The Project would cause this intersection to decline from LOS D in the AM peak hour and LOS E in the PM peak hour under Cumulative/No Project conditions, to LOS E in the AM and LOS F in the PM peak hour
- *South Airport Boulevard/ US-101 On- and Off-Ramps/Wondercolor Drive (#21)*: The Project would increase Cumulative/No Project traffic volumes by greater than two percent at this intersection, projected to operate at LOS F in the AM and PM peak hours. The Project would also contribute more than one percent of total volume to the shared eastbound left/through movement, contributing to queues that exceed available storage space.
- *South Airport Boulevard/Utah Avenue (#22)*: The Project would cause this intersection to decline from LOS C to LOS F in the AM peak hour, and from LOS D to LOS E in the PM peak hour
- *East Grand Avenue / Littlefield Avenue (#23)*: The Project would cause this intersection to decline from LOS C in the AM peak hour under Cumulative/No Project conditions, to LOS F in the AM peak hour
- *Mitchell Road / Harbor Way (#24)*: The Project would increase Cumulative/No Project traffic volumes by greater than two percent at this intersection, projected to operate at LOS F in the AM and PM peak hours
- *Utah Avenue / Harbor Way (#25)*: The Project would increase Cumulative/No Project traffic volumes by greater than two percent at this intersection, projected to operate at LOS F in both the AM and PM peak hours. Under AM and PM conditions the intersection exceeds peak hour volume signal warrant criteria levels.

- *I-380 Westbound Ramp/South Airport Boulevard (#26)*: The Project would cause this intersection to decline from LOS D in the PM peak hour under Cumulative/No Project conditions, to LOS E in the PM peak hour. The Project would also contribute more than two percent of total volumes to the southbound right turn movement, contributing to PM peak hour vehicle queues that exceed available storage length.
- *I-380 Eastbound Ramp/South Airport Boulevard (#27)*: The Project would cause this intersection to decline from LOS C in the AM peak hour under Cumulative/No Project conditions, to LOS E in the AM peak hour

Table 17-17 presents as summary of the level of service conditions at each of the study intersections under Cumulative and Cumulative plus Project conditions, and **Figure 17-12** illustrates Cumulative plus Project traffic volumes for AM and PM peak hours at those intersections, as well as lane configurations and traffic controls (signals, stop signs, etc.).





LEGEND

#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
	Lane Configuration
STOP	Stop Sign
	Signalized
	PM Dynamic Configuration

Figure 17-12
Peak Hour Traffic and Lane Configurations
Cumulative plus Project Conditions

Source: Fehr & Peers, 2019

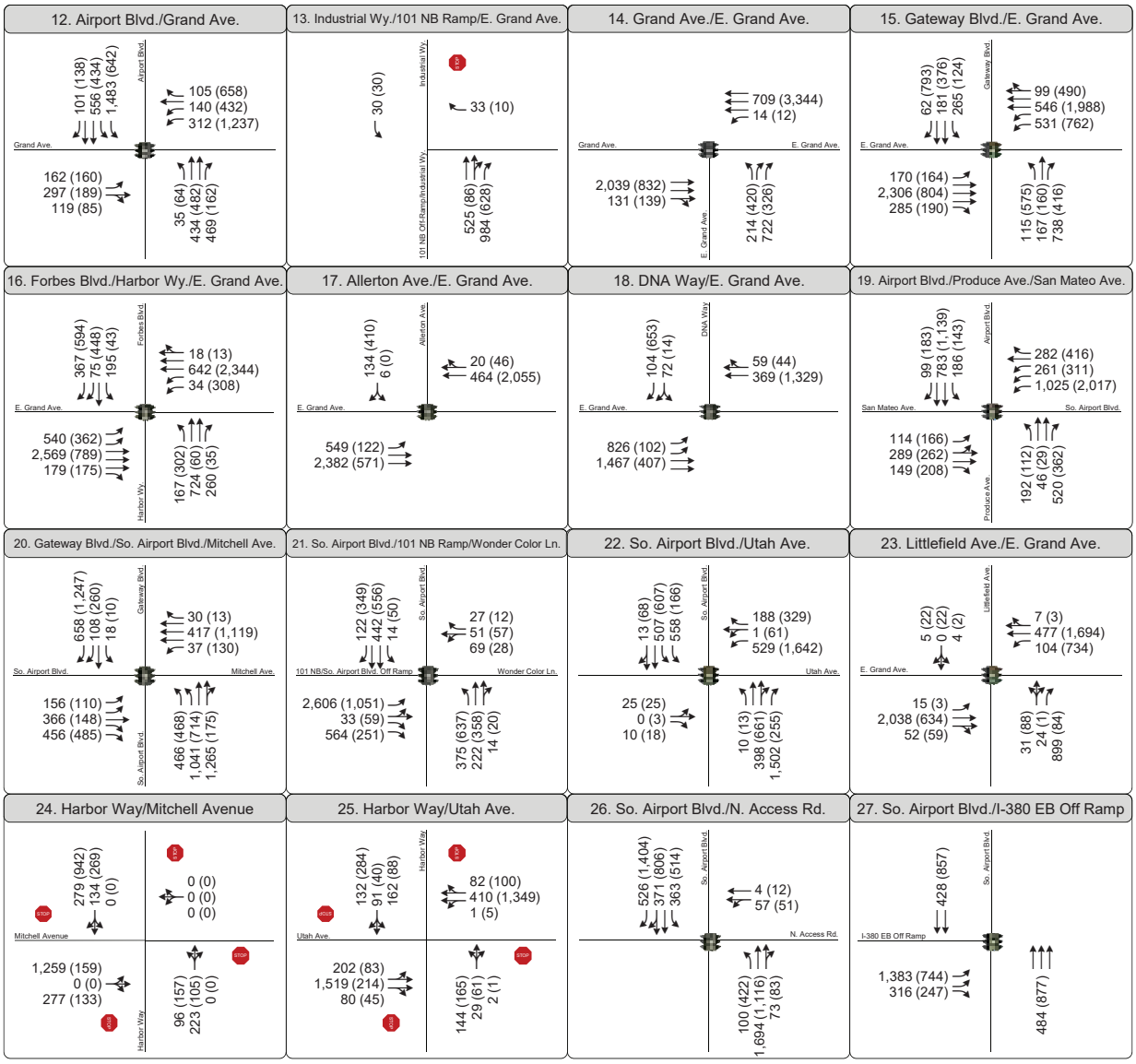


Figure 17-12B
Peak Hour Traffic and Lane Configurations
Cumulative plus Project Conditions

Source: Fehr & Peers, 2019

Table 17-17: Peak Hour Intersection Levels of Service – Cumulative and Cumulative Plus Project Conditions (2040)

	Intersection	Traffic Control	Peak Hour	Cumulative Average Delay	Cumulative LOS	Cumulative Plus Project Average Delay	Cumulative Plus Project LOS
1	Airport Boulevard/Sister Cities Boulevard/Oyster Point Boulevard	Signal	AM	37.1	D	40.1	D
			PM	**>80**	**F**	**>80**	**F**
2	Dubuque Avenue/101 NB On Ramp/Oyster Point Boulevard	Signal	AM	32.8	C	33.1	C
			PM	43.0	D	54.4	D
3	Dubuque Avenue/101 NB Off Ramp/101 SB On Ramp	Signal	AM	37.4	D	**74.2**	**E**
			PM	**>80**	**F**	**>80**	**F**
4	Oyster Pt. Boulevard/Gateway Blvd.	Signal	AM	**>80**	**F**	**>80**	**F**
			PM	**>80**	**F**	**>80**	**F**
5	Oyster Point Boulevard/Veterans Boulevard	Signal	AM	40.7	D	**77.1**	**E**
			PM	12.5	B	13.5	B
6	Eccles Avenue/Oyster Point Boulevard	Signal	AM	14.0	BC	**73.7**	**E**
			PM	53.9	D	**>80**	**F**
7	Gull Drive/Oyster Point Boulevard	Signal	AM	14.6	B	52.4	D
			PM	22.1	C	35.2	D
8	Allerton Avenue/Forbes Boulevard	AWSC	AM	18.7	C	**>80**	**F**
			PM	**47.1**	**E**	**>80**	**F**
9	Forbes Boulevard/Gull Drive	Signal	AM	11.9	B	**>80**	**F**
			PM	10.5	B	24.0	C
10	Airport Boulevard/Miller Avenue/101 SB/Miller Avenue Off Ramp	Signal	AM	33.3	C	39.6	D
			PM	36.3	D	**58.5**	**E**
11	Grand Avenue/Dubuque Avenue	Signal	AM	5.9	A	5.9	A
			PM	17.3	B	**58.2**	**E**
12	Airport Boulevard/Grand Avenue	Signal	AM	**>80**	**F**	**>80**	**F**
			PM	**>80**	**F**	**>80**	**F**
13	101 NB Off-Ramp/Industrial Way/Industrial Way/East Grand Avenue	SSYC	AM	10.2	B	10.3	B
			PM	8.6	A	8.6	A
14	East Grand Avenue/Grand Avenue	Signal	AM	5.4	A	4.8	A
			PM	11.6	B	49.4	D

Table 17-17: Peak Hour Intersection Levels of Service – Cumulative and Cumulative Plus Project Conditions (2040)

	Intersection	Traffic Control	Peak Hour	Cumulative Average Delay	Cumulative LOS	Cumulative Plus Project Average Delay	Cumulative Plus Project LOS
15	Gateway Boulevard/East Grand Avenue	Signal	AM	43.8	D	**>80**	**F**
			PM	**>80**	**F**	**>80**	**F**
16	Harbor Way/Forbes Boulevard/East Grand Avenue	Signal	AM	**>80**	**F**	**>80**	**F**
			PM	**>80**	**F**	**>80**	**F**
17	East Grand Avenue/Allerton Avenue	Signal*	AM	13.5	B	21.2	C
			PM	4.9	A	29.5	C
18	East Grand Avenue/DNA Way	Signal*	AM	18.3	B	7.5	A
			PM	21.2	C	20.7	C
19	Produce Avenue/Airport Boulevard/San Mateo Avenue/South Airport Boulevard	Signal	AM	38.7	D	41.3	D
			PM	**61.0**	**E**	**>80**	**F**
20	South Airport Boulevard/Mitchell Avenue & Gateway Boulevard	Signal	AM	48.8	D	**74.7**	**E**
			PM	**74.8**	**E**	**>80**	**F**
21	South Airport Boulevard/101 NB/South Airport Boulevard Off Ramp/Wonder Color Lane	Signal	AM	**>80**	**F**	**>80**	**F**
			PM	**>80**	**F**	**>80**	**F**
22	South Airport Boulevard/Utah Avenue	Signal	AM	33.5	C	**>80**	**F**
			PM	37.1	D	**62.8**	**E**
23	Grand Avenue/Littlefield Avenue	Signal	AM	32.4	C	**>80**	**F**
			PM	19.5	B	25.4	C
24	Mitchell Road / Harbor Way	AWSC	AM	**>80**	**F**	**>80**	**F**
			PM	**73.5**	**F**	**>80**	**F**
25	Utah Avenue/Harbor Way	AWSC	AM	**>80**	**F**	**>80**	**F**
			PM	**>80**	**F**	**>80**	**F**
26	I-380 Westbound Ramp/South Airport Boulevard	Signal	AM	19.4	B	19.0	B
			PM	40.1	D	**58.5**	**E**
27	I-380 Eastbound Ramp/South Airport Boulevard	Signal	AM	35.2	D	**66.5**	**E**
			PM	53.1	D	53.3	D

Bold indicates unacceptable LOS E or F. **Highlight** indicates significant impact. * Indicates changed traffic control conditions

Delay reported as seconds per vehicle.

LOS based on the methodology in the Highway Capacity Manual, 2010. Intersections 4, 6, 10, 11, 12, 26 and 27 were analyzed based on HCM 2000.

For signalized and all-way stop controlled intersections, the delay shown is the weighted average for all movements in seconds per vehicle. For side-street stop controlled (SSSC) and side street yield controlled (SSYC) intersections, the delay shown is the worst operating approach delay.

Calculations based on weekday counts and signal timings provided by the City of South San Francisco from May 2016

Source: Fehr & Peers, 2019

Table 17-18 presents a summary of vehicle queues at study area intersections near US-101 ramps under Existing and Existing plus Project conditions. The Project would extend or contribute to queues beyond existing storage distances at the following intersections:

- Airport Boulevard/Sister Cities Boulevard/Oyster Point Boulevard (#1)
- Dubuque Avenue/101 NB On Ramp/Oyster Point Boulevard (#2)
- Dubuque Avenue/101 NB Off Ramp/101 SB On Ramp (#3)
- 101 SB Off Ramp/Gateway Boulevard/Oyster Point Boulevard (#4)
- Airport Blvd./Grand Avenue (#12)
- Produce Avenue/Airport Boulevard/San Mateo Avenue (#19)
- South Airport Boulevard/101 NB/South Airport Boulevard off Ramp/Wondercolor Lane (#21), and
- I-380 Westbound Ramp/South Airport Boulevard (#26)

Table 17.18 Cumulative and Cumulative Plus Project, 95th Percentile Vehicle Queues Near US-101

Intersection		Storage Distance[1]	AM Peak Hour		PM Peak Hour	
			Cumulative	Cumulative + Project	Cumulative	Cumulative + Project
#1 Airport Boulevard/Sister Cities Boulevard/Oyster Point Boulevard						
SB	Left	320	180	260	**320**	**> 320 (8.2%**
SB	Through	320	270	270	280	290
SB	Right	320	30	30	310	**> 320 (4.1%)**
#2 Dubuque Avenue/101 NB On Ramp/Oyster Point Boulevard						
NB	Left	260	100	100	230	240
NB	Through	260	70	70	160	160
NB	Right	240	**> 240**	**> 240 (0%)**	40	40
EB	Left	170	**> 170**	**> 170 (0%)**	90	100
EB	Through	240	**> 240**	**> 240 (16.7%)**	**> 240**	**> 240 (7.0%)**
EB	Right	240	70	100	70	180
WB	Left	500	260	260	**> 500**	**> 500 (2.0%)**
WB	Through	830	70	70	**> 830**	**> 830 (6.9%)**
WB	Right	500	40	50	400	**> 500 (12.7%)**
#3 Dubuque Avenue/101 NB Off Ramp/101 SB On Ramp						
EB	Left/Through	260	**350**	**370 (0%)**	**270**	**280 (4.3%)**
#4 101 SB Off Ramp/Gateway Boulevard/Oyster Point Boulevard						
NEB	Through	3000	1,120	1420	240	260
NEB	Right	350	**> 350**	**> 350 (19.6%)**	270	270
EB	Through/Right	900	**1,190**	**1,330 (9.0%)**	310	320
#10 Airport Boulevard/Miller Avenue/101 SB/Miller Avenue Off Ramp						
WB	Left/Through	750	430	610	260	280

Table 17.18 Cumulative and Cumulative Plus Project, 95th Percentile Vehicle Queues Near US-101

Intersection		Storage Distance[1]	AM Peak Hour Cumulative	AM Peak Hour Cumulative + Project	PM Peak Hour Cumulative	PM Peak Hour Cumulative + Project
#12 Airport Boulevard/Grand Avenue						
SB	Left	280	**> 280**	**> 280 (28.4%)**	**> 280**	**> 300 (11.7%)**
SB	Through	280	220	170	150	150
SB	Right	280	20	10	30	30
#14 East Grand Avenue/Grand Avenue						
NB	Right	420	210	250	40	40
NB	Left	240	190	180	**490**	**490 (0.7%)**
#19 Produce Avenue/Airport Boulevard/San Mateo Avenue						
WB	Left	220	210	**> 220 (15.4%)**	**> 220**	**> 220 (20.6%)**
WB	Through	220	210	210	190	140
WB	Right	100	100	100	80	30
#20 South Airport Boulevard/ Gateway Boulevard						
EB	Left	130	80	90	50	50
EB	Through	500	380	420	100	100
EB	Right	500	20	10	10	10
#21 South Airport Boulevard/101 NB/South Airport Boulevard Off Ramp/Wondercolor Lane						
EB	Left/Through	750	**> 750**	**> 750 (28.3%)**	730	**> 750 (15.5%)**
EB	Right	750	190	110	70	80
#26 I-380 Westbound Ramp/South Airport Boulevard						
NB	Through	120	10	0	10	10
NB	Left	120	10	10	40	40
SB	Right	120	70	70	**> 120**	**> 120 (6.8%)**
#27 South Airport Boulevard/I-380 EB						
EB	Left/Through	1000	460	640	400	400
SB	Through	120	50	50	50	50

Notes:

95th Percentile Queues based on the methodology in the Highway Capacity Manual, 2010 analyzed with Synchro software. Intersections 4, 6, 10, 11, 12, 26, and 27 were analyzed based on HCM 2000. Queues do not take into account downstream spillover from adjacent intersections. Storage Distance and Queues in feet per lane.

Gray highlight indicates a significant change in queues.

Source: Fehr & Peers, 2019

Mitigation Measures

Mitigation Measure Transportation 6A: Implement Existing plus Project Measures. Pursuant to regulatory requirements and mitigation measures identified under Existing plus Project conditions, the Project applicant shall pay its fair-share toward the following intersection improvements by either; 1) fully

funding the following improvement subject to fee credits if the improvement is subsequently included in the City's CIP update; or 2) paying the City's Transportation Impact Fees if the City has included these improvements in its Capital Improvement Program (CIP) prior to issuance of building permits for development that triggers these mitigation improvements. These Existing plus Project improvements also improve traffic conditions under the Cumulative plus Project condition, as indicated below:

a) Forbes Boulevard/Allerton Avenue (#8): Implement Mitigation Measure Transportation 1(b), which provides for installation of a traffic signal with optimized signal timing. This measure would improve Cumulative intersection operations to an acceptable LOS B in the AM and LOS C in the PM peak hour. (**LTS)**

b) Grand Avenue/Littlefield Avenue (#23): Implement Regulatory Requirement Transportation 1A (d), which provides for an adjustment to the signal timing to allow the northbound right turn phase to overlap with the westbound left turn phase. This measure would reduce Cumulative delay to LOS D in the AM peak hour. (**LTS**)

c) Mitchell Road/Harbor Way (#24): Implement Mitigation Measure Transportation 1(f), which provides for installation of a traffic signal at this intersection, and adding an additional 250-foot eastbound left turn pocket as well as a 100-foot northbound left turn pocket. These improvements would improve Cumulative intersection operations to LOS D in the AM peak hour and LOS B in the PM peak hour. (**LTS with MM**)

Mitigation Measure Transportation 6B: Additions to East of 101 Transportation Impact Fee Program: If the City includes the following improvements in its East of 101 Transportation Impact Fee Program and Capital Improvement Program (CIP), the Project applicant shall pay its fair-share toward these intersection improvements by paying the City's Transportation Impact Fees:

a) Airport Boulevard/Oyster Point Boulevard (#1): Add overlap phases for the southbound right and northbound right movements, and optimizing signal timing. This measure would improve Cumulative intersection operations to an acceptable LOS D. However, this mitigation measure would not reduce the length of the southbound left turn or southbound right turn vehicle queues (to which the Project contributes more than 1% of the queue volume) to an acceptable level. There are no other feasible mitigations at this location. (**SU**)

b) Dubuque Avenue/US-101 Ramps (#3): Change the eastbound through-right lane to a left-through-right lane, introduce an overlap phase for the southbound right turn movement and optimize the signal timing. This measure would reduce Cumulative delay to achieve LOS D during the AM and PM peak hour, and would reduce eastbound left/through queue length to an acceptable level in the PM peak hour. However, this intersection is under the jurisdiction of Caltrans and also has no identified funding source, and the City cannot ensure this mitigation is implemented. (**LTS with MM, conservatively SU**)

c) Oyster Point Boulevard/Gateway Boulevard (#4): Increase cycle length to 160 seconds, providing an overlap phase for the northeast-bound right turn movement, and optimizing timing splits.[6] These changes would decrease delay and improve Cumulative operations to an acceptable level of service in the AM peak hour, but would not improve Cumulative operations to an acceptable

[6] If the City chooses to include these improvements in its Capital Improvement Program (CIP), an additional design consideration may include prohibiting the currently permitted left turns from eastbound Oyster Point Boulevard into the Cove and prohibiting through movements onto southbound Gateway and southbound left turns out of the Cove onto eastbound Oyster Point Boulevard. These changes to the existing intersection configuration would improve overall operations of this 5-leg intersection.

level of service in the PM peak hour, would not reduce Cumulative queuing to acceptable lengths, the intersection is under the jurisdiction of Caltrans, and no funding source is identified. (**SU**)

d) Airport Boulevard/Miller Avenue/US-101 SB Off-Ramp (#10): Adjust the signal timing to lengthen the westbound green time. This measure would improve Cumulative intersection operations to an acceptable LOS D in the PM peak hour. However, this intersection is under the jurisdiction of Caltrans and the City cannot ensure this mitigation is implemented. (**LTS with MM, conservatively SU**)

e) Dubuque Avenue/Grand Avenue (#11): Adjust the signal timing to lengthen the westbound green time. This measure would improve Cumulative intersection operations to an acceptable LOS D in the PM peak hour. However, this intersection is under the jurisdiction of Caltrans and also has no identified funding source, and the City cannot ensure this mitigation is implemented. (**LTS with MM, conservatively SU**)

f) Produce Avenue/Airport Boulevard/San Mateo Avenue (#19). Modify the signal timing. This measure would decrease delay but would not improve Cumulative operations to an acceptable level of service. There are no additional feasible mitigations at this intersection. (**SU**)

g) South Airport Boulevard/Gateway Boulevard (#20). Update the signal timing. This measure would decrease delay but would not improve Cumulative operations to an acceptable level of service. There are no additional feasible mitigations at this intersection. (**SU**)

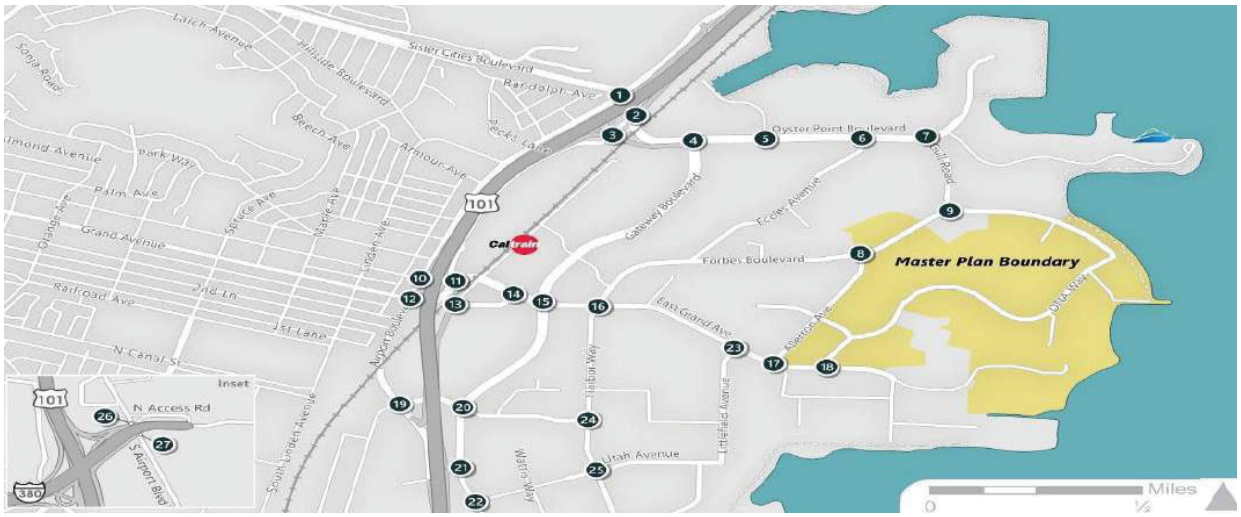
h) South Airport Boulevard/Utah Avenue (#22): Separate the westbound left turn lane into one westbound left and one westbound through lane, and adjust the signal timing to allow the northbound right and westbound left movements to overlap in the AM peak hour. This improvement would reduce Cumulative delay, but would not achieve an acceptable level of service in the AM peak hour. In the PM peak hour, changing configuration of the westbound approach would reduce Cumulative delay to LOS D. There are no additional feasible mitigations at this intersection. (**SU**)

i) Utah Avenue/Harbor Way (#25): Implement Mitigation Measure Transportation 1(g), which provides for installation of a traffic signal at this intersection. Additionally, reconfigure the approaches to add one eastbound left turn pocket and one westbound left-turn pocket, and convert the existing shared westbound through-right lane to a right turn lane. This measure would improve Cumulative intersection operations to LOS B in the AM and PM peak hours. However, the additional lane reconfigurations do not have an identified funding source, and implementation of this mitigation cannot be ensured. (**LTS with MM, conservatively SU**)

j) Westbound Ramp/South Airport Boulevard (#26). Extending cycle length and optimizing the signal timing at this location would improve intersection operations to an acceptable LOS D in the PM peak hour, but would not result in decreased queue lengths on the southbound right turn movement (to which the Project contributes more than 1% of the queue volume). (**SU**)

k) I-380 Eastbound Ramp/South Airport Boulevard (#27): Extending the cycle length and optimizing the signal timing at this location. This measure would improve Cumulative intersection operations to an acceptable LOS D in the PM peak hour. However, these improvements do not have an identified funding source, and implementation of this mitigation cannot be ensured. (**LTS with MM, conservatively SU**)

Figure 17-13 illustrates Cumulative plus Project conditions, with implementation of mitigation measures. This figure shown traffic volumes during the AM and PM peak hours at those intersections, as well as lane configurations and traffic controls (signals, stop signs, etc.).



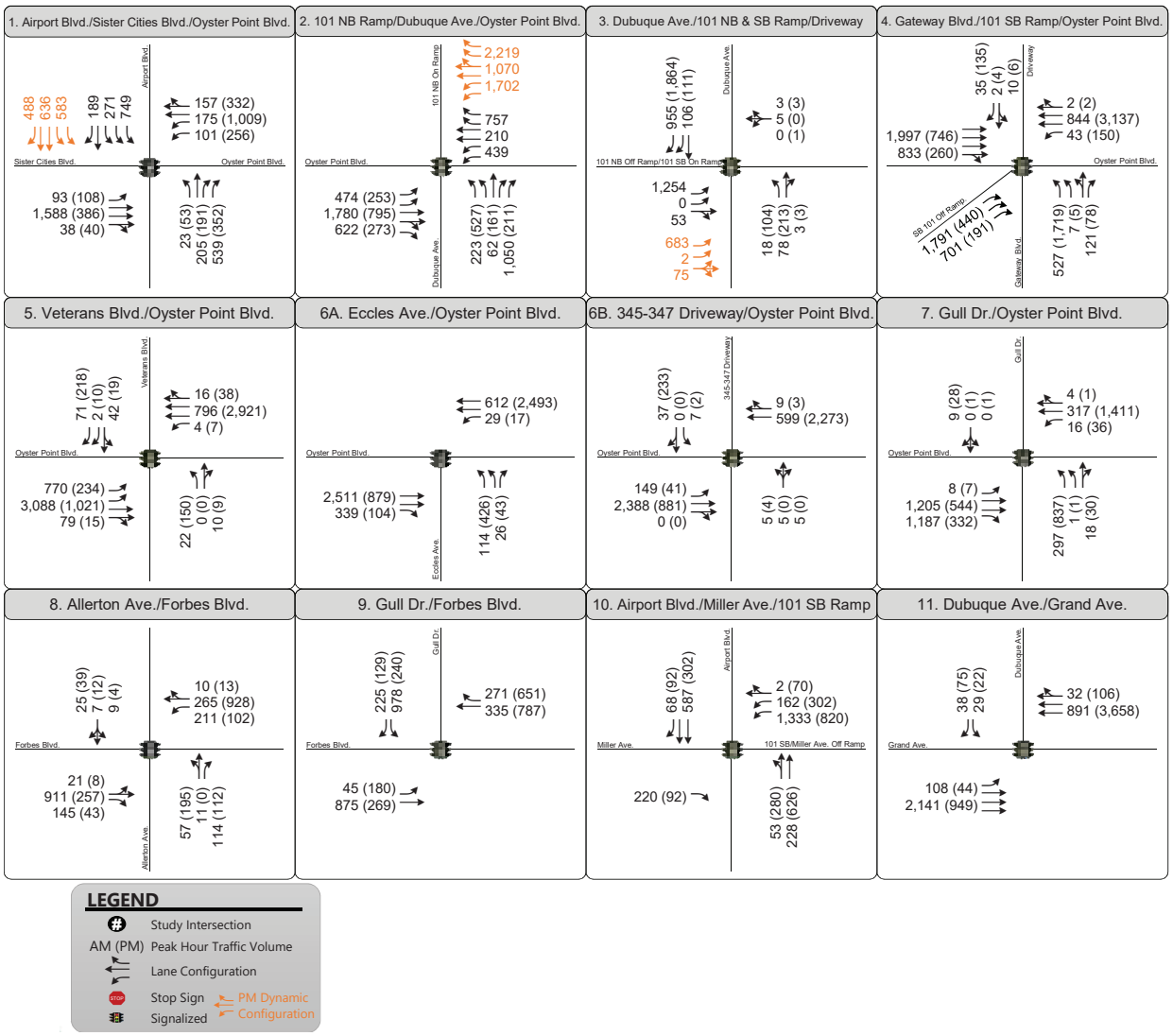


Figure 17-13
Peak Hour Traffic and Lane Configurations
Cumulative plus Project Conditions, with Mitigation

Source: Fehr & Peers, 2019

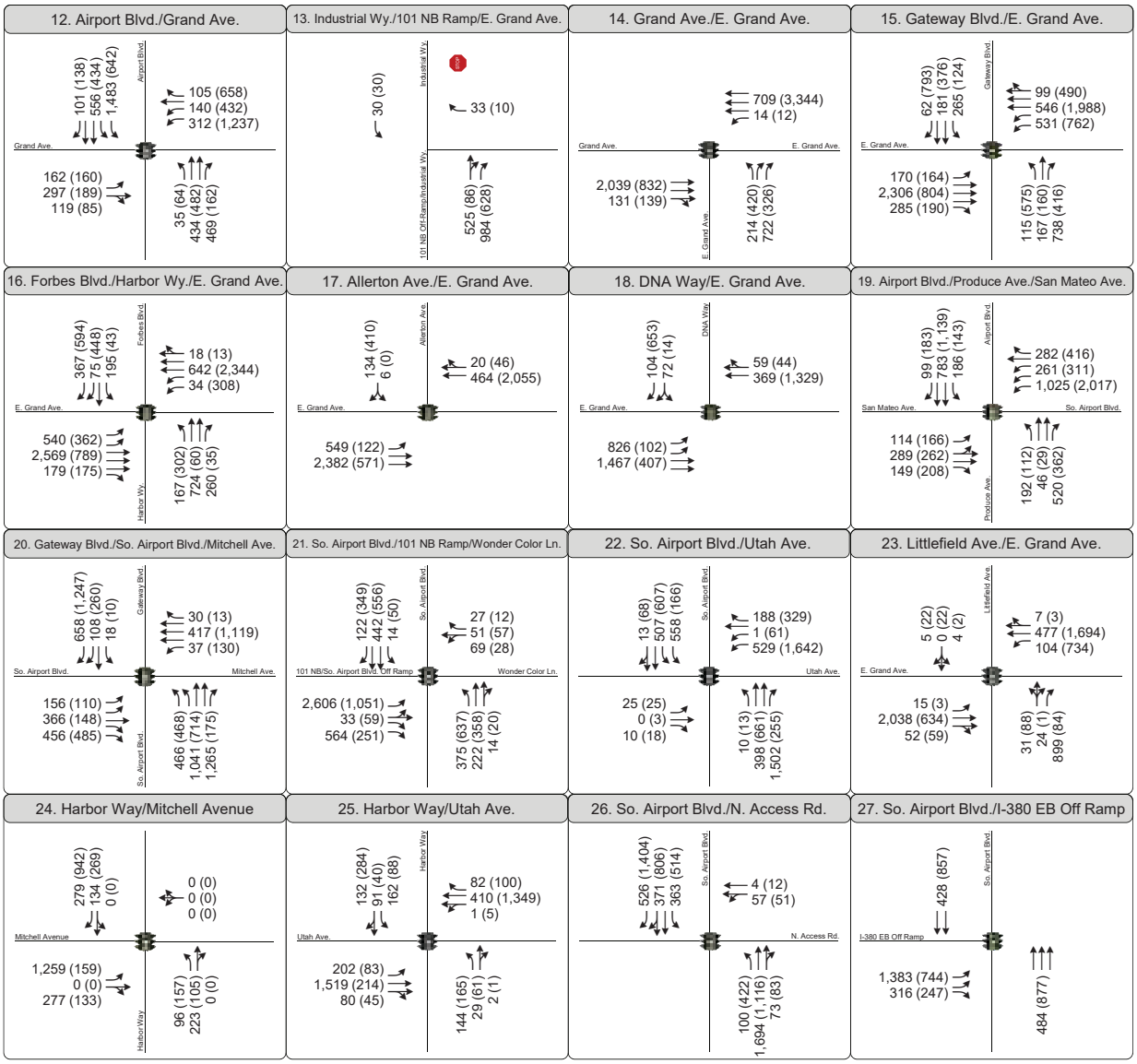


Figure 17-13B
Peak Hour Traffic and Lane Configurations
Cumulative plus Project Conditions, with Mitigations

Source: Fehr & Peers, 2019

Resulting Level of Service

Implement Existing plus Project Measures

Pursuant to regulatory requirements and mitigation measures identified under Existing plus Project conditions (Mitigation Measure Transportation 6A), Cumulative traffic impacts would be reduced to less than significant levels at the following 3 intersections:

- Forbes Boulevard/Allerton Avenue (#8)
- Grand Avenue/Littlefield Avenue (#23)
- Mitchell Avenue/Harbor Way (#24)

Additions to East of 101 Transportation Impact Fee Program

Of the 22 intersections that would be adversely affected by Cumulative plus Project-generated traffic, improvements identified in Mitigation Measures Transportation 6B could effectively reduce impacts to less than significant levels at the following 4 of intersections:

- Dubuque Avenue/US-101 Ramps (#3)
- Dubuque Avenue/Grand Avenue (#11)
- Utah Avenue/Harbor Way (#25)
- I-380 Eastbound Ramp/South Airport Boulevard (#27)

However, the improvements identified in MM Transportation 6B are not currently included under the City's East of 101 Transportation Impact Fee Program or in the City's Capital Improvement Program (CIP). The Project applicant shall implement their fair-share towards these intersections improvements by paying the City's Transportation Impact Fees if the City incorporates these improvements into the Fee Program and CIP. However, updating the City's Transportation Impact Fee Program and CIP to include these additional improvements is a separate discretionary action that may or may not be taken by the City. If no fair-share funding mechanism is established by the City to provide for fair-share payments toward the improvements needed to address cumulative traffic congestion, these improvements would not be funded. Therefore, traffic impacts at these 3 intersections are conservatively identified as being **significant and unavoidable**.

No Feasible Mitigation

Even with the improvements identified in MM Transportation 6B, there are 15 additional intersections that would be adversely affected by Cumulative plus Project-generated traffic for which there are no feasible improvements capable of reducing cumulative impacts to below threshold levels, and these impacts would remain **significant and unavoidable** at the following locations:

- Airport Boulevard/Sister Cities Boulevard/Oyster Point Boulevard (#1): The identified mitigation measure would reduce delay but would not reduce the length of the southbound left turn vehicle queue to an acceptable level. There are no other feasible mitigations at this location due to constrained roadway right-of-way.
- Dubuque Avenue/Oyster Point Boulevard (#2). Due to constrained right of way at this location, there is not space available to add additional queuing space. As such, there are no feasible mitigation measures for this location
- Oyster Point Boulevard/Gateway Boulevard (#4). The identified mitigation measure would decrease delay and improve operations to an acceptable level of service in the AM peak hour, but would not improve operations to an acceptable level of service in the PM peak hour, and would not reduce

queuing to acceptable lengths. There are no additional feasible mitigations at this intersection due to constrained roadway right-of-way.

- Oyster Point Boulevard/Veterans Boulevard (#5). There are no feasible mitigations at this intersection due to constrained street right-of-way.
- Oyster Point Boulevard/Eccles Avenue (#6). There are no feasible mitigations at this intersection due to constrained street right-of-way.
- Gull Drive/Forbes Boulevard (#9)*:* There are no feasible mitigations at this intersection due to constrained street right-of-way.
- Airport Boulevard/Grand Avenue (#12): There are no feasible mitigations at this intersection. Changes to Grand Avenue or Airport Boulevard to add vehicle capacity would be inconsistent with the Pedestrian Priority Zone identified in the South San Francisco Station Area Specific Plan.
- East Grand Avenue/Gateway Boulevard (#15):There are no viable mitigations at this intersection as additional roadway widening would conflict with the City of South San Francisco's Complete Streets Policy by further lengthening pedestrian crossing distances in an area with a high expected pedestrian demand (given its proximity to the planned Caltrain station).
- East Grand Avenue/Harbor Way/Forbes Boulevard (#16): There are no viable mitigations at this intersection due to constrained roadway right-of-way.
- Produce Avenue/Airport Boulevard/San Mateo Avenue (#19): The identified mitigation measure would decrease delay at this intersection but would not improve operations to an acceptable level of service. There are no additional feasible mitigations at this intersection.
- South Airport Boulevard/Gateway Boulevard (#20): The identified mitigation measure would decrease delay at this intersection but would not improve operations to an acceptable level of service. There are no additional feasible mitigations at this intersection.
- South Airport Boulevard/US-101 On- and Off-Ramps (#21)*:* There are no feasible mitigations at this intersection due to constrained roadway right-of-way.
- South Airport Boulevard/Utah Avenue (#22): The identified mitigation measure would decrease delay at this intersection to an acceptable level of service in the PM, but would not improve operations to an acceptable level of service in the AM peak hour. There are no additional feasible mitigations at this intersection.
- I-380 Westbound Ramp/South Airport Boulevard (#26): The identified mitigation measure would decrease delay at this intersection to an acceptable level of service, but would not decrease queue lengths on the southbound right turn movement. There are no additional feasible mitigations at this intersection.

Freeway Ramps (Cumulative plus Project)

Impact Transportation 7: The Project would generate more than 100 peak hour trips onto the Congestion Management Program roadway network, contributing to cumulative traffic levels that would conflict with applicable plans, ordinances or policies that establish measures for effective levels of service at two nearby freeway interchanges. No feasible improvements have been identified that are capable of reducing these impacts to less than significant levels. (**Significant and Unavoidable**)

Based on the analysis of cumulative traffic operations at freeway ramps near the study area, the Project would individually contribute traffic at levels considered cumulatively significant at each of the two nearby

freeway interchanges, as shown on **Table 17-19.** The impact of Project-generated traffic, when added to the Cumulative/No Project scenario at each of these adversely affected freeway ramps, follows:

- *US-101/Oyster Point Boulevard Interchange*: The Project would contribute more than one percent of the cumulative PM peak hour traffic to the northbound on-ramp, which is already expected to operate at LOS F condition in the Cumulative/No Project scenario.
- *US-101/Produce Avenue Interchange*: The Project would contribute more than one percent of the cumulative AM peak hour traffic to the northbound off-ramp, causing the off-ramp to decline from LOS E in the Cumulative/No Project scenario to LOS F condition.

Table 17-19: Peak Hour Freeway Interchange Levels Of Service – Cumulative and Cumulative plus Project Conditions

US 101 Ramp			Cumulative/No Project			Cumulative plus Project			
	Peak Hour		Volume	V/C	LOS	Volume	V/C	LOS	% Contrib.
Oyster Point Boulevard	NB On	AM	1,192	0.54	C	1,227	0.56	C	
		PM	**2,750**	**1.25**	**F**	**2,999**	**1.36**	**F**	**8%**
	NB Off	AM	1,311	0.87	D	1,309	0.87	D	
		PM	700	0.47	B	729	0.49	B	
	SB On	AM	947	0.43	B	945	0.43	B	
		PM	1,987	0.90	E	2,027	0.92	E	
	SB Off	AM	2,073	**1.38**	**F**	2,351	1.57	**F**	**12%**
		PM	497	0.33	B	538	0.36	B	
Grand Avenue	NB On	AM	714	0.36	B	796	0.40	B	
		PM	1,451	0.73	D	1,631	0.48	B	
	NB Off	AM	1236	0.44	B	1,332	0.48	B	
		PM	643	0.23	A	679	0.24	A	
	SB Off	AM	1,099	0.73	D	1,320	0.88	D	
		PM	1,316	0.88	D	1,381	0.92	E	
Produce Avenue	NB On	AM	540	0.27	A	540	0.27	A	
		PM	897	0.45	B	922	0.46	B	
	NB Off	AM	**2,605**	**0.93**	**E**	**3,179**	**1.14**	**F**	**18%**
		PM	1,314	0.47	B	1,454	0.52	C	
	SB On	AM	1,768	0.44	B	1,882	0.47	B	
		PM	2,949	0.74	D	3,291	0.82	D	
	SB Off	AM	565	0.38	B	592	0.39	B	
		PM	456	0.30	B	401	0.27	A	

Notes:

V/C = Volume to Capacity Ratio.

Bold indicates unacceptable LOS F.

Existing volumes based on weekday counts from May 2016, provided by City of South San Francisco. Assumes an off-ramp capacity of 1,500 vph for one lane and 2,800 vph for two lane, based on HCM 2010; diamond on-ramp capacity of 2,200 vph for one lane and 4,000 vph for two lanes; and looped on-ramp capacity of 2,000 vph. On-ramp capacity may be limited by downstream congestion on mainline freeway segments, while off-ramp capacity may be limited by downstream congestion on surface streets and at intersections.

Source: Fehr & Peers, 2019

Mitigation Measures

None available

Resulting Level of Significance

There are no feasible mitigation measures for these impacts to freeway interchanges. The northbound freeway on-ramp at Oyster Point Boulevard has a constrained right-of-way, and the Produce Avenue northbound off-ramp also has constrained right-of-way and a lack of capacity on surface roadways to accommodate more exiting vehicles. These impacts remain **significant and unavoidable**. Consistent with C/CAG guidelines, the Project will implement a TDM program that is consistent with, and exceeds City requirements. That TDM program will serve to reduce its otherwise greater contribution of trips on the CMP network, including its contributions of traffic to freeway interchanges.

Freeway Segments (Cumulative plus Project)

Impact Transportation 8: The Project would generate more than 100 peak hour trips onto the Congestion Management Program roadway network, contributing to cumulative traffic levels that would conflict with applicable plans, ordinances or policies that establish measures for effective levels of service on the freeway. No feasible improvements have been identified as capable of reducing impacts to less than significant levels. (**Significant and Unavoidable**)

Table 17-20 presents Cumulative and Cumulative plus Project freeway segment levels of service during the peak hours. The impact of Project-generated traffic at each of the adversely affected freeway segments is described below.

- *Northbound US-101, north of Oyster Point Boulevard:* This northbound freeway segment is projected to operate at LOS F conditions during both the AM and PM peak hours under Cumulative/No Project conditions, and the Project would contribute more than 1 percent of the cumulative traffic on this freeway segment during both peak hours.
- *Southbound US-101, north of Oyster Point Boulevard*: This southbound freeway segment is projected to operate at LOS F conditions during the AM peak hour under Cumulative/No Project conditions, and the Project would contribute more than 1 percent of the cumulative traffic on this freeway segment during the AM peak hour.
- *Northbound US-101, between Oyster Point Boulevard and Grand Avenue*: This northbound freeway segment is projected to operate at LOS F conditions during both the AM and PM peak hours under Cumulative/No Project conditions, and the Project would contribute more than 1 percent of the cumulative traffic on this freeway segment during the PM peak hour.
- *Southbound US-101, between Oyster Point Boulevard and Grand Avenue*: This southbound freeway segment is projected to operate at LOS F conditions during the PM peak hour under Cumulative/No Project conditions, and the Project would contribute more than 1 percent of the cumulative traffic on this freeway segment during the PM peak hour.
- *Northbound US-101, between Grand Avenue and Produce Avenue*: This northbound freeway segment is projected to operate at LOS F conditions during the AM peak hour under Cumulative/No Project conditions, and the Project would contribute more than 1 percent of the cumulative traffic on this freeway segment during the AM peak hour.
- *Southbound US-101, between Grand Avenue and Produce Avenue*: This southbound freeway segment is projected to operate at LOS F conditions during the PM peak hour under Cumulative/No Project conditions, and the Project would contribute more than 1 percent of the cumulative traffic on this freeway segment during the PM peak hour.
- *Northbound US-101, south of Produce Avenue*: This northbound freeway segment is projected to operate at LOS F conditions during the AM peak hour under Cumulative/No Project conditions, and

the Project would contribute more than 1 percent of the cumulative traffic on this freeway segment during the AM peak hour.

Table 17-20: Peak Hour Freeway Segment Levels Of Service – Cumulative and Cumulative Plus Project Conditions

US 101 Segment	Peak Hour		Cumulative (2035)			Cumulative plus Project (2035)			
			Volume	V/C	LOS	Volume	V/C	LOS	% Contrib.
North of Oyster Point Boulevard	NB	AM	**10,132**	**1.15**	**F**	**10,254**	**1.16**	**F**	**1.2%**
		PM	**12,363**	**1.40**	**F**	**12,795**	**1.45**	**F**	**3%**
	SB	AM	**8,824**	**1.01**	**F**	**9,368**	**1.07**	**F**	**5%**
		PM	7,925	0.90	E	8,031	0.92	E	
Oyster Point Boulevard to Grand Avenue	NB	AM	**10,252**	**1.17**	**F**	**10,334**	**1.18**	**F**	**0.8%**
		PM	**10,314**	**1.17**	**F**	**10,524**	**1.20**	**F**	**2%**
	SB	AM	8,372	0.95	E	8,621	0.98	E	
		PM	**9,790**	**1.12**	**F**	**9,895**	**1.13**	**F**	**1.1%**
Grand Avenue to Produce Avenue	NB	**AM**	**12,840**	**1.17**	**F**	**13,509**	**1.24**	**F**	**5%**
		PM	9,923	0.91	E	10,105	0.92	E	
	SB	AM	8,477	0.97	E	8,591	0.98	E	
		PM	**10,967**	**1.25**	**F**	**11,405**	**1.30**	**F**	**4%**
South of Produce Avenue	NB	AM	**8,795**	**1.01**	**F**	**9,235**	**1.06**	**F**	**5%**
		PM	7,336	0.84	D	7,435	0.85	D	
	SB	AM	7,589	0.69	C	7,703	0.70	D	
		PM	7,946	0.73	D	8,327	0.76	D	

Notes:

V/C = Volume to Capacity Ratio.

Bold indicates unacceptable LOS F.

Assumes a capacity of 2,400 vehicles per hour (vph) based on LOS E capacity for 70 mph freeways in HCM 2010. Analysis excludes northbound auxiliary lanes between I-380 and South Airport Boulevard, South Airport Boulevard and Grand Avenue, Grand Avenue and Oyster Point Boulevard, and Oyster Point Boulevard and Bayshore Boulevard. Analysis excludes southbound auxiliary lanes between Oyster Point Boulevard and Grand Avenue and between Produce Avenue and I-380.

Source: Fehr & Peers, 2019

Mitigation Measures

None available

Resulting Level of Significance

As there are no feasible mitigation measures for these impacts to freeway segment due to constrained right of way on US-101, and these cumulative impacts remain **significant and unavoidable**. Consistent with C/CAG guidelines, the Project will implement a TDM program that is consistent with, and exceeds City requirements. That TDM program will serve to reduce its otherwise greater contribution to cumulative trips on the CMP network, including increased traffic on US-101 freeway segments.

Non-CEQA Transportation Topics

The following topics do not relate to any environmental thresholds established by the City of South San Francisco and are not required to be evaluated in this EIR pursuant to CEQA. To aid the public and City decision-makers in evaluating and considering the merits of the Project, these topics are discussed below for informational purposes.

Parking

Since the 2003 State Appellate Court ruling in *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco*, the courts have generally held that parking (on its own) does not need to be treated as a significant impact on the environment. As of 2010, parking is no longer included as an environmental factor to be considered under CEQA Guidelines. Parking supply/demand varies by time of day, day of week, and seasonally. Although not required by CEQA, parking conditions are evaluated in this document as a non-CEQA topic for informational purposes. The following provides an evaluation of whether the Project's estimated parking demand would be met by the proposed parking supply.

Existing Parking Supply and Parking Requirements

The Genentech Campus' baseline (2017) parking supply is provided in a combination of surface parking lots and parking structures. The total number of parking spaces serving the Campus is nearly 8,000 spaces, as shown in **Table 17-21**.

Table 17-21: Existing (2017) Campus Parking Supply

	Surface Lots	Structured	Total
Upper Campus	3,080	1,420	4,500
South Campus	220	2,180	2,400
Other Surface Lots	1,060	0	1,060
Total	***4,360***	***3,600***	***7,960***

Parking demand at the Campus is primarily a function of the effectiveness of the TDM Plan - the higher the TDM trip reduction, the lower the parking demand. A TDM-based approach to calculating parking demand was reflected in the prior 2007 Master Plan and incorporated into the parking requirements of the South San Francisco Municipal Code (Section 20.260.003[D]).

To test the validity of these TDM-based parking ratios, the predicted current parking demand based on Genentech's current 42% TDM rate and existing building space has been compared to observed parking demand. The predicted current parking demand is for 6,631 parking spaces, as shown in **Table 17-22**. This predicted parking demand is compared to the actual occupancy of Genentech's existing parking facilities, based on average occupancy over a three-day survey conducted in the fall of 2017. [7]According to this survey, by 10 a.m. on weekdays there was an average of 6,527 vehicles parked throughout the Campus, at an 85% average occupancy rate.

[7] Nelson|Nygaard, Genentech South San Francisco Campus Mode Share and Parking Report, Fall of 2017

Table 17-22: Predicted vs. Actual Parking Demand, Fall of 2017			
Land Use	**Existing (KSF)**	**Parking Ratio at 42% TDM (spaces/1,000 sf)** [1]	**Predicted Parking Demand**
Office	1,566	2.26	3,539
Labs/R&D	1,718	1.15	1,975
Manufacturing	1,285	0.74	950
Amenity	145	1.15	167
Total	**4,715**		**6,631**
Surveyed Parking Occupancy, Fall of 2017 [2]			**6,527**
		Difference:	1.6%

Source:

1: Extrapolated from 2007 Genentech Master Plan

2. Nelson|Nygaard, Genentech South San Francisco Campus Mode Share and Parking Report, Fall of 2017

As indicated, the parking ratios presented in Table 17-22 are an accurate predictor of parking demand, resulting in a Campus-wide parking prediction that is within approximately 2 percent of actual surveyed parking use.

Predicted Parking Demand at Buildout

The Master Plan Update (the Project) includes updated parking requirements for the Campus. These updated parking requirements represent a progressively lower parking rate for higher TDM trip reductions, as shown in **Table 17-23**.

Table 17-23: Projected Parking Ratios at Increased TDM (Spaces per 1,000 SF)				
	Office	**Lab, R&D**	**Mfg.**	**Warehouse**
Parking Rates, from the Prior (2007) Master Plan				
At 24% TDM	2.75	1.40	0.90	0.50
At 30% TDM	2.59	1.32	0.85	0.47
At 32% TDM	2.53	1.29	0.83	0.46
Updated Parking Rates, Based on Improved TDM Trip Reductions				
	Office	**Lab/ R&D**	**Mfg.**	**Amenity**
At 35% TDM	2.45	1.25	0.80	1.25
At 40% TDM	2.37	1.20	0.77	1.20
At 42% TDM	2.26	1.15	0.74	1.15
At 44% TDM	2.20	1.12	0.72	1.12
At 46% TDM	2.15	1.09	0.70	1.09
At 48% TDM	2.09	1.06	0.68	1.06
At 50% TDM	2.04	1.04	0.67	1.04

Given the demonstrated accuracy of the parking ratios presented in Table 17-22, the predicted parking demands resulting from buildout of the Project can be similarly calculated. It is estimated that Genentech's TDM program will need to be increased in effectiveness to achieve approximately 47 percent reductions in drive alone trips to meet the Trip Cap limits for this EIR Project Description at buildout. At this TDM ratio, the total parking demand is predicted at approximately 13,550 spaces. Alternatively, a 50 percent TDM ratio and its corresponding parking ratios would yield a total parking demand predicted at approximately 12,850 spaces, as indicated in **Table 17-24**.

Table 17-24: Range of Predicted Parking Demand at Buildout, Based on TDM

	Total Building Space (SF)	Parking Ratio, at 46% TDM	Parking Required.	Parking Ratio, at 50% TDM	Parking Required
Existing Campus					
Office	3,991,000	2.15	8,580	2.03	8,100
Lab Parking Ratio, at 42% TDM	3,282,000	1.09	3,580	1.04	3,415
Manufacturing (SF)Existing Parking Requirement	1,285,000	0.70	900	0.67	865
Amenity (SF) Bldg. SF	450,000	1.09	490	1.04	470
Total	**9,008,000**		**13,550**		**12,850**
Less existing structured parking to remain:			-3,600		-3,600
Net New Parking Required:			**9,950**		**9,250**

The Project Description assumes that all of the existing 3,600 structured parking spaces on Campus today will remain, but that the majority of existing surface parking spaces will be redeveloped as new Opportunity Sites for Campus buildings. To accommodate the predicted buildout demand of approximately 12,850 total parking spaces (assuming achievement of 50% TDM), approximately 9,245 new parking spaces will need to be provided (up to 4,360 to replace existing surface spaces that will likely have been redeveloped, and 4,885 net new spaces).[8]

The actual number of new parking spaces required to meet the incremental increase in parking demand at any given time will be a function of several factors, including:

- the increased parking demand for each new building, based on the number of new employees per building and the currently effective TDM trip reduction rate
- less any excess parking supply that may be available on Campus, and
- replacement of any existing parking (e.g., surface parking lots) that may be lost due to the new development

[8] It is unlikely that all existing surface parking space throughout the Campus will be redeveloped with new buildings and facilities. Many of the smaller clusters of surface parking spaces adjacent to existing buildings, service vehicle spaces and other specialty parking spaces likely will not all be relocated into garages.

Vehicle Miles Travelled

Pursuant to Senate Bill 743, the Governor's Office of Planning and Research (OPR) released proposed changes to the state's CEQA Guidelines in 2016 that will amend the way transportation impacts are analyzed. Specifically, SB 743 (Public Resources Code Section 21099) requires OPR to amend CEQA Guidelines to provide an alternative to Level of Service (LOS) methodology for evaluating transportation impacts.[9] The new CEQA Guidelines sections created by SB 743 do not go into full effect statewide until July 2020, and South San Francisco has yet to determine how these changes will be implemented within the City. Therefore, the following analysis is provided for informational purposes only, and is not considered a CEQA topic.

The changes to CEQA Guidelines will result in significant changes in how transportation impacts are evaluated pursuant to CEQA. These analytic changes may also result in significant changes in how mitigation is imposed through the CEQA process, potentially including measures that seek to reduce or avoid impacts related to VMT and/or trip generation, rather than improvements to increase levels of service (LOS) to accommodate increased traffic demands. These changes are not effective in South San Francisco yet, but they will likely become effective in the relatively near term. The analysis provided in this section of the EIR is for informational purposes only, and may provide a context for future City consideration of appropriate new VMT thresholds, mitigation strategies and alternative investment programs for how the City uses its development impact fees.

Criteria Used for this Analysis

In the absence of a City-preferred methodology or threshold, this analysis relies on OPR's *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA* (January 2016), which suggests several alternative means by which to assess transportation impacts, including the following: [10]

1. Would the project achieve 15 percent lower per capita or per employee VMT than existing development?
2. Would the project achieve an average daily VMT per employee (worker) that is 15% lower than the regional average daily VMT rate or 15% lower than the City's average daily VMT rate, whichever is higher?

The OPR's *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA* finds (absent any more project-specific information to the contrary) that per capita or per employee VMT fifteen percent below that of existing development may be a reasonable threshold, for the reasons described below:

- SB 743 states that the criteria for determining significance must promote the reduction in greenhouse gas emissions. SB 743 also states the Legislature's intent that the analysis of transportation in CEQA should better promote the state's goals of reducing greenhouse gas emissions. It cites in particular the reduction goals in the Global Warming Solutions Act and the Sustainable Communities and Climate Protection Act, both of which call for substantial reductions. The California Air Resources Board established long-term GHG reduction targets for the largest regions in the state that ranged from 13 to 16 percent.

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[9] Implementation of SB 743 must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks and a diversity of land uses." (New Public Resources Code Section 21099(b)(1).) Measurements of transportation impacts may include "vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated." Once the CEQA Guidelines are amended to include those alternative criteria, auto delay will no longer be considered a significant impact under CEQA.

[10] Governor's Office of Planning and Research, *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA*, Implementing Senate Bill 743 (Steinberg, 2013), January 20, 2016

- Caltrans has developed a statewide VMT reduction target in its Strategic Management Plan. Specifically, it calls for a 15 percent reduction in per capita VMT compared to 2010 levels, by 2020.
- The First Update to the AB 32 Scoping Plan states, "Recognizing the important role local governments play in the successful implementation of AB 32, the initial Scoping Plan called for local governments to set municipal and communitywide GHG reduction targets of 15 percent below then-current levels by 2020, to coincide with the statewide limit."

Achieving 15 percent lower per capita or per employee VMT than existing development is, therefore, both reasonably ambitious and generally achievable.[11] If the Project were to result in VMT rates that exceed a 15% reduction threshold, the Project's transportation effects could be considered inconsistent with pending statewide and local environmental and transportation policies. Use of OPR's recommended VMT thresholds for this informational analysis do not preclude the City from ultimately adopting another methodology or alternative significance threshold.

Methodology

For purposes of this analysis, Project-generated VMT per employee was measured relative to baseline data provided by the Metropolitan Transportation Commission (MTC) through their Travel Demand Model ("Travel Model One").[12] General components of the Travel Model One model include a wide array of analytical approaches including various transportation mode-choice models, activity duration models, time-use models and models of individual micro-simulations, etc. Ultimately, the combination of these datasets is designed to realistically represent travel behavior, adequately replicate observed activity-travel patterns and ensure model sensitivity to infrastructure and policies.

MTC's Travel Model One contains 1,454 regional Traffic Analysis Zones (TAZs) that span across the San Francisco Bay Area. The model includes nine TAZs that represent the City of South San Francisco (TAZ #s 209 through 215, and 230 and 231). The Project Area is located in TAZ #212, which represents all of the East of 101 Area, as well as large portions of the industrialized areas south of Downtown along Spruce and Linden Avenues (see **Figure 17-14.**). Several steps were taken to analyze the potential effects of the Project relative to VMT. These steps include:

- Identifying the baseline VMT and potential target thresholds on a per employee basis
- Calculating the Project's VMT per employee by applying VMT reductions resulting from Genentech's proposed Transportation Demand Management (TDM) program, as well as daily VMT reductions based on other factors that influence daily travel behavior (i.e., on-Campus amenities, the DNA shuttle vans, etc.), and
- Comparing the Project's resulting VMT rate per employee to existing conditions, to a 15 percent lower per employee VMT than existing development, and to a 15 percent reduction in the City of South San Francisco and the San Francisco Bay Area regional VMT, to determine if the Project would exceed these alternative thresholds

[11] Note: Lead agencies may apply more stringent thresholds at their discretion (Section 21099)

[12] The Metropolitan Transportation Commission (MTC), Travel Demand Model ("Travel Model One") transportation model is an activity-based (or tour-based) travel demand model for the nine-county San Francisco Bay Area, and widely used by counties and communities throughout the San Francisco Bay Area. The development methodology, datasets and metrics provided in the Model are often used by city and county agencies to develop their own travel demand models, and the data is regularly validated for consistency among all nine counties.

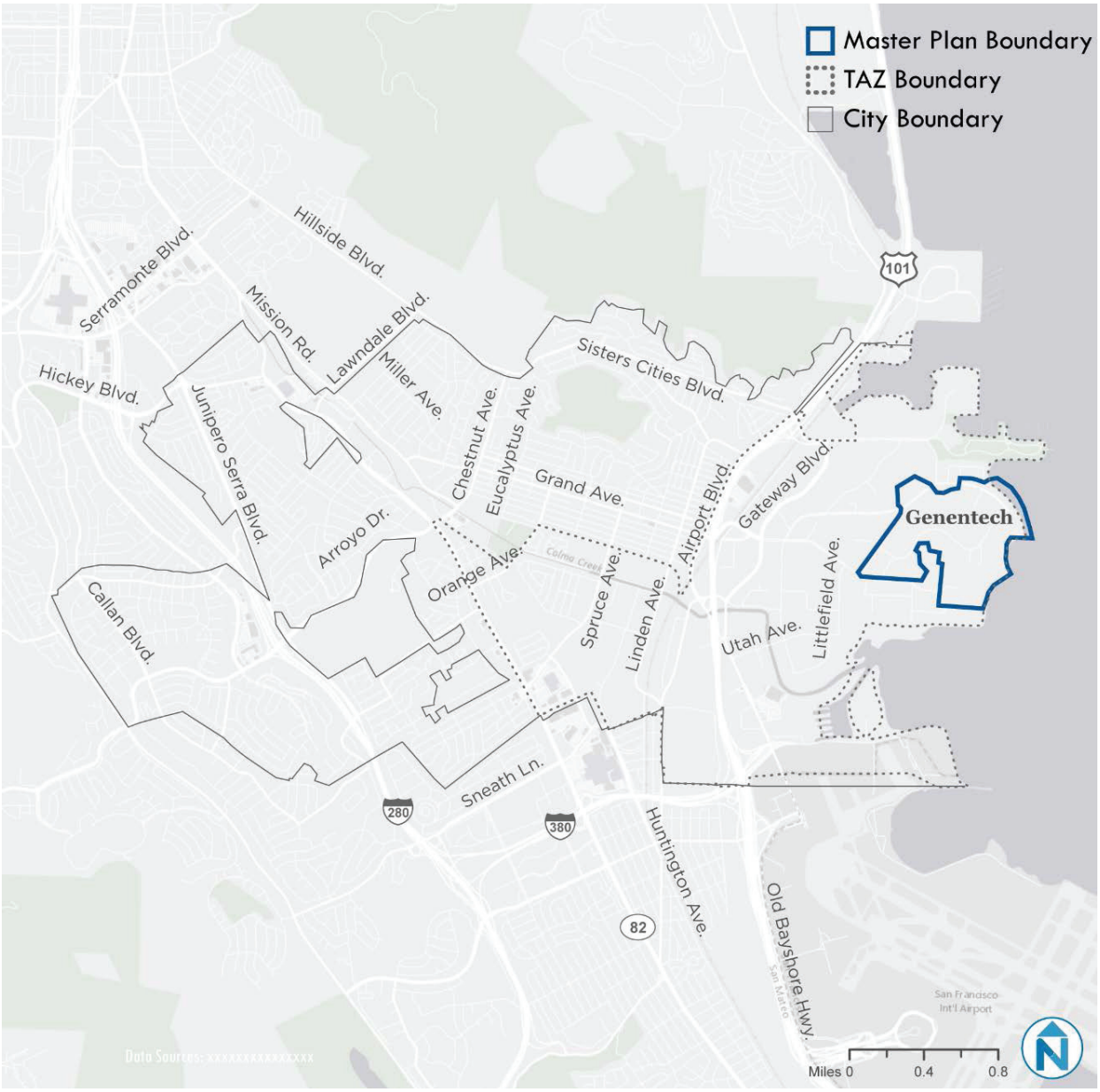

Figure 17-14
MTC's Regional Traffic Analysis Zone Boundaries

Source: MTC Travel Model One, 2018

VMT Baseline and Targeted VMT Reductions

Based on Travel Model One data, the most current (year 2015) VMT rate for TAZ #212 (the TAZ in which the Project is located) is 26.3 VMTs per employee. The citywide average VMT rate for 2015 is 23.9 VMT per employee, and the regional average VMT rate is 25.9 VMT per employee. The higher VMT rate for TAZ #212 as compared to the City average reflects the broader commute-shed for many of the tech and biotech companies located within this TAZ, where employees from across the region, travelling longer distances, commute to the East of 101 Area for highly desirable jobs. The latest data from Plan Bay Area also provides worker-based VMTs for the region of 22.7 VMT per employee for year 2015, and a worker-based VMT for the region of 20.3 VMT per employee by year 2040).

Based on the thresholds used in this analysis, the target thresholds for VMT reductions are 15% below the 2015 and 2040 worker-based regional VMT rates. This is a target rate of 19.3 VMT per employee (or 15% below the 2015 rate of 22.7 VMT per employee) in year 2015, and a target rate of 17.3 VMT per employee (or 15% below the 2040 rate of 20.3 VMT per employee) in year 2040.

Estimating the Project's VMT

Based on standard Institute of Transportation Engineers (ITE) trip generation rates as applied to the Project's net new land uses, the Project would generate approximately 32,200 daily trips.[13] This is a baseline number of daily trips that does not account for any application of the Project's TDM measures.

- The Project's proposed TDM reductions (i.e., a 47 percent reduction in AM peak hour drive alone trips to the Campus as necessary to maintain the Trip Cap) are applied to all AM peak period trips to the Campus, all PM peak period trips from the Campus and partial application to mid-day trips to mirror the existing GenenBus schedules. This results in a 31% overall reduction in daily trips as compared to standard ITE rates, or approximately 22,200 total daily trips.[14]
- Conservatively assuming an additional 5% reduction for internalized trips (i.e., daily trip reductions attributable to the availability of on-Campus amenities (e.g., cafeterias, personal services and daycare facilities), access to on-Campus DNA shuttles, and bicycle and pedestrian amenities, results in approximately 21,000 daily trips attributable to the Project.
- Multiplying these 21,000 daily trips by an average trip length of 10.2 miles per trip (a weighted average of home-based work trips and non-home-based trips for TAZ #212) for year 2015,[15] the Project would generate approximately 214,200 total vehicle miles travelled.
- Multiplying these 21,000 daily trips by an average trip length of 9.3 miles per trip (the same weighted average of home-based work trips and non-home-based trips for TAZ #212) for year 2040, the Project would generate approximately 194,900 daily total vehicle miles travelled.
- Dividing these total daily vehicle miles travelled by the total number of new employees pursuant to the Project (12,500) yields an average of 17.1 VMT per employee for year 2015, and an average of 15.6 VMT per employee for year 2040.

This calculation of these Project-specific VMT rates per employee, and a comparison to calculated VMT based on standard ITE rates (i.e., without the Project's Trip Cap and associated TDM) is shown below in **Table 17-25**.

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[13] Fehr & Peers (EIR Transportation consultant), personal communication, October 2018

[14] This is the number of daily trips (conservatively) used in the air quality and greenhouse gas emissions analysis as included in this EIR.

[15] Derived from the MTC Travel Model One data

Table 17-25: Calculation of Project VMT per Employee

	Project	Project, Based on Standard ITE Rates
For Year 2015		
Project Daily Trips	21,000	32,200
Average Trip Length	x 10.2	x 10.2
Total VMT	214,200	328,440
Project Employees	÷ 12,500	÷ 12,500
Per Capita VMT	**17.1**	26.3
Regional Average Worker-Based VMT	vs. 22.7	vs. 22.7
Percent Below/Above Regional Average Target	**-25%**	+ 116%
For Year 2040		
Project Daily Trips	21,000	32,200
Average Trip Length	x 9.3	x 9.3
Total VMT	194,880	298,816
Project Employees	÷ 12,500	÷12,500
Per Capita VMT	**15.6**	23.9
Regional Average Worker-Based VMT	vs. 20.3	vs. 20.3
Percent Below/Above Regional Average	**-23%**	+ 117%

Source: Correspondence with Fehr & Peers, 2019

Comparison against Thresholds

As indicated in Table 17-25, the Project's calculated rate of 17.1 VMT per employee (year 2015) and 15.6 VMT per employee (year 2040) is lower than the VMT target reduction thresholds of 15% below the regional average worker-based VMT for both year 2015 and year 2040.

The Project would not exceed the VMT thresholds used in this analysis. If assessed as a CEQA topic, the VMT impacts of the Project would be less than significant. If the City of South San Francisco were to rely on the VMT thresholds used in this analysis for assessment of transportation impacts and mitigation measures under CEQA, then no mitigation measures beyond the Project's proposed Trip Cap and corresponding TDM trip reductions (i.e., 47 percent reduction in drive-alone trips) would be required.

Possible Implications for Future Project Analysis and Mitigation Measures

Even if project-specific VMT impacts were to be determined less than significant, the City of South San Francisco could still require projects, particularly those in the East of 101 Area, to pay traffic fees and/or implement roadway improvements. Existing General Plan policies address these Traffic Impact Fee requirements (i.e., General Plan Policy 4.2-I-6 regarding needed intersection and roadway improvements to enhance mobility in the East of 101 Area, and Policy 4.2-G-12 providing for a fair and equitable means for paying for future street improvements via development impact fees). However, the focus of CEQA analysis and applicable mitigation of traffic impacts would shift in a direction more consistent with General Plan Policy 4.2-G-10, which calls for making "*efficient use of existing transportation facilities, improved alternate travel*

modes and enhanced integration of transportation systems serving South San Francisco to reduce vehicle-miles traveled." [16]

The Project's VMT analysis presented above demonstrates the relative importance of an effective TDM program as a VMT reduction and overall trip reduction strategy. Alternatively, the cumulative traffic analysis presented under Impacts Transp 8, 9 and 10 above demonstrate that, even with implementation of all feasible LOS-based mitigation measures, traffic congestion will continue to be significant and unavoidable throughout many parts of the East of 101 Area, at freeway ramps and on the freeway. By reducing the number of cars from the overall transportation system with increased TDM performance, a more sustainable transportation system may be achievable, rather than increasing the capacity of roadways and intersections to accommodate increased vehicle demand levels.

Genentech will be able to achieve its Campus-wide TDM goal of 50% TDM trip reductions for Campus arrivals by increasing its current TDM program capacity commensurate with new employee growth, and by increasing its overall non-single occupant mode share split by an additional approximately 10 percent. Additionally, Genentech expects to continue its flexible work arrangement initiatives. Assuming that these initiatives maintain the current average of 13 percent of the Genentech workforce choosing a flexible work option, this would further reduce the number of AM peak hour Campus arrivals, resulting in a total trip reduction rate of approximately 57 percent - far exceeding the 47 percent trip reduction rate needed to achieve the Trip Cap. Genentech is able to attain these drive-alone trip reductions in part because of the scale of the Genentech Campus and employment base, the substantial capital investments already made in buses, ferries and shuttles, and the commitment to on-going financial assistance to off-set the transit/alternative travel mode costs of its employees. Not all developments within the East of 101 Area will have the resources and capabilities of Genentech to be able to achieve such a highly efficient TDM program on an independent basis.

The City of South San Francisco could assist in helping to achieve higher TDM trip reduction rates across the entire East of 101 Area by reconsidering its investment strategy in East of 101 transportation improvements. Rather than investing its accrued and future cumulative development Transportation Impact Fees solely on intersection and roadway improvements that increase vehicle capacity, the City may consider alternative investments of these fees. Alternative investments might include projects and programs that make the most efficient use of existing transportation facilities, improve alternate travel modes, and enhance the transit systems serving the East of 101 Area, thereby reducing the total vehicle trips generated and commensurate VMT. Such investments could include measures to make TDM more efficient, available and desirable for the East of 101 employers and employees, consistent with the recommendations of the City's recent Mobility 20/20 Report, including but not limited to:

- Capital investments in buses and shuttle vans to provide "last-mile service" between regional transit stations (i.e., the relocated Caltrain station and the South San Francisco BART station) and employment centers in East of 101
- Designs and improvements at the relocated Caltrain station to improve circulation efficiency for TDM shuttles and buses that pick-up and drop-off employees at the station
- Establishing Bus Rapid Transit (BRT) lanes on East Grand Avenue and potentially on Oyster Point Boulevard
- BRT improvements may include dedicated bus or transit lanes with signal priority, queue jumps, and median or curb improvements at bus stop locations
- Increasing the frequency and origin/destination of ferry service at the Oyster Point ferry landing

[16] South San Francisco, General Plan Transportation Element

- Increasing bicycle and pedestrian use by filling gaps in the existing bike and pedestrian network and increasing bike and pedestrian routes, especially along abandoned rail alignments within the East of 101 area, and
- Establishment of a special Transit Management Agency (TMA) and/or a Community Facilities District (CFD), whereby employers in the East of 101 area could pool their resources and TDM needs, thereby creating efficiencies of scale similar to those achieved by Genentech.

18

Utilities and Service Systems

This chapter evaluates the potential impacts of the Master Plan Update (the Project) related to utilities and service systems, including water supply, wastewater, storm drainage and solid waste. This chapter also describes the existing conditions in and near the Project Area, and evaluates the extent to which utilities and service systems may be affected by development of the Project as proposed.

Although some of the information in the Environmental Setting draws from the 2007 Master EIR (MEIR) and 2012 Supplemental MEIR (SMEIR), setting information for utilities and service systems has been updated for this Program EIR, using current data from the following sources:

- *SB 610 Water Supply Assessment for the Genentech Master Plan Update*, California Water Service, November 21, 2017 (**Appendix 18A**)
- *Genentech Campus-wide Water and Sewer System Capacity Summary,* Wilsey and Ham, 2017 (**Appendix 18B**)
- *South San Francisco/San Bruno Water Quality Control Plant Facility Plan Update*, Carollo Engineers, April 2011
- California Department of Resources Recycling and Recovery, Solid Waste Information System

Environmental Setting

Water System

Water Supply [1]

The South San Francisco Water District of the California Water Service Company (Cal Water) is located in northern San Mateo County approximately six miles south of the City of San Francisco. The District serves the communities of South San Francisco, Colma, a small portion of Daly City and an unincorporated area of San Mateo County known as Broadmoor, which lies between Colma and Daly City. Potable water supply for the District is a combination of water purchased by Cal Water from the San Francisco Public Utilities Commission (SFPUC), and groundwater from Cal Water owned wells.

Typically, 85% of SFPUC water supply comes from the Tuolumne River from the Hetch Hetchy Reservoir, and the remaining 15 percent from local watersheds through the San Antonio, Calaveras, Crystal Springs, Pilarcitos and San Andreas Reservoirs. Cal Water's annual allocation of SFPUC water supply is shared among its three Peninsula Districts: Bear Gulch, Mid-Peninsula and South San Francisco. Annual supply from SFPUC to its utility customers varies with precipitation and related hydrologic conditions. This water is allocated among wholesale customers based on an existing agreement with the member agencies of the Bay Area

[1] All information pertaining to water supply and cumulative water demands obtained from California Water Service, *SB 610 Water Supply Assessment for the Genentech Master Plan Update*, November 21, 2017

Water Supply and Conservation Agency (BAWSCA). The amount of imported water available to SFPUC's retail and wholesale customers is constrained by hydrology, physical facilities and the institutional factors that allocate the water supply of the Tuolumne River, which is downstream of the Hetch Hetchy reservoir.

In July 2009, Cal Water and 29 other Bay Area water suppliers signed a Water Supply Agreement (SFWSA) between the City and County of San Francisco and wholesale customers in Alameda County, San Mateo County and Santa Clara County. The SFWSA provides a supply guarantee of 184 mgd, expressed on an annual average basis, to SFPUC wholesale customers collectively. SFPUC retail customers receive 81 mgd as a supply guarantee. Cal Water's individual supply guarantee is 35.68 mgd, or 39,967 acre-feet per year (AFY). The SFPUC can meet the demands of its retail and wholesale customers in years of average and above average precipitation, but the SFWSA allows SFPUC to reduce water deliveries during droughts, emergencies and for scheduled maintenance activities. During these conditions, the SFWSA allocates required reductions in available water supply between San Francisco's retail and wholesale customers. The SFWSA established that during a called upon 20% drought reduction, collective wholesale customers face up to a 28% reduction in their available supply.

Groundwater has historically supplied 10% to 15% of SSF District water demand. Groundwater is extracted from the Merced Formation of the Colma Creek Basin, a sub-basin of the Merced Valley Groundwater Basin. Locally this basin is referred to as the Westside Basin. The Westside Basin is the largest groundwater basin in the San Francisco Bay Hydrologic Region. A 2011 study (HydroFocus Westside Basin Model) indicated that the sustainable municipal pumping rate of the Westside Basin is 6.9 mgd. Cal Water, Daly City and San Bruno intend to coordinate their respective pumping rates so that 6.9 mgd is not exceeded on an annual basis. Cal Water has offered to limit its planned production of groundwater from the Westside Basin to 1.37 mgd (1,535 AFY), which is consistent with current pumping capacity and historical pumping rates.

Table 18-1 shows actual total water supplies for the three CalWater Peninsula Districts. Cal Water's SFPUC supply is shared among all three Peninsula Districts in order to provide operational flexibility to distribute the supply as needed depending on the availability of local supplies and demands within each District.

Table 18-1: 2015 Cal Water's Peninsula Districts Actual Water Supplies (AF)

SFPUC Purchased Water	28,404
Bear Gulch Surface Water	437
SSF District Groundwater	1,312
Total:	**30,153**

Source: SB 610 Water Supply Assessment for the Genentech Master Plan Update, California Water Service, November 21, 2017

South San Francisco District Water Demand

Actual (2015) water use in the SSF District was 7,064 acre-feet (AF). This 2015 water demand was strongly affected by Drought Emergency Regulations (SWRCB Resolution No. 2015-0032) mandating that urban retail water suppliers reduce potable water use. The South San Francisco District was ordered to reduce potable water use by 8 percent relative to use over the same period in 2013. Between June and December 2015, water use in South San Francisco decreased by 21.7% compared to 2013.

Residential customers accounted for nearly 87% of services and 40% of the water use in the District in 2015, most of which is single-family residential water use. Commercial customers accounted for over 45% of the water use in the District, industrial customers accounted for about 9% of the water use in the District, and other water users (including system water loss) accounted for approximately 6% of the water use in the District.

Genentech Water Demand

Current water demands at the Genentech Campus are derived from Genentech's 2016 Cal Water utility bills for the Project Area, disaggregated by building and by land use type. As indicated in **Table 18-2**, the year 2016 water use at the Campus averaged approximately 840,000 gallons per day (or approximately 941 AFY). This represented approximately 13% of the SSF District water demand, and approximately 3% of the three Cal Water Peninsula Districts' water demand. The majority of this water demand (about 71%, or 597,500 gallons per day) is used to serve on-site industrial processes and to ensure compliance with manufacturing practices and regulatory agency expectations, such as serving validated cooling water used in manufacturing processes. The remainder of the current water demand (about 30%, or 243,000 gallons per day) is used for domestic water at offices, labs and other amenity space within the Campus, and for irrigation.

Table 18-2: Baseline Genentech Campus Water Demands

Land Use	Building SF	Demand Factor (gal/yr/SF)	Water Demand (gpd)	2016 Water Use (AFY)
Existing Water Demand				
Labs / R&D	1,719,000	30	141,288	
Office	1,567,000	20	85,863	
Amenity	145,000	40	15,890	
Industrial Processes			597,507	
Total			**840,548**	**941**

Source: Genentech, 2017

Water Delivery System

Cal Water delivers water to the entire East of 101 Area, including the Project Area. Systems of looped water mains enter the Project Area at Forbes Boulevard and at East Grand Avenue. This looped water supply system is fed from a Cal Water main supply line located along Highway 101. The water system serving the Upper Campus is augmented by a 1.5-million-gallon storage reservoir located on the top of Point San Bruno hill, as well as high-pressure water lines that supply adequate flow to upper elevations of the Project Area to meet fire flow requirements. The existing water supply pipes serving the Campus, and their respective flow capacities, meet current domestic water and fire flow requirements. The water demand factors used in Table 18-1 are derived from Genentech's 2016 CalWater utility bills for the Project Area.

Wastewater Collection System

Treatment

South San Francisco and San Bruno own and operate the South San Francisco Water Quality Control Plant (WQCP). All wastewater flows from South San Francisco, including from the Project Area and several other cities, are collected and treated at the WQCP. The quantity of wastewater treated at the WCQP is proportional to the population and water use in the service area. Wastewater treatment processes at the WQCP consist of screening and grit removal, settling systems, aeration and clarification, and then secondary treatment with disinfection by chlorination and de-chlorination before being discharged to the San Francisco Bay. The WQCP also provides de-chlorination for chlorinated effluent for Burlingame, Millbrae and San Francisco International Airport. The WQCP has capacity to treat 13 MGD average daily flow, and a peak wet weather flow capacity of 62 MGD, which corresponds to the estimated flow from a 5-year storm. The

secondary treatment system has a peak secondary treatment capacity of 30 mgd. If the WQCP receives a peak flow of 62 mgd, then the remaining 32 mgd of flow receives primary treatment, blended with secondary effluent, disinfected and discharged to the outfall.[2] The WQCP currently receives approximately 9 MGD from its service area.[3] The WQCP does not provide recycled water.

Wastewater Collection

The City's wastewater collection system in the East of Highway 101 area consists of approximately 13 miles of 6-inch through 30-inch diameter sewers (see **Figure 18-1**). The City owns and maintains the sewer system, which includes gravity sewer mains, pump stations and force mains, and the South San Francisco Water Quality Control Plant (WQCP). All wastewater flows from South San Francisco, including from the Project Area and several other cities, are collected and treated at the WQCP.

The sewer system within the Project Area is generally comprised of three separate branches, all of which provide gravity-flow to a main line collection pipe within East Grand Avenue. All wastewater flows from the Project Area are collected within this system and conveyed for treatment at the WQCP. Once treated at the plant, treated effluent is pumped back through the Project Area via a 54-inch force main. This force main generally follows the alignment of the main sewer line back to the Project Area and ultimately discharges through an outfall located in the Bay, easterly of the intersection of Forbes Boulevard/DNA Way.

The quantity of wastewater generated at the Campus and collected in the City's sewer system is directly related to Campus water use. The few exceptions are certain manufacturing processes (i.e., conversion to steam "blow-down" at the boiler plants), and evaporation (primarily from irrigation water). The current (2016) wastewater flows generated at the Campus is estimated to average approximately 750,000 gallons per day, and includes water used during manufacturing processes as well as domestic wastewater flows from offices, labs and other space within the Campus.

The City does not limit the amount of flow, or the peak pollutant concentrations that industries can discharge. However, the East of 101 Area Plan requires projects in the East of 101 Area that are likely to generate large quantities of wastewater to lower their treatment needs through recycling, on-site treatment, grey water irrigation and other programs, where feasible.

Manufacturing, processing and research activities at Genentech do generate wastewater that is contaminated with pollutants that the WQCP was not designed to treat. Thus, Genentech operates its own on-site waste treatment and neutralization systems in accordance with appropriate permits and regulations. Genentech also operates its own water purification systems to produce high quality water for use in its manufacturing processes. These on-site utilities are primarily located within buildings and underground in the Lower Campus.

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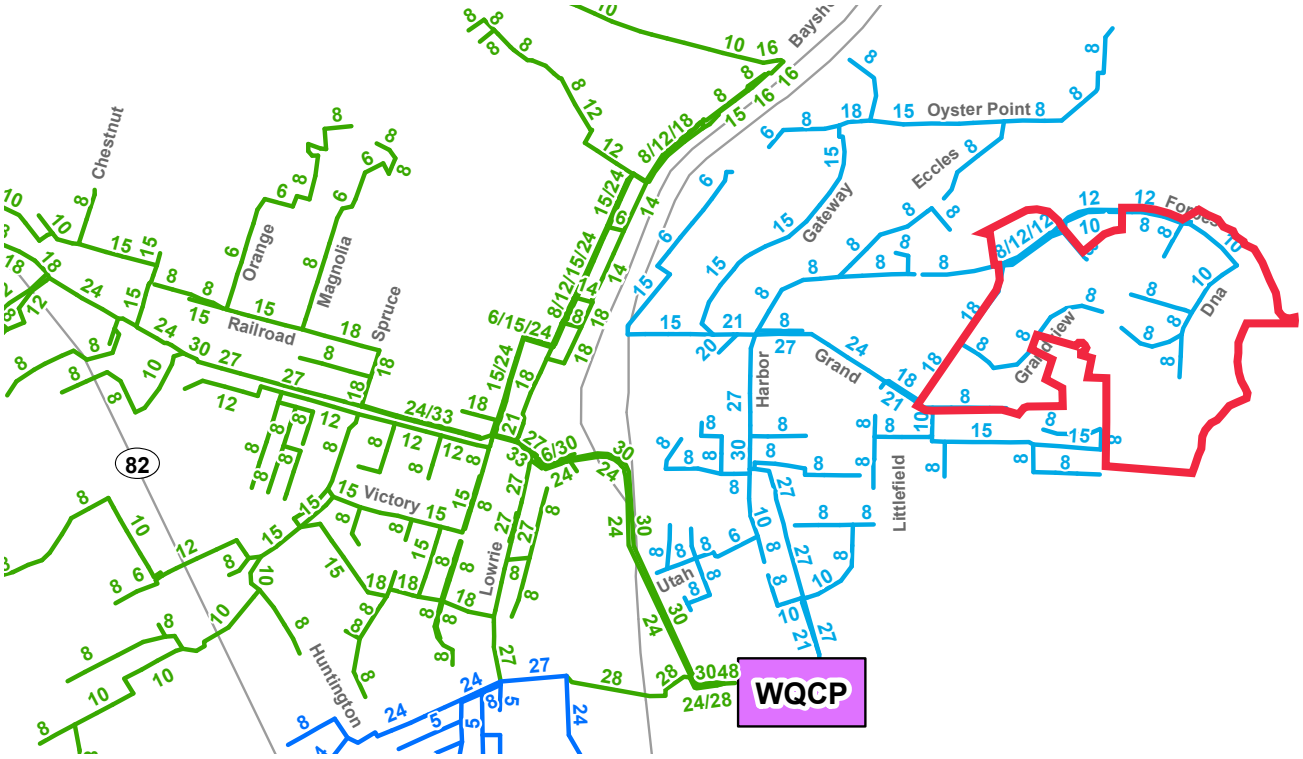
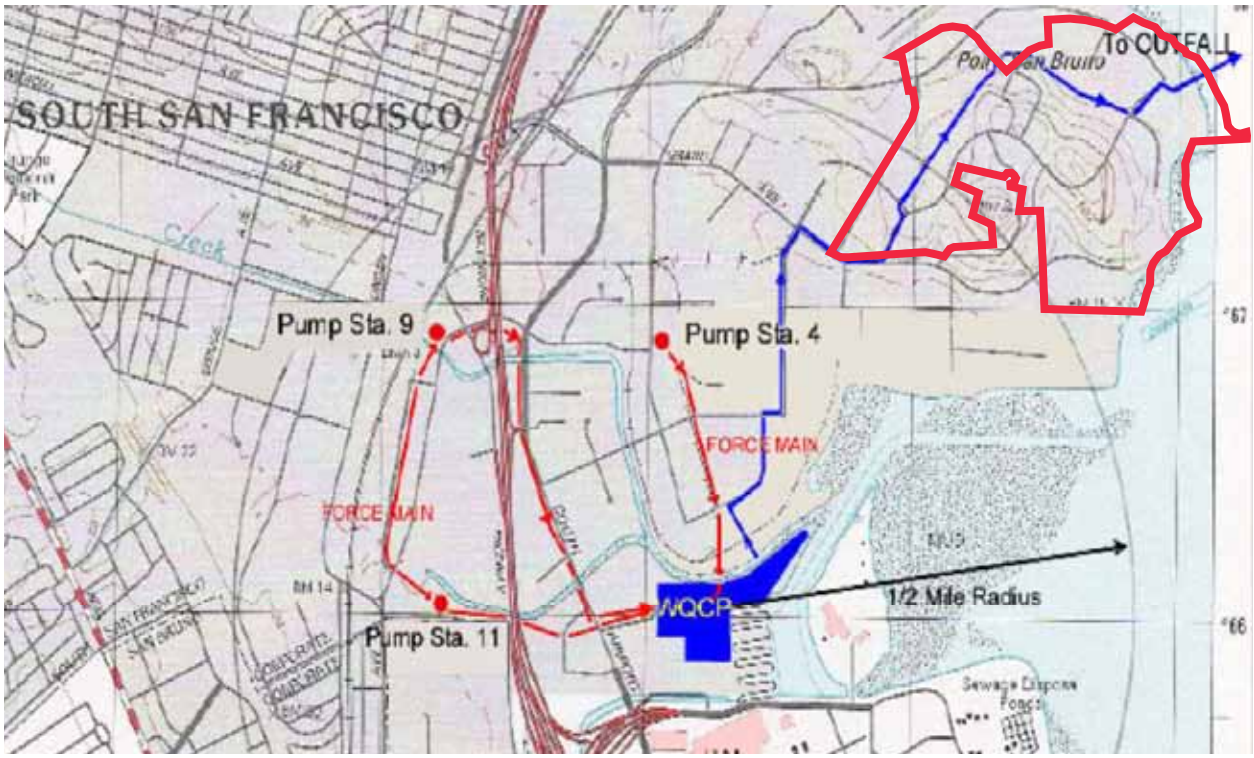
[2] Corollo Engineers, South San Francisco/San Bruno Water Quality Control Plant, Facility Plan Update, April 2011 – page 1-2

[3] City of South San Francisco, accessed at: http://www.ssf.net/departments/public-works/water-quality-control-plant/treatment-process



Esat of 101 Sewer Collection System



North Bayside System Unit Force Main and Outfall

Figure 18-1
Sewer System Serving the East of 101 Area

Storm Drainage System

The City's storm water system consists of a variety of disconnected drainage facilities that include surface street drainage, underground storm drains and numerous outfalls that discharge to the San Francisco Bay. Stormwater flow from these outfalls into the Bay is not pre-treated other than treatment at the original source. The existing drainage system in the East of 101 area is generally designed and constructed for industrial development, which has a high ratio of impervious surfaces. Thus, any redevelopment of existing development will generally not increase runoff.

The storm drainage system within the Project Area consists of underground pipes that collect stormwater via inlets, and which outfall into the San Francisco Bay at various locations. This storm drainage system is based on gravity flow, and does not require pumps to transport flows to the Bay. Most of the Project Area is already developed and covered with impervious surfaces (i.e., buildings, parking lots or other structures), so nearly all stormwater becomes run-off and little infiltration into the ground and groundwater occurs.

Solid Waste

Solid waste is collected from South San Francisco homes and businesses and then processed at the South San Francisco Scavenger Company's materials recovery facility and transfer station. Materials that cannot be recycled or composted are transferred to the Corinda Los Trancos (Ox Mountain) Landfill near Half Moon Bay, owned by Browning-Ferris Industries. The landfill has a permitted maximum disposal of 3,598 tons per day, with a remaining capacity of approximately 22.2 million cubic yards. The closure date is planned for 2034.[4]

After collection, waste is brought to the Scavenger Company's Blue Line Transfer facility, a public disposal and recycling center located at 500 East Jamie Court. The Blue Line Transfer facility is permitted to receive a daily maximum of 2,400 tons per day of wastes and recyclable materials[5]. This facility provides increased capability to recover valuable materials from wastes, reducing the amount of waste being sent to the landfill. South San Francisco recycles both household and industrial solid waste and sewage sludge and has an estimated diversion rate of 40%.[6]

In 2010, Genentech's SSF Campus was generating approximately 3,130 tons of solid waste sent to landfills. By 2016, the SSF Campus had reduced it landfill waste to approximately 1,676 tons, or a 35% reductions from 2010 levels. Genentech's current waste reduction goal is an 80% reduction in landfill waste per employee by 2020 as compared to 2010 levels.

Energy Use

Natural Gas

Pacific Gas & Electric (PG&E) provides natural gas to the Project Area. The high-pressure gas distribution system is metered at each building on the Campus, and is configured in a loop system served from three interconnected underground pipelines located within DNA Way, Forbes Boulevard, and East Grand Avenue (installed to serve the South Campus). A high-pressure gas line on the north side of the Campus is dedicated to serving Genentech's high-pressure steam boilers. This dedicated service unloads the DNA Way/Forbes Boulevard loop, and frees-up capacity to serve other future Campus buildings.

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[4] California Department of Resources Recycling and Recovery, Solid Waste Information System, website accessed October 11, 2017, at: http://www.calrecycle.ca.gov/SWFacilities/Directory/Search.aspx.

[5] Ibid.

[6] San Mateo County, Countywide Integrated Waste Management Plan, Multi-Jurisdiction Non-Disposal Facility Element (NDFE), draft June 2010 amendment. Available online at: http://www.recycleworks.org/pdf/multi_jurisdictional_NDFE.pdf

As of 2016, natural gas use in the Project Area was approximately 7 million therms per year, primarily serving existing labs and manufacturing operations.

Electricity

PG&E also provides electrical power to the Project Area. The 12.5-kilovolt underground distribution system that serves the Project Area is configured in a looped network, leading from a substation at East Grand Avenue. The nearby substation enables flexibility for PG&E to provide continuous service to buildings at the Campus by switching circuits if problems are encountered. Each building (or cluster of buildings) is metered at either primary or secondary rates. Genentech's rooftop solar power program also supplies electrical power to the Campus (see further discussion below).

The current (2016) electricity demand in the Project Area is estimated at approximately 152 million kilowatt-hours per year. Most of this electrical energy is used at the Central Utility Plants located in the Lower Campus. These Central Utility Plants run the various on-Campus Genentech utility systems, including:

- Steam boilers and related systems
- Hot and chilled water systems and related systems
- Refrigeration systems
- Purified water systems
- Liquefied and compressed gas systems
- Waste treatment or neutralization systems, and
- Emergency Power

The Central Utility Plants provide chilled water, steam, and compressed air to other buildings within the Project Area via a combination of underground and aboveground pipe rack systems. Centralization of these utilities provides greater energy efficiency and reduces the number of installed systems while achieving certain peak load sharing between interconnected buildings, and accounts for the more industrial nature of Genentech's operations within the Lower Campus.

For many of the non-connected buildings, especially those in the Upper and West Campus, their utility needs are housed either within the buildings themselves, or in adjacent screened utility yards. Any utilities shared between buildings are either located underground, in secure utility yards, or routed through the interior of the buildings.

Regulatory Setting

Federal Regulations

Clean Water Act

The Clean Water Act was enacted by Congress in 1972 and amended several times since its inception. It is the primary federal law regulating water quality in the United States, and forms the basis for several state and local laws throughout the country. Its objective is to reduce or eliminate water pollution in the nation's rivers, streams, lakes, and coastal waters. The Clean Water Act prescribed the basic federal laws for regulating discharges of pollutants as well as set minimum water quality standards for all waters of the United States. At the federal level, the Clean Water Act is administered by the U.S. Environmental Protection Agency (EPA). At the state and regional level, the Clean Water Act is administered and enforced by the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs). The State of California has developed a number of water quality laws, rules, and regulations to assist in the implementation of the Clean

Water Act and related federally mandated water quality requirements. In many cases, the federal requirements set minimum standards, and the laws, rules, and regulations adopted by the state and regional boards are more restrictive, i.e. more protective of the environment.

National Pre-treatment Program, Industrial User Permitting Guidance Manual [7]

The Clean Water Act requires the U.S. Environmental Protection Agency (EPA) to promulgate federal standards for the pretreatment of wastewater discharged to a publicly owned treatment works, and prohibiting discharge in violation of any pretreatment standard. The CWA prohibits the introduction of pollutants into a public wastewater treatment plant that might pass through or interfere with the plant and its operations. Discharge of a pollutant is a term specifically defined in the CWA to mean the discharge of a pollutant to navigable waters (such as the Bay), and such discharges are generally prohibited except in compliance with the Act and a permit under section 402 of the Act.

To address indirect discharges from industries to a public treatment plant, EPA has established the National Pre-treatment Program as a component of the National Pollutant Discharge Elimination System (NPDES) permitting program. The National Pretreatment Program requires industrial and commercial dischargers to treat or control pollutants in their wastewater before discharge. These pretreatment regulations are applicable to industrial indirect dischargers, and are known as categorical pretreatment standards. EPA has also developed other nationally applicable pretreatment standards in its General Pretreatment Regulations for Existing and New Sources of Pollution. Such pretreatment standards are applicable to any user of a public wastewater treatment plant. States and publicly operated wastewater treatment plants have the option of establishing more stringent requirements if such requirements are authorized and necessary pursuant to state or local law. Therefore, each the pretreatment program can be a mixture of federal, state, and local standards and requirements.

Resource Recovery and Conservation Act of 1976

The Resource Recovery and Conservation Act of 1976, focuses on state and local governments as the primary planning, regulating and implementing entities for management of non-hazardous solid waste, such as household garbage and non-hazardous industrial solid waste. To promote the use of safer units for solid waste disposal, Subtitle D provides regulations for the generation, transportation, and treatment, storage, or disposal of hazardous wastes. EPA developed federal criteria for the proper design and operation of municipal solid waste landfills and other solid waste disposal facilities, but state and local governments are the primary planning, permitting, regulating, implementing, and enforcement agencies for management and disposal subject to approval by EPA. EPA approved the State of California's program on October 7, 1993.

State Regulations

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act establishes the SWRCB and the RWQCB as the principal state agencies having primary responsibility for coordinating and controlling water quality in California, pursuant to the federal Clean Water Act. The Porter-Cologne Act establishes the responsibility of the RWQCBs for adopting, implementing, and enforcing water quality control plans (Basin Plans), which set forth the state's water quality standards (i.e. beneficial uses of surface waters and groundwater) and the objectives or criteria necessary to protect those beneficial uses.

[7] United States Environmental Protection Agency, Office of Water, *Industrial User Permitting Guidance Manual,* 833-R-12-001A, September 2012

San Francisco Bay Water Quality Control Plan (Basin Plan)

The San Francisco Bay RWQCB is responsible for the development, adoption, and implementation of the Water Quality Control Plan (Basin Plan) for the San Francisco Bay region. The Basin Plan is the master policy document that contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the San Francisco Bay Region. The Basin Plan identifies beneficial uses of surface waters and groundwater within its region and specifies effluent limitations, discharge prohibitions, and water quality objectives to maintain the existing potential beneficial uses of the waters. The Project is required to adhere to all applicable requirements of the Basin Plan.

Waste Discharge Requirement (WDR) Program

Under the authority of the Porter-Cologne Water Quality Control Act, Section 13263, SWRCB regulates sanitary sewer overflows. The SWRCB developed a Waste Discharge Requirement (WDR) program to promote uniformity in the management of California's wastewater collection system management that will benefit water quality and prolong the life of sanitary sewer systems. The SWRCB's WDR Order #R3-2006-0003 DWQ requires individual operators of publicly owned treatment works to develop and implement a Sewer System Management Plan (SSMP) to reduce sanitary sewer overflows. The SSMP provides for the implementation of measures to ensure efficient and effective response to overflows, and source control measures to minimize the introduction of grease and oils, and other materials that may cause blockages.

City of South San Francisco Sewer System Management Plan

Pursuant to State and RWQCB requirements, the City of South San Francisco prepared a Sewer System Management Plan (SSMP). This Plan demonstrates that the City has the legal authority (through ordinances, service agreements, and other binding procedures) to control infiltration and inflow from satellite collection systems and private service laterals; to require proper design, construction, installation, testing, and inspection of new and rehabilitated sewers and lateral; and to enforce violations of City Sewer Ordinances to prevent illicit discharges into its wastewater collection system.

National Pollution Discharge Elimination System Permit Requirements

Pretreatment Program

The San Francisco-San Bruno WQCP operates under an NPDES permit issued by RWQCB under the authority of the State of California. One of the requirements of the permit is that the WQCP implement a Pretreatment Program to regulate the collection of toxic and hazardous wastes in municipal sewers. Under the Pretreatment Program, dischargers of industrial wastewater are required to abide by specific wastewater discharge limits and prohibitions. Industrial dischargers are also required to submit self-monitoring reports on the total volume and pollutant concentrations of their wastewater, and to allow for inspections by the City of South San Francisco.

Municipal Regional Stormwater Permit

The National Pollutant Discharge Elimination System Municipal Regional Stormwater Permit (Provision C3) for South San Francisco, requires that best management practices (BMPs) and low impact development (LID) practices be implemented as part of the redevelopment of the Project Area.

Construction General Permit

The California Construction Stormwater Permit (Construction General Permit)[8], adopted by the State Water Resources Control Board, regulates construction activities that include clearing, grading, and excavation resulting in soil disturbance of at least one acre of total land area. The Construction General Permit authorizes the discharge of stormwater to surface waters from construction activities. It prohibits the discharge of materials other than stormwater and authorized non-stormwater discharges and all discharges that contain a hazardous substance in excess of reportable quantities established at 40 Code of Federal Regulations (CFR) 117.3 or 40 CFR 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

The Construction General Permit requires that all developers of land where construction activities will occur over more than one acre do the following:

- Complete a Risk Assessment to determine pollution prevention requirements pursuant to the three Risk Levels established in the General Permit
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the Nation
- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which specifies Best Management Practices that will reduce pollution in stormwater discharges to the Best Available Technology Economically Achievable/Best Conventional Pollutant Control Technology standards
- Perform inspections and maintenance of all best management practices (BMPs)

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment, control pollutants from construction materials, and address post construction runoff quantity (volume) and quality (treatment). The SWPPP must also include a discussion of the program to inspect and maintain all BMPs.

Urban Water Management Planning Act

The California Department of Water Resources provides urban water management planning services to local and regional urban water suppliers. In 1983, the California Legislature enacted the Urban Water Management Planning Act (water Code Section 10610 through 10656). The Act states that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually, should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The Act describes the content of the Urban Water Management Plans (UWMPs) as well as how urban water suppliers should adopt and implement the plans.

Over the years, the Act has been amended in response to water resource challenges and planning imperatives confronting California. A significant amendment was made in 2009, with the Governor's call for a statewide 20 percent reduction in urban water use by 2020. The Water Conservation Act of 2009 (SB X7-7) required urban retail water suppliers to establish water use targets for 2015 and 2020 that would result in statewide water savings of 20 percent by 2020. Beginning in 2016, urban retail water suppliers are required to comply with the water conservation requirements in SB X7-7 in order to be eligible for state water grants or loans.

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[8] General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, National Pollutant Discharge Elimination System No. CAS000002.

The 2015 UWMP prepared by the Cal Water South San Francisco District was adopted in 2016 and was found by the Department of Water Resources to meet the requirements of the California Water Code.

California Senate Bill 610

The intent of SB 610, part of the State Water Code, is to ensure that sufficient water supplies are available for growing communities. Water Code Section 10910 requires any project subject to CEQA of a specified minimum size to require a local public water provider with more than 3,000 service connections to prepare a water supply assessment (WSA) for the project. The WSA must document sources of water supply, quantify water demands, and compare future water supply and demand to show that sufficient water will be available to serve the development project. Water supply must be assessed for normal, single dry, and multiple dry water years during a 20-year forecast. If supplies are found to be insufficient to serve the project, the WSA must include plans for acquiring sufficient supplies. The WSA must be included in the CEQA document for the project.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB issues individual and general NPDES permits for wastewater and stormwater through the authorization of EPA. Discharges that may affect surface or groundwater, and which are not regulated by an NPDES permit, are issued a waste discharge requirement that serves as a permit under the authority of the California Water Code. The RWQCBs issue Land Disposal waste discharge requirements that permit certain solid and liquid waste discharges to land to ensure that wastes do not reach surface water or groundwater. Land Disposal waste discharge requirements contain requirements for liners, covers, monitoring, cleanup, and closure. The RWQCBs also permit certain point source discharges of waste to land that have the potential to affect surface or groundwater quality.

Assembly Bill 885 - On-Site Wastewater Treatment Systems

Assembly Bill 885 (Chapter 781, Statutes of 2000) requires the SWRCB to draft and implement regulations for siting, installation, operation, and maintenance of on-site wastewater treatment systems. Proposed regulations were issued in 2009 and adopted in June 2012.

CALRecycle - Title 14, California Code of Regulations

CalRecycle regulations pertain to non-hazardous waste management in California. These regulations include minimum standards for solid waste handling and disposal, regulatory requirements for composting operations, standards for handling and disposal of asbestos-containing waste and resource conservation programs. They also provide for enforcement of solid waste standards and administration of solid waste facility permits, special waste standards for used oil recycling program, electronic waste recovery and recycling, and planning guidelines and procedures for preparing, revising and amending countywide Integrated Waste Management Plans and solid waste cleanup programs.

Title 27, California Code of Regulations

CalRecycle and the SWRCB jointly issue regulations pertaining to waste disposal on land, including criteria for all waste management units, facilities and disposal sites; documentation and reporting; enforcement, financial assurance; and special treatment, storage, and disposal units.

California Green Building Standards Code (CalGreen)

CalGreen was the first-in-the-nation mandatory green building standards code, originally developed in 2007 in an effort to meet the goals of California's landmark initiative AB 32, which established a comprehensive program of cost-effective reductions of greenhouse gases (GHG) to 1990 levels by 2020. A voluntary CALGreen Code was published in 2008, and had an effective date of August 2009. The first mandatory

measures were adopted in the 2010 triennial code publication, which went into effect in January 2011. CALGreen was developed to: 1) reduce GHG from buildings; 2) promote environmentally responsible, cost-effective, healthier places to live and work; 3) reduce energy and water consumption; and 4) respond to environmental directives of AB 32.

- The 2010 CALGreen Code established chapters for residential and nonresidential mandatory measures. A 20 percent reduction of indoor water use and a 50 percent construction waste reduction were required along with waste management plan requirements. Building commissioning for new buildings 10,000 square feet and over was also introduced along with requirements for temporary construction ventilation and finish materials.
- The 2013 CALGreen Code clarified and expanded a number of requirements that included nonresidential additions and alterations. New sections were added in the areas of water efficiency and conservation, which included a 20 percent reduction in indoor water use. References to the California Energy and Plumbing Codes were also included. Demolition and recycling requirements were further defined.
- CALGreen 2016 addresses clean air vehicles and increased requirements for electric vehicle charging infrastructure. A new universal waste code section has been incorporated for additions and alterations. Organic waste is new and includes an exception for rural jurisdictions. Water efficiency and conservation includes a new section for food waste disposers. Outdoor water use remains subject to the water-conserving measures that were amended due to the Model Water Efficient Landscape Ordinance (MWELO) emergency standards in 2015.

CALGreen 2016 also includes Verification Guidelines for use by the enforcing agency (I.e., the City of South San Francisco). The CALGreen Verification Guidelines consist of checklists that are intended to assist building departments with mandatory measures, and Tier 1 and Tier 2 compliance in local jurisdictions.

Local Regulations and Policies

City of South San Francisco General Plan

The City's General Plan policies 5.3-I-1 and 5.3-I.2 of the Parks, Public Facilities, and Services Element call for the City to work with Cal Water and Westborough Water District to:

- Ensure coordinated capital improvements
- Establish guidelines and standards for water conservation
- Actively promote the use of water-conserving devices and practices in both new construction and major alterations and additions to existing buildings, including conservation as it relates to any industrial or commercial construction.

Industrial wastewater discharges are monitored to ensure that treated wastewater quality continues to meet various federal, state and regional standards. New projects in the East of 101 Area that are likely to generate large quantities of wastewater are encouraged to lower their wastewater treatments needs through recycling, pretreatment or other means necessary to limit demands on the wastewater treatment plant's capacity.

- Policy 5.3-I-6: Monitor industrial discharge to ensure that wastewater quality continues to meet various federal, state, and regional standards; treatment costs would remain affordable.
- Policy 5.3-I-7: Encourage new projects in East of 101 Area that are likely to generate large quantities of wastewater to lower treatment needs through recycling, pretreatment, or other means as necessary.

General Plan policy 8.3-I-1 of the Health and Safety Element calls for the City to continue working toward reducing solid waste, increasing recycling, and complying with the San Mateo County Integrated Waste Management Plan. The City has a responsibility to meet regional source reduction and recycling initiatives in order to achieve state-mandated waste reduction targets and to extend the useful life of existing landfill facilities. Under this policy, builders are encouraged to incorporate interior and exterior storage areas for recyclables into new or remodeled buildings (both residential and commercial) to make recycling activities more convenient for those who use the buildings. The City is encouraged to explore the feasibility of installing recycling receptacles in parks and public areas, such as the public open space areas in the Project Area. Commercial and business parks are encouraged to install recycling receptacles on their premises. The City is encouraged to explore incentives for businesses to establish recycling programs.

City of South San Francisco Municipal Code

Chapter 14.04 of the Municipal Code includes measures to eliminate non-stormwater discharges to the municipal separate storm sewer; control discharges to the municipal storm sewer from spills, dumping, or disposal of materials other than stormwater; protect watercourses from modifications to natural flow; and reduce pollutants in stormwater discharges to the maximum extent practicable.

Chapter 8.16 of the South San Francisco Municipal Code contains rules and regulation to prevent the accumulation of quantities of solid waste within the boundaries of the City, except for approved dumpsites, in order to protect and preserve the public health and welfare of the City and neighboring communities.

Water Quality Control Ordinance Chapter- SSFMC 14.08.010

This chapter of the Municipal Code sets forth uniform requirements for direct and indirect contributors into the South San Francisco WQCP, and enables the city to comply with all applicable State (Water Code Section 1300 et seq.) and federal laws as required by the Clean Water Act of 1977 (33 U.S.C. Section 1251 et seq.), as well as General Pretreatment Regulations (40 CRF, Part 403). Pursuant to this ordinance, it is unlawful to discharge without a permit in to any natural outlet within the city or into the WQCP any wastewater, except as authorized by the superintendent in accordance with the provisions of this chapter. All significant industrial users proposing to discharge wastewater to the WQCP shall obtain a wastewater discharge permit from the superintendent before discharging to any public sewer.

City of South San Francisco Construction and Demolition Waste Management Plan – SSFMC 8.16.125

The City of South San Francisco is mandated by the State of California to divert 65 percent of all solid waste from landfills either by reusing or recycling. To help meet this goal, a city ordinance (City of South San Francisco Municipal Code Sections 8.16.125 & 15.60) requires completion of a Waste Management Plan (WMP) for covered building projects identifying how at least 65 percent of non-inert project waste materials and 100% of inert materials (65/100) will be diverted from the landfill through recycling and salvage. A covered project is defined as:

- A residential or commercial remodeling or new construction project valued at $50,000 or more,
- A residential or commercial remodeling or new construction project equal to or greater than 2,000 square feet or more, and
- Demolition work, only as determined by the building official or designee.
- All re-roofing tear-offs over 100 square feet.

Separate WMPs must be completed for demolition and construction at the same site, if separate permits are required.

City of South San Francisco East of 101 Area Plan

In 1994, the City of South San Francisco developed the East of 101 Area Plan with the overall goal of recognizing the unique character of the East of 101 Area. It provides guidance and regulations for new development in a manner that protects and enhances the area's physical, economic and natural resources, while also encouraging appropriate development. The Plan provides detailed planning policies related to public facilities, including the following:

- Policy PF-1: The City shall allow development in the East of 101 Area only if adequate water supply to meet its needs can be provided in a timely manner.
- Policy PF-2: Low flow plumbing fixtures and drought tolerant landscaping shall be installed as part of all new developments in the area.
- Policy PF-3: The City shall develop a program of sewage collection system improvements to reconstruct subsiding sewer lines, provide adequate pump station capacity, and make other necessary and feasible sewage collection system improvements in the East of 101 Area. Improvements shall be completed in a timely manner to meet demands created by new development.
- Policy PF-4: The City shall work with the City of San Bruno to ensure that the Wastewater Treatment Plant provides for development in the East of 101 Area and the service area to the extent feasible. The Capital Improvements Program shall include plant improvements as determined necessary. The City shall limit development approvals to those for which adequate sewage treatment capacity is available.
- Policy PF-5: The City of South San Francisco shall undertake studies necessary to determine the Wastewater Treatment Plant capacity.
- Policy PF-6: A sewage treatment plant expansion plan, including a schedule and funding program, shall be adopted by the City. Plant capacity expansion shall be completed prior to development that would require expanded treatment capacity.
- Policy PF-7: Projects in the East of 101 Area that would generate large quantities of wastewater shall be required to lower their wastewater treatment needs through water recycling, on-site treatment, gray water irrigation, and similar programs where feasible
- Policy FP-8: Specific development proposals in the East of 101 Area shall be evaluated individually to determine drainage and flood protection requirements.
- Policy PF-9: All development in the East of 101 Area shall comply with the NPDES discharge program. Developments over 5 acres in size shall obtain a storm water discharge permit from the NPDES, which may require inclusion of permanent on-site treatment of stormwater from parking areas.
- Policy PF-10: During the rainy season developers shall be required to place appropriate erosion control devices such as silt fences, hay bales, etc., during construction activities to minimize the amount of silt directly entering the Bay or other wetlands.
- Policy PF-11: Utility companies shall be provided early notification for any proposed project that could have an unusual requirement for water sewer gas electric or telephone services.

Impacts and Mitigation Measures

Thresholds of Significance

Based on the CEQA Guidelines, the Project would have a significant environmental impact if it were to:

1. Have insufficient water supplies to serve the project and reasonably foreseeable future development during normal, dray and multiple dry years
2. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electrical power, natural gas or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.
3. Result in a determination by the wastewater treatment provider that serves the Project that it does not have adequate capacity to serve the Project's projected wastewater treatment demand in addition to the provider's existing commitments
4. Generate solid waste in excess of State or local standards, or in excess of the capacity of the local infrastructure, or otherwise impair the attainment of solid waste reduction goals.
5. Fail to comply with federal, state and local management and reduction statutes and regulations related to solid waste
6. Result in potentially significant environmental impacts due to a wasteful, inefficient or unnecessary consumption of energy resources during project construction or operation
7. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

Water Supply

Utilities 1: The Project's water demands would not exceed water supplies available to serve the Project, and there is sufficient water supplies to serve the project and reasonably foreseeable future development during normal, dray and multiple dry years. **(Less than Significant)**

Projected Water Demand

New development pursuant to the Project would result in an estimated net new average daily water demand of approximately 295,000 gallons per day, for a total average daily water demand at buildout of approximately 1,135,000 gallons per day, as indicated in **Table 18-3**.

Table 18-3: Genentech's Baseline and Projected Water Demands

Land Use	Building SF	Demand Factor (gal/yr/SF)	Water Demand (gpd)	Water Demand (AFY)
Baseline Water Demand				
Labs / R&D	1,719,000	30	141,288	
Office	1,567,000	20	85,863	
Amenity	145,000	40	15,890	
Industrial Processes			597,507	
Total			**840,548**	**941**
Estimated Water Demands, Project				
Labs / R&D	1,564,000	30	128,548	
Office	2,423,000	20	132,822	
Amenity	305,000	40	33,425	
Total (net new demand)			**294,795**	**330**
Total Water Demand			**1,135,342**	**1,272**

Notes: Water demand factors expressed in gallons/year and conservatively converted to annual water demands, assuming 365 days of demand per year

Source: Genentech, 2017

The water demand factors used in Table 18-3 are derived from Genentech's 2016 CalWater utility bills for the Project Area, disaggregated by building and by land use type. These water demand factors already take into account all of the prior water conservation strategies and initiatives that Genentech has implemented since 2007 (and the 2007 MEIR), including:

- Significant water efficiencies achieved through technological advancements in manufacturing and purification processes, which have substantially reducing manufacturing water use per volume of product;
- Campus-wide efforts successful in achieving substantial reductions in irrigation water use, including prioritizing native, drought tolerant planting for newly landscaped areas and replacing some existing turfed areas with native, drought tolerant plants, and using high-efficiency drip and spray irrigation system with weather controls; and
- Water conservation awareness initiatives to raise employee awareness of the importance of daily water conservation, as included in Genentech's 2014 Water Strategic Plan

With implementation of these water conservation practices, Genentech has been able to reduce its annual water consumption rates. In 2010, Genentech's SSF Campus was consuming approximately 326 million gallons per year (MGY), or approximately 862,000 gallons of water per day (gpd). By 2016, the SSF Campus had reduced its water consumption to approximately 307 MGY, or 840,500 gpd - an approximately 2.5% reduction in actual water use, despite increased development within the Campus. This resulted in a total water savings of approximately 21.5 million gallons per year. By using water demand factors that already account for these prior water conservation and reduction efforts, Genentech is committing (at a minimum) to maintain these already reduced water use factors, and to extend comparable water conservation and reduction levels to all new development pursuant to the Project.

Available Water Supplies – Normal Years

The Water Supply Assessment prepared for this EIR by Cal Water indicates that the Project's expected increase in water demand is included within Cal Water's forecast of future water demands of the three Peninsula Districts.

Table 18-4 shows the projected supply and demand totals for the three Peninsula Districts for a normal water year. In normal years, the full amount of Cal Water's Individual Supply Guarantee (ISG) of 39,967 AF is available, and the total of SFPUC-purchased water, SSF District groundwater and the Bear Gulch District surface supplies meets the combined demands of the three Districts through year 2040. Future demands are estimated as the product of future services and expected water use per service.

Table 18-4: Cal Water Peninsula Districts - Normal Year Supply and Demand Comparison (AF)

	2020	2025	2030	2035	2040
Supply Totals	40,225	40,280	40,647	41,149	41,767
Demand Totals	40,225	40,280	40,647	41,149	41,767
Difference	0	0	0	0	0

Source: SB 610 Water Supply Assessment for the Genentech Master Plan Update, California Water Service, November 21, 2017

Cal Water's SFPUC supply is shared among all three Peninsula districts in order to provide operational flexibility to distribute the supply as needed depending on the availability of local supplies and demands within each District. **Table 18-5** presents the projected demand totals for just the SSF District through year 2040.

Table 18-5: SSF District Projected Potable Water Demand (AFY)

Use Category	2020	2025	2030	2035	2040
Single Family	3,159	3,125	3,124	3,146	3,180
Multi-Family	402	394	396	404	417
Commercial	3,698	3,723	3,764	3,800	3,839
Industrial	695	730	768	807	848
Institutional/Governmental	371	367	363	360	358
Other	15	15	15	15	15
Losses	220	226	232	238	244
Total:	**8,560**	**8,580**	**8,662**	**8,770**	**8,901**

Source: SB 610 Water Supply Assessment for the Genentech Master Plan Update, California Water Service, November 21, 2017

These forecast water demands are part of the SSF District's Urban Water Management Plan (UWMP). Future services are based on historical growth rates in the District. Single-family residential services are projected using the historical growth rate for the last 20 years, while multi-family services are projected using the 5-year historical growth rate. Commercial and industrial services are projected using the historical growth rate for the past 15 and 20 years, respectively. The forecast assumes no change in the number of institutional services. The projected average annual growth rate in services across all customer categories is approximately 0.5 percent.

The UWMP indicates that purchased SFPUC supplies and local supplies (groundwater in the SSF District and surface water in the Bear Gulch District) are anticipated to be sufficient to meet combined normal year demands for all three Districts, including the SSF District, through the year 2040.

Available Water Supplies – Drought Years

Table **18-6** shows the projected water supply and demand for the three Peninsula Districts for up to three consecutive dry years. Based on historical records, supply from the Bear Gulch Reservoir provides an average of 609 AFY in three successive dry years. During the first year, supply is assumed at 351 AF (the same as the single- dry year of 1990). The subsequent two years are expected to provide 738 AFY. The SSF District's normal groundwater supply of 1,535 AFY is expected to be unaffected in dry years two and three. Total supplies in Table 18-5 include these quantities, plus an SFPUC supply of 31,950 AF. Shortages up to 22% in the first year are followed by projected second and third year shortages between 14% and 19%.

Table 18-6: Cal Water Peninsula Districts - Three Consecutive Dry Years: Supply and Demand Comparison

		2020	2025	2030	2035	2040
First year	Supply Totals	33,836	33,836	33,836	33,836	33,836
	Demand totals	41,984	42,041	42,425	42,947	43,591
	Difference	(8,148)	(8,205)	(8,589)	(9,111)	(9,755)
	% Shortage	19%	20%	20%	21%	22%
Second year	Supply totals	34,223	34,223	34,223	34,223	34,223
	Demand totals	40,764	40,819	41,192	41,700	42,327
	Difference	(6,541)	(6,596)	(6,969)	(7,477)	(8,104)
	% Shortage	16%	16%	17%	18%	19%
Third year	Supply totals	34,223	34,223	34,223	34,223	34,223
	Demand totals	39,758	39,812	40,176	40,671	41,283
	Difference	(5,535)	(5,589)	(5,953)	(6,448)	(7,060)
	% Shortage	14%	14%	15%	16%	17%

Source: SB 610 Water Supply Assessment for the Genentech Master Plan Update, California Water Service, November 21, 2017

Although the three Peninsula Districts have a sufficient supply under normal hydrological conditions, during one-year or multi-year periods shortfalls up to 22% are projected. Under such conditions, Cal Water will implement Water Shortage Contingency Plans as described in the SSF UWMP. During the drought years of 2012 to 2015, District customers were requested to reduce their demand by 8% as specified by the State Water Resources Control Board. The District has achieved 20% reductions in water use based on June 2015 to March 2016 data. Additionally, Cal Water continues to develop plans to increase its water supply portfolio for these Districts.

Supply/Demand Conclusions for the Project

The SSF District UWMP shows a balanced forecast of water demands and expected water supplies. Cal Water indicates that the increased water demands associated with the Project are included in the overall water demands of the SSF District UWMP. The Project will not exceed water supplies available to serve the Project from Cal Water's existing or planned entitlements and resources under normal years, and no new or expanded water resource entitlements are needed for the Project.

The projected year 2040 water demand for the SSF District is estimated to be approximately 8,901 AFY, an increase of approximately 1,837 AFY from demands in 2015. The Project's expected increase in water demand at buildout (assumed for this analysis to be year 2040) is approximately 330 AFY.

- The Project's new water demand represents approximately 18% of the overall increase in projected demand within the SSF District, leaving approximately 82% for other development projects.
- When added to projected increased water demands of the Oyster Point Specific Plan and the SSF Downtown Specific Plan redevelopment project, the combined water demands of these three larger developments represents approximately 45% of the total projected increase in water demands of the SSF District by year 2040, leaving 55% of that increase for other projects and general growth. Cal Water expects this remaining supply to be sufficient to accommodate other projected growth from all other new developments for the next 20-plus years.

The Water Supply Assessment prepared by Cal Water concludes that, for the next 20-plus years, the SSF District will be able to provide adequate water supplies to meet existing and projected customer demands, including full development of the Project for normal water year conditions. Within all three Cal Water Peninsula Districts served by SFPUC, the combination of existing local and purchased water supplies are adequate to meet forecasted demands for the Project, plus those demands associated with existing Cal Water customers and all other new developments for the next 20-plus years under normal hydrologic year conditions. [9]

For a single dry year, available water supplies may be less than expected demand if SFPUC supplies are reduced (which historically has not occurred). The amount of groundwater that will be pumped will not be reduced, but treated surface water from the Bear Gulch Reservoir in the Bear Gulch District will most likely decrease. If SFPUC does reduce its supplies, Cal Water will implement additional demand reduction measures on all customers, including the Project. Depending on when the next single dry year occurs, additional supply sources (water transfers and desalination) may have been developed and be available to offset any reductions in existing supply sources.

During a 3-year dry period, water supplies are expected to be less than normal demand by a range of 14% to 22%, depending on when this 3-year dry period may occur. Cal Water will assess any supply reduction notifications from SFPUC, the availability of water from treated surface sources, and whether it can continue to pump groundwater at its historically normal rate. The Westside Basin groundwater supplies would likely continue to be pumped at current rates, although that would result in a reduction in basin storage and a lowering of groundwater levels. During years of above normal rainfall, it is expected that groundwater storage would increase to replenish the basin (as has been the case in past decades). Additional supply sources (water transfers and desalination) may have been developed and available to offset any reductions in existing supply sources. If not, Cal Water will determine what additional demand reduction measures will be needed to reduce demand to match available supplies (Cal Water exceeded its goal of reducing water demands during the most recent, 2010- 2015 severe drought). If in the first dry year, demand reduction responses do not appear to be sufficient, Cal Water will implement additional conservation measures in the second and third years. This is expected to result in an adequate supply for all three Cal Water peninsula districts for the years 2020 to 2040.

These conclusions about available water supply to serve the Project are based on the following assumptions and assertions:

[9] Cal Water, SB 610 Water Supply Assessment for the Genentech Master Plan Update, California Water Service, November 21, 2017, page 43

- current Westside Basin groundwater supplies, and Cal Water's current and projected groundwater production rates from its active wells
- generally adequate long-term normal hydrologic supplies provided by the SFPUC, but potentially significant reductions in supply during multiple dry year periods
- an effective demand reduction program to meet requirements of state laws
- future Cal Water plans to develop additional supply sources, including transfers/exchanges of supplies from outside the Peninsula area, and development of local desalination facilities
- the prospect of longer-term additional local supplies being obtained from the conjunctive use program for the Westside Basin as proposed by SFPUC
- possible recycled water projects being developed collaboratively among local wastewater and water utility providers in the SSF District
- Cal Water's ability to achieve additional drought-driven reductions in demand (15% to 26%) during multiple dry-year periods, through its established in-place water programs
- historical performance, which demonstrates Cal Water's ability to both increase supply sources and effectively achieve demand reductions if required

Genentech's On-Going Water Conservation Initiatives

Although the Project would not have an adverse impact on available water supplies, Genentech continues to pursue private corporate goals to reduce water use at the Campus. In 2015, Genentech established a goal of a 20% overall water reduction by 2020, compared to use levels in 2010. This 2020 goal is helping to drive meaningful water conservation projects throughout the Project Area. Examples of additional initiatives that Genentech anticipates implementing to help meet this 2020 goal include:

- Continuing to switch additional portions of the Campus to more drought- resistant landscaping, including installation of such landscape in all new development,
- Developing a source of recycled water that can make use of new reclaimed water distribution lines (purple pipes) that have already been installed, and extending purple pipes to all new development projects,
- Further implementation of greywater reuse systems in new building design,
- Piloting of additional internal treatment and reuse of wastewater streams for use in cooling towers and boilers, and
- Exploring the potential of tapping into the regional wastewater outfall main line that delivers treated wastewater from the City wastewater treatment plant to its ultimate disposal outfall in the Bay. This high-pressure main line runs through the center of the Campus, and carries all the treated wastewater exiting from the City's treatment plant. Under this potential project, Genentech would "siphon off" a portion of this treated effluent prior to its disposal in the Bay, provide additional on-site treatment (or "polishing") of this wastewater flow, and use this treated effluent in its industrial applications at the Campus. If Genentech is successful in designing such a project, and it can be demonstrated to be feasible, cost-efficient and environmentally sound, this project would substantially reduce potable water demands needed for on-site industrial applications.

Each of these water conservation initiatives would further implement policies of the City's General Plan (Policies 5.3-I-1 and 5.3-I.2 of the Parks, Public Facilities and Services Element). These policies call for the City to work with Cal Water to promote use of water-conserving devices and practices in new construction and major alterations and additions, and to include conservation as it relates to industrial or commercial construction. These water conservation initiatives, if implemented, are private corporate initiatives driven by

Genentech's internal Sustainability Strategic Plan, and are not mitigation measures necessary to address a significant environmental effect.

Regulatory Requirements

The following regulatory requirements apply to the Project.

Regulatory Requirement Utilities 1- CalGreen Water Conservation Standards: All new development pursuant to the Master Plan Update (the Project) are subject to the water conservation requirements of the 2016 California Green Building Standards Code, Nonresidential (CalGreen, 2016), or as may be amended. These requirements, as pertaining to water conservation, include:

1) Installation of separate sub-meters or metering devices for each individual leased, rented, or other tenant space within the building projected to consume more than 100 gal/day, including, but not limited to spaces used for laboratories, and for water supplied to sub-systems used for make-up water for cooling towers, evaporative coolers, and steam and hot-water boilers. The intent of this code requirement is to reduce potable water use in new or altered buildings by making building owners and/or tenants aware of their daily potable water consumption to encourage voluntary reduction.
2) Installation of water conserving plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) that meet maximum allowable flow rates. The intent of this code regulation is to reduce the overall use of potable water within the building.
3) Compliance with mandatory Model Water Efficiency Landscape Ordinance (MWELO) measures for outdoor water use in landscape areas, or a local water efficient landscape ordinance that is at least as effective in conserving water. The intent of this code requirement is to reduce the overall outdoor water used for irrigation for both new landscaping areas and rehabilitated landscape projects.

Mitigation Measures

None needed.

As indicated in Cal Water's SB 610 Water Supply Assessment, the SSF District of Cal Water will be able to provide adequate water supplies to meet existing and projected customer demands, including full development of the Project, for normal water year conditions. During single dry year conditions, Cal Water may need to implement demand reduction measures on all customers including the Project, or, depending on when the next single dry year occurs, additional supply sources may have been developed and be available to offset any reductions in existing supply sources. For multiple dry year conditions, Cal Water will determine what additional demand reduction measures will be needed to reduce demand to match available supplies. This is expected to result in an adequate water supply for all three Cal Water Peninsula Districts for the years 2020 to 2040. Therefore, the impact would be less than significant.

Water Supply Infrastructure

Utilities 2: The Project would not require or result in the relocation or construction of new or expanded water conveyance facilities, the construction or relocation of which could cause significant environmental effects. (**Less than Significant**)

Based on a programmatic and system-wide assessment of the Project Area's water delivery system, the existing water system within the Project Area is capable of accommodating the Project's increase in water

demand.[10] The looped water system within the Project Area consists primarily of large 12-inch and 15-inch distribution lines designed to convey fire flow requirements, which are substantially higher in terms of gallon per minute (gpm) demands and velocities than the average domestic water demands associated with new buildings. The Project's projected increase of domestic water flow within the water system is estimated at approximately 216 gpm. This represents less than 5% of the existing water system's fire flow capacity (which is approximately 4,640 gpm). At these flow demands, the maximum flow volumes are projected to be approximately 8 feet per second, which is within the acceptable range for fire flow requirements. Thus, the fire flow requirements throughout the Project Area that will be necessary to supply sprinkler systems within each building (existing and new) are expected to be achievable within acceptable ranges using the existing water delivery system. The water system serving portions of the Upper Campus is augmented by a 1.5-million-gallon storage reservoir located on the top of the hill, as well as high-pressure water lines that supply adequate flow to upper elevations of the Campus to meet these fire flow requirements. This water system assessment is a cursory analysis of the overall water system conveyance capacity. Detailed analysis will need to be performed pursuant to any future changes to the system that may be needed on an individual building basis.

Regulatory Requirements

As new development occurs within the Project Area, Cal Water will furnish and install any needed piping, meters and meter boxes necessary to provide service, and Genentech will be responsible for connecting new buildings to the Cal Water service connection.[11] Cal Water will also ensure that all required water facilities are designed consistent with the proposed Project, and will coordinate with Genentech, the City of South San Francisco and the California Division of Drinking Water in the design, construction and operation of the proposed water distribution system.[12] Water supply and pressure requirements for each new building will be established pursuant to applicable Fire Codes.

Regulatory Requirement Utilities 2 – Water Service Connections: Genentech will be responsible for connecting new buildings pursuant to the Project to existing or new Cal Water service connections. All such water service connections will be required to adhere to applicable Code requirements, and these requirements will be incorporated into individual development project designs and construction.

Adherence to these codes and regulatory measures would ensure less than significant impacts. Any water pressure deficiencies that may occur for taller new buildings can be overcome with individual pressure boosters. These water service connections will occur within the street right-of-way and within individual development sites, and will not result in any unique to peculiar on-site or off-site environmental effects.

Mitigation Measures

None required. Compliance with regulatory requirements for water service needs of individual buildings would ensure potential impacts of the Project related to water service would be less than significant.

Exceedances of Wastewater Discharge Requirements

Utilities 3: The Project will not require or result in the relocation or construction of new or expanded wastewater treatment facilities, the construction or relocation of which could cause significant environmental effects. (**Less than Significant**)

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10 Wilsey Ham, 2017

11 Cal Water, Rule No. 16: Service Connections, Meters, and Customer's Facilities

12 CalWater, Water Supply Assessment, November 2017

The cities of South San Francisco and San Bruno jointly own and operate the South San Francisco and San Bruno Water Quality Control Plant (WQCP) located in the East of 101 Area of South San Francisco, and its wastewater collection system. The WQCP provides secondary wastewater treatment for the cities of South San Francisco, San Bruno and Colma, along with the de-chlorination treatment of chlorinated effluent for the cities of Burlingame, Millbrae and the San Francisco International Airport, prior to discharging the treated wastewater into San Francisco Bay. Discharges from the WQCP have the potential to violate wastewater treatment requirements of the applicable NPDES permit if the treatment system is not able to adequately remove pollutants contained in the discharge, or if pollutants damage or disrupt operations of the WQCP. Industrial discharges to publicly operated treatment plants have historically been a significant source of pollutants, and certain industrial discharges can interfere with operation of the WQCP, leading to the discharge of untreated or inadequately treated wastewater into the Bay. Some pollutants are not compatible with biological wastewater treatment, and may pass through the treatment plant untreated. The pass-through of such pollutants could adversely affect the surrounding environment.

Regulatory Requirements

The State Water Resources Control Board (SWRCB) requires all public wastewater collection systems agencies in California with greater than one mile of sewers (including the WQCP) to be regulated under Statewide General Waste Discharge Requirements (WDR). Additionally, the discharge of treated effluent from the WQCP to the San Francisco Bay is subject to further waste discharge requirements as set forth by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), through a National Pollutant Discharge Elimination System (NPDES) permit.

The SSF WQCP operates pursuant to a Sewer System Management Plan (SSMP), which demonstrates that its operations meet the requirements of both the RWQCB and the Statewide WDR.[13] The SSMP sets forth requirements for direct and indirect contributors to the WQCP, established through waste discharge permits, that enable compliance with all applicable State of California laws and federal laws required by the Clean Water Act, and General Pretreatment Regulations (40 CRF, Part 403). It is unlawful to discharge wastewater into the WQCP system without such a permit. New development pursuant to the Project may include wastewater-generating industrial uses that will need to be individually assessed for appropriate waste discharge permits and pollutant reduction plans to ensure compliance with waste discharge requirements.

Regulatory Requirement Utilities 3 - Wastewater Discharge Permit: New development pursuant to the Project will be required to obtain a wastewater discharge permit from the Environmental Compliance Supervisor of the City of South San Francisco. Each new project shall comply with all requirements or limitations of that permit as cited in the City's Wastewater Discharge Ordinance, Municipal Code, Environmental Compliance Program or any applicable State and federal laws. New development projects pursuant to the Project will be classified as institutional, commercial, or industrial users, depending on the types of discharge from the facility. New industrial uses will be further classified as either Categorical Industrial User (an industrial user subject to categorical pretreatment standards or categorical standards), or as a Significant Industrial User (designated as such because the industrial use has a reasonable potential for adversely affecting operation of the treatment plant or to violate pretreatment standard or requirements).

1) New uses designated by the City of South San Francisco as Categorical Industrial Users will be required to develop and implement a plan designed to reduce the amount of pollutants of concern (copper, cyanide, selenium, mercury, perchloroethylene and tributyltin) discharged into the sanitary and the storm water sewer systems. Certain industrial uses within the Project Area may also require a pH neutralization system for pretreatment of industrial process wastewater

[13] City of South San Francisco, *Sewer System Management Plan* (SSMP), June 2014 (Revised)

discharge.

2) New uses designated by the City of South San Francisco as Significant Industrial Users will be subject to additional requirements or limitations as may be cited in the City's Wastewater Discharge Ordinance, Municipal Code, Environmental Compliance Program or any applicable State and federal Laws. Effluent sampling and monitoring is required to verify compliance with applicable regulations and limitations.[14]

Obtaining required permits, implementing any required pollutant reduction plans and/or pH neutralization system, and compliance with any additional requirements or limitations (including sampling and monitoring) as may be required for new Significant Industrial User discharge permits will reduce impacts related to exceeding the wastewater treatment requirements of the RWQCB to less than significant levels.

Mitigation Measures

No additional mitigation measures are necessary. Applicable regulatory requirements fully address this issue, and no additional measures are necessary.

Wastewater Treatment and Disposal Capacity

Utilities 4: The Project will not result in a determination by the wastewater treatment provider (the City of South San Francisco) that it does not have adequate capacity to serve the Project's wastewater treatment and disposal demands, in addition to its existing commitments. (**Less than Significant**)

New development pursuant to the Project is conservatively estimated to generate net new wastewater flows of approximately 293,700 gallons per day (or approximately 0.294 mgd). Added to baseline wastewater flows from the Genentech Campus of approximately 0.774 mgd, the total wastewater flows generated at buildout of the Project Area would amount to approximately 1.07 mgd.

Wastewater Treatment- Average Dry Weather Flows

The South San Francisco and San Bruno WQCP, located in South San Francisco, serves the Project Area. The WQCP provides secondary treatment that employs a conventional air-activated sludge process. Solids separated from the wastewater are treated with anaerobic digesters. Digested sludge is dewatered and hauled to the landfill for final disposal. Treated effluent from the WQCP combines with secondary effluent discharges from the Cities of Burlingame, Millbrae and the San Francisco International Airport. The combined flows are pumped into the North Bayside System Unit (NBSU) outfall, which discharges to the San Francisco Bay just offshore from the Project Area. The WQCP's current rated treatment capacity for average dry weather flow is 13 million gallons per day (mgd).

According to the City of South San Francisco's Water Quality Control Plant Facility Plan (Facility Plan Update) of April of 2011, dry weather flows to the WQCP averaged approximately 8.66 mgd between the period of 2004 through 2009, and current dry weather flows are estimated at approximately 9.0 mgd.[15] The dry weather flow capacity of the WQCP (at a dry weather capacity of 13 mgd) therefore has a remaining treatment and disposal capacity of approximately 4 mgd. The Project's estimated net new wastewater flows of approximately 0.3 mgd would not result in exceeding currently available treatment capacity at the WQCP, nor disposal capacity at the NBSU outfall.

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[14] As of 2017, Genentech operates under 8 separate Significant Industrial User permits, including those applicable to B3, 6 and 8; B5; B7B; B51, the FRC (B10-15); B41-43 and B47 in the South Campus; and B46-48 in the South Campus.

[15] City of South San Francisco, accessed at: http://www.ssf.net/departments/public-works/water-quality-control-plant/treatment-process

One of the purposes of the Facility Plan Update was to estimate future wastewater flows and to assess the future treatment capacity needs of the WQCP. Most of the future growth anticipated under the Facility Plan Update was expected to consist of new developments in South San Francisco's East of 101 Area, comprised of relatively "dry" industries (such as research and development and office space). Growth in other parts of the service area, including San Bruno and west of 101 in South San Francisco, is expected to be mostly residential infill of vacant land. Dry weather wastewater flows to the WQCP were projected to increase from approximately 8.6 mgd in 2011, to approximately 10.3 mgd by year 2040. The estimated cumulative flows of 10.3 mgd are approximately 2.6 mgd less than the 13 mgd rated treatment capacity of the WQCP. The Facility Plan Update concluded that the treatment capacity of 13 mgd is adequate for a 30-year period, with an available reserve capacity of about 2.6 mgd. It is not expected that capacity expansion projects at the WQCP will be required to meet foreseeable cumulative demands. The Project's estimated net new wastewater flows of approximately 0.3 mgd represent approximately 19 percent of the cumulative increase in average dry weather flows assumed in the Facility Plan Update by year 2040, and would not result in a cumulatively significant increase in treatment capacity demand at the WQCP.

Wastewater Treatment – Peak Wet Weather Flows

The WQCP has a peak wet weather flow capacity of 62 mgd, which corresponds to the estimated flow from a 5-year storm. The WQCP has a peak secondary treatment capacity of only 30 mgd. If the WQCP receives a peak flow of 62 mgd, then the remaining flow of 32 mgd receives primary treatment, is blended with secondary effluent, and is disinfected and discharged to the outfall. The NBSU effluent pump station and outfall have a flow capacity of 64 mgd. By agreement, South San Francisco and San Bruno are limited to pumping a peak flow of only 35 mgd. When effluent flows from the WQCP exceed 35 mgd, the excess is stored in a 7-million gallon (MG) storage pond, and released later when peak flows subside. The flow diversion system is designed to divert only secondary treated effluent to the ponds. If the pond fills to capacity, the excess flow must be discharged to the near-shore outfall to Colma Creek. The Colma Creek outfall is a simple overflow weir that discharges directly to the creek. Only secondary treated effluent can be discharged to the near-shore outfall.

Wastewater Disposal

In addition to secondary wastewater treatment for the cities of South San Francisco, San Bruno and Colma, the WQCP also provides de-chlorination treatment of chlorinated effluent from the cities of Burlingame, Millbrae, and the San Francisco International Airport, prior to discharging the de-chlorinated wastewater into San Francisco Bay. In 2006, a Joint Powers Agreement (JPA) was reached with the cities of San Francisco (for the airport), South San Francisco, San Bruno, Millbrae and Burlingame defining ownership of capacity and establishing cost sharing agreements for the deep water outfall facilities that extend from the WQCP to San Francisco Bay. These facilities, and the JPA that own and operates them, are known as the North Bayside System Unit (NBSU). The City of South San Francisco is responsible for the operation and maintenance of the NBSU facilities.

In 2014, the San Francisco Bay Regional Water Control Board issued Order #R2-2014-0012 (NPDES Permit #CA0038130) to the cities of South San Francisco and San Bruno, and to the North Bayside System Unit for the discharge of wastewater into the San Francisco Bay.[16] This permit's expiration date is through May of 2019, and prohibits the discharge of treated wastewater at any location or in a manner different from that described in the permit. The permit regulates the following types of discharges from the NBSU:

[16] San Francisco Bay Regional Water Control Board, Order #R2-2014-0012 (NPDES Permit #CA0038130), April 9, 2014

- Average dry weather effluent flow in excess of 13 mgd is prohibited at the deep-water outfall (Discharge Point No. 001). Average dry weather effluent flow is determined from three consecutive dry weather months each year.
- The bypass of untreated or partially treated wastewater to waters of the United States is prohibited (with certain exceptions as provided for in the permit). The discharge of blended wastewater (biologically-treated wastewater blended with wastewater diverted around biological treatment units or advanced treatment units) is approved under certain bypass conditions when peak wet weather influent flow exceeds the capacity of the secondary treatment units (30 mgd). This discharge must comply with effluent and receiving water limitations,[17] and the discharger is required to develop and implement a Wet Weather Improvement Program to reduce blending.
- Discharge at the near-shore Colma Creek outfall (Discharge Point No. 002) is prohibited when treated wastewater does not receive an initial dilution of at least 74:1 (nominal). Compliance shall be achieved by proper operation and maintenance of the discharge outfall to ensure that it is in good working order and is consistent with, or can achieve better mixing than that described in the permit. The Discharger shall address measures taken to ensure this in its application for permit reissuance.

As indicated above, the Project would not cause the average dry weather effluent flow to exceed 13 mgd as permitted at the deep-water outfall. The Project will be required (see Regulatory Requirement Utilities 3 - Wastewater Discharge Permit) to obtain appropriate wastewater discharge permits and comply with limitations of those permit designed to ensure compliance with the NBSU effluent and receiving water limitations of the RWQCB NBSU permit. The City of South San Francisco has prepared a Sewer System Management Plan that includes a Sanitary Sewer Overflow and Backup Response Plan to ensure that City of South San Francisco responds to, reports, relieves, and cleans and decontaminates sanitary sewer overflows and backups. That Plan was updated and revised in 2014 to meet the SWRCB and WDR requirements.[18] The WQCP has adequate capacity to absorb the additional wastewater treatment and disposal demands generated by the Project, in addition to other projected cumulative wastewater flows. The Project's impact on wastewater treatment and disposal capacity, including compliance with waste discharge requirements, would be less than significant.

Regulatory Requirements

Regulatory Requirement Utilities 4 - East of 101 Sewer Fees: New development within the Project Area will contribute to East of 101 sewer improvements in accordance with existing requirements of the East of 101 Sewer Fee contribution formula, established by Resolution 97-2002 (or as that resolution may be amended). These fees represent "fair-share" payments towards the availability of sewer collection, treatment and disposal capacity for the Project, and apply to all discretionary land use approvals, including Administrative Review, Minor Use Permits and Conditional Use Permits.

Mitigation Measures

None needed. The City does not limit the volume of wastewater flows that industries can discharge. However, the East of 101 Area Plan does require new development in the East of 101 Area that is likely to generate large quantities of wastewater flows to lower their treatment needs through recycling, on-site treatment, grey water irrigation and other programs where feasible.

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[17] The receiving water limitations include macroscopic particulate matter or foams; bottom deposits or aquatic growths; alteration of temperature, turbidity, or apparent color; visible, floating, suspended or deposited oil or other petroleum products; toxic or other deleterious substances; and other specified receiving water limitations pertaining to dissolved oxygen, dissolved sulfide, pH and nutrients.

[18] City of South San Francisco, Sewer System Management Plan, June 2014

As indicated in the analysis for Impact Utilities 1 (Water Supply), Genentech has, and expects to continue to implement water conservation and use reduction at the Campus, via a number of meaningful water conservation projects and initiatives. One of these initiatives involves exploration of the potential to tap into the North Bayside System Unit outfall, which runs through the center of the Campus and carries all the treated wastewater exiting from the City's treatment plant, and discharges to the San Francisco Bay. Under this potential project, Genentech would "siphon off" a portion of this treated effluent prior to its disposal in the Bay, provide additional on-site treatment (or "polishing") of this wastewater flow, and use this treated effluent in its industrial applications at the Campus. If Genentech is successful in designing such a project, and it can be demonstrated to be feasible, cost-efficient and environmentally sound, this project would substantially reduce potable water demands needed for on-site industrial applications, and would result in a commensurately substantial reduction in the amount of effluent that is disposed of into the Bay.

Wastewater Collection Infrastructure

Utilities 5: The Project would not require or result in the relocation or construction of new or expanded wastewater collection facilities, the construction or relocation of which could cause significant environmental effects. (**Less than Significant**)

Based on a programmatic, system-wide assessment of the Project Area's wastewater collection system (Wilsey Ham, 2017), the existing wastewater system will generally have adequate collection pipe capacity to accommodate buildout of the Project, but may have certain capacity constraints particularly within those sewer mains along Forbes Avenue and Allerton Way that flow to Pump Station #8. The pipes with identified potential deficiencies are upstream of this pump station, and may actually have steeper slopes (therefore greater capacity) than assumed in this programmatic analysis, because of the deeper wet-well and pump station facilities. Considering that buildout of the Project would contribute less than 0.5 feet per second of additional sewer flows in the system, and these flows would be distributed throughout the Campus, system capacity deficiencies are most likely existing deficiencies and are not driven by the additional flows attributed to the Project.

Regulatory Requirements

Regulatory Requirement Utilities 5 - Sewer Lateral Construction: Pursuant to South San Francisco Municipal Code, Chapter 14.14 Sewer Lateral Construction, Maintenance and Inspection, as new development occurs within the Project Area, Genentech will be responsible for constructing, operating and maintaining all individual building sanitary sewer laterals from the building to the City sanitary sewer main.

Mitigation Measure Utilities 5 – Detailed Hydraulic Analysis and System Upgrades: Subsequent detailed hydraulic analysis will ultimately be needed pursuant to individual development projects that rely on the segment of sewer line contributing to Pump Station #8. The results of this detailed analysis will determine whether and when the capacity of these wastewater collection facilities may need to be increased to meet demand. The wastewater collection system will be upgraded as necessary to accommodate future growth, consistent with City Municipal Code requirements and responsibilities.

These wastewater service connections and potential capacity improvements will occur within the street right-of-way and within individual development sites, and will not result in any unique or peculiar on-site or off-site environmental effects.

Regulatory Requirement Utilities 4 - East of 101 Sewer Fees: (see above). These fees represent "fair-share" payments towards the availability of sewer collection, as well as treatment and disposal capacity for the Project, and apply to all discretionary land use approvals, including Administrative Review, Minor Use Permits and Conditional Use Permits.

Cumulative development occurring in the East of 101 Area may require that the City undertake improvements to the main sewer collection system and/or treatment facilities, beyond those improvements already assumed in the City's Capital Improvement Program. These potential sewer system improvements provide citywide benefits, and would be financed (if needed), through issuance of sewer revenue bonds.

Mitigation Measures

None required. Compliance with regulatory requirements for wastewater service needs of individual buildings would ensure potential impacts of the Project related to wastewater infrastructure would be less than significant.

Stormwater Facilities

Util-6: The Project will not require or result in the relocation or construction of new or expanded storm water drainage facilities, the construction or relocation of which could cause significant environmental effects. **(Less than Significant)**

The drainage system in the East of 101 Area is generally designed and constructed for industrial development and associated large areas of impervious services. New development projects pursuant to the Project will connect to existing drainage lines that drain directly to San Francisco Bay. A more detailed analysis of the hydrological impacts related to stormwater flows and the stormdrain system is provided in the Hydrology chapter of this EIR, and briefly referenced below.

Regulatory Requirements

In accordance with the Clean Water Act's National Pollution Discharge Elimination System (NPDES) regulations, new development within the Project Area must reduce pollutants from entering the stormwater system, to the maximum extent practicable to protect water quality. These regulations specify several control measures that work to prevent non-storm water discharges into the storm system, and minimize the discharge of pollutants in storm water runoff. The Project will be required to comply with the following regulatory requirements:

Regulatory Requirement Hydro 1A - Construction General Permit/Stormwater Pollution Prevention Plan: All new qualifying construction projects pursuant to the Master Plan Update are required to comply with Provision C.6 of the Municipal Regional Permit (MRP). This will require filing a Notice of Intent for permit coverage under the Construction General Permit and implementation of Storm Water Pollution Prevention Plans (SWPPP) during construction periods (see further detail in the Hydrology chapter of this EIR).

Regulatory Requirement Hydro 1B - Provision C.3 Requirements/Stormwater Management Plan: All new Regulated Projects pursuant to the Master Plan Update will be required to comply with Provision C.3 of the MRP, including requirements to incorporate post-construction stormwater control and low-impact development (LID) measures. Each individual development project must meet Provision C.3 requirements capable of reducing long-term impacts of development on stormwater quality, including implementation of Best Management Practices (BMPs) capable of removing or otherwise neutralizing pollutants (see further detail in the Hydrology chapter of this EIR).

Examples of BMPs include routing runoff through lawn areas or other pervious surfaces (where infiltration can filter pollutants through the soil before such runoff reaches the storm drain system) and use of bio-filters (also known as vegetated swales) to transport shallow depths of runoff slowly over vegetation. These types of BMPs provide an opportunity for sediments and particulates to be filtered and degraded through biological activity. BMPS may also include controlling off-site stormwater flow rates, potentially requiring on-site detention storage. However, the Project would redevelop a Project Area that is already primarily developed with buildings, parking lots and other impervious surfaces. New development will require new

drainage structure and localize on-site storm drain systems, but the volume of stormwater runoff generated by the Project would not substantially increase above existing conditions. Because little or no additional stormwater runoff would be created, no substantial additional stormwater would need to be accommodated in existing stormwater drainage facilities, and no expansion of stormwater drainage facilities would be warranted. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Solid Waste Disposal

Utilities 7: Future development pursuant to the Project will not generate solid waste in excess of State or local standards or in excess of the capacity of the local infrastructure, or otherwise impair the attainment of solid waste reduction goals. The Project will comply with federal, state and local management and reduction statutes and regulations related to solid waste. (**Less than Significant**)

The South San Francisco Scavenger Company (Scavenger) is contracted as the sole hauler of solid waste and operator of recycling services for the City of South San Francisco. Scavenger transports all solid waste from the Project Area to its Blue Line Material Recovery/Transfer facility, which has a permitted capacity of 2,000 tons per day. The recovery facility transforms food and green waste into renewable CNG fuel for its vehicle fleet, and compost. Once the material have been separated, materials that cannot be recycled or composted are transported from the Blue Line facility to either the Corinda Los Trancos (Ox Mountain) landfill in the city of Half Moon Bay (which receives about 85% of landfill material) or to the Newby Island Sanitary landfill in Santa Clara County. In 2017, the Ox Mountain landfill had a permitted maximum disposal capacity of 3,598 tons per day, with a design capacity of 49 million cubic yards and a remaining capacity of approximately 22.2 million cubic yards. According to a 2017 Modified Solid Waste Facilities Permit, the landfill received an increase in its design capacity from 49 million cubic yards to 60.5 million cubic yards, extending the closure year of this landfill out to the year 2034.[19] The Newby Island landfill is permitted to accept 4,000 tons per day, and has a permitted capacity of 57.5 million cubic yards, with an estimated remaining capacity of approximately 21 million cubic yards as of 2017.[20]

New development pursuant to the Project would generate additional solid waste, through both construction and operational activities. Based on the average 2016 citywide solid waste disposal rate of 9.3 pounds per day per employee,[21] (which accounts for a citywide average of material being diverted and recycled from the waste stream), the net new solid waste generation that could be expected pursuant to the Project (at citywide average generation rates) would be approximately 15,173 tons per year.[22] This amount of solid waste represents less than 1 percent of the remaining capacity of the Corinda Los Trancos (Ox Mountain) Landfill (especially considering its 2017 increase in design capacity), and less than a 3 percent increase in the processing of solid waste at the Blue Line Transfer facility. This impact would be less than significant.

Genentech's On-Going Waste Reduction Initiatives

Genentech implements an aggressive waste generation reduction and waste-to-landfill reduction program for its traditional waste stream. This program reduces the impact of waste generation by first minimizing

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[19] California Department of Resources Recycling and Recovery, Permit Concurrence for Modified Solid Waste Facility Permit - Facility No. 41-AA-0002, June 2017

[20] Michael Baker International, 2017 Oyster Point Specific Plan Update - Municipal Services Assessment, November 2017

[21] CalRecycle, accessed at: https://www2.calrecycle.ca.gov/LGCentral/DiversionProgram/JurisdictionDiversionPost2006

[22] 9.3 pounds per day per employee x 12,550 employees x 260 days per year = approximately 30.45 million pounds, or 15,173 tons per year

consumption, and then looking for new opportunities for reuse and recycling. These efforts have increased the compost and recycling material sent to SSF Scavenger, while reducing the need for landfill. Genentech's current waste reduction goal, launched in 2015, targets an 80% reduction in waste to landfill per employee by 2020, compared to 2010 levels. With on-going implementation of waste reduction programs and initiatives, The Project's effects on waste collection and landfill capacity will be even further reduced.

Regulatory Requirements

Regulatory Requirement Utilities 7A - Construction Waste Management Plan: Individual development projects pursuant to the Project will be required to develop and implement a Construction Waste Management Plan, pursuant to City Ordinance Chapter 15.60 Recycling and Diversion of Debris from Construction and Demolition. Pursuant to these requirements, each new construction project must:

1) direct one hundred percent of inert solids to reuse or recycling facilities approved by the city, and either:
2) take all mixed construction and demolition debris to a recycling facility and take all sorted or crushed construction and demolition debris to approved facilities, or
3) source-separate non-inert materials such as cardboard and paper, wood, metals, green waste, new gypsum wallboard, tile, porcelain fixtures, and other easily recycled materials, and direct them to recycling facilities approved by the city, and taking the remainder to a facility for disposal. In this option, calculations must be provided to show that the minimum amount of debris as specified by Section 4.408 of Chapter 4 of CALGreen has been diverted.

Regulatory Requirement Utilities 7B – Recyclable Materials: Pursuant to South San Francisco Municipal Code, section 8.28.070, persons desiring to participate in the recycling materials collection service program shall prepare and separate recyclable materials from other solid waste as required by the collection contract, so as to constitute source separated recyclable materials, and thereafter place the source separated recyclable materials within receptacles.

1) Each type of source separated recyclable material shall be placed in the receptacle designated for such purpose, and shall not be mixed with any other solid waste, including any other type of recyclable material.
2) Receptacles containing recyclable materials for multiple unit residential properties, commercial and industrial and/or institutional properties shall be of a size and serviceability agreed to by the authorized recycling agent and thereafter placed at the designated collection location.

For applicable regulations related to use and disposal of hazardous materials, please see Chapter 6 of this EIR.

Mitigation Measures

None needed. The Project's solid waste disposal needs can be accommodated by existing collecting services and landfill capacity.

Energy

Utilities 8: The Project would result in an incremental increase in the demand for gas and electrical power. However, the Project will not result in potentially significant environmental impacts due to a wasteful, inefficient or unnecessary consumption of energy resources during project construction or operation, or conflict with or obstruct a state or local plan for renewable energy or energy efficiency. (**Less than Significant**)

Electricity

PG&E distributes electrical power to the Project Area via a 12.5 kV underground distribution system, configured in a looped network leading from a substation at East Grand Avenue. The nearby substation enables flexibility for PG&E to provide continuous service to buildings in the Project Area by switching circuits if problems are encountered. Electrical use at each building (or cluster of buildings) is metered at either primary or secondary rates. Genentech will be switching over its electricity meters to purchase electrical energy from Peninsula Clean Energy (PCE). PCE is able to provide 50% of its electricity from renewable energy sources, 80% of which is carbon-free. PCE electricity is still delivered by PG&E through their electrical distribution system. [23]

The current (2016) electricity demand at the Project Area is estimated at approximately 152 million kilowatt-hours (kWh) per year. Most this electrical energy is used at the Central Utility Plant (CUP) located in the Lower Campus. The CUP runs Genentech's various on-site utility systems, including steam boilers and related systems, hot and chilled water systems, refrigeration systems, purified water systems, a liquefied and compressed gas system, waste neutralization systems, and emergency power. The CUP also provides chilled water, steam and compressed air to other buildings within the Project Area via a combination of underground and aboveground pipe rack systems. Centralization of these utilities provides greater energy efficiency, reduces the number of installed systems while achieving certain peak load sharing between interconnected buildings, and accounts for the more industrial nature of Genentech's operations within the Lower Campus.

Natural Gas

PG&E also provides natural gas to the Project Area via a high-pressure gas distribution lines configured in a loop system and served from three inter-connected underground pipelines located within DNA Way, Forbes Boulevard and East Grand Avenue. There is also a high-pressure gas line on the north side of the Campus, dedicated to serving Genentech's high-pressure steam boilers. This dedicated service unloads the DNA Way /Forbes Boulevard loop, and frees-up capacity to serve other Campus buildings.

As of 2016, natural gas use at the Campus was approximately 7.2 million therms per year, primarily serving existing labs and manufacturing operations. Based on conservative estimates, the use of natural gas at the Campus may increase to approximately 10 million therms per year. Genentech continues to coordinate with PG&E to consider options that would transfer less-efficient electrical operations over to natural gas-served operations, which would have the effect of increasing natural gas demands, but offset by further reduced electric demands.

Supply and Demand

The Project is expected to increase electrical energy demands by approximately 112 million kilowatt hours per year (a 74 percent increase over existing electrical use), and to increase natural gas generated energy demands by approximately 3.25 million therms per year (a 33 percent increase over existing gas use). PG&E and PCE have expressed to Genentech that they have adequate energy supplies to serve the Project at buildout, although construction of a Genentech-dedicated on-site substation could improve electrical system reliability in the event of an outage.[24] Although sub-station improvements or new substations may be desired, and service line connections will be needed to service new development projects, there are no known capacity limitations within the existing electrical system or gas system. Service providers will not be

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[23] Peninsula Clean Energy, 2018 Integrated Resource Plan, available at: https://www.peninsulacleanenergy.com/our-power/integrated-resource-plan/

[24] Personal communication between PG&E and Genentech representatives

adversely affected in its ability to provide adequate capacity for the electrical or gas systems from known and available sources. Impacts would be less than significant.

Genentech's On-Going Energy Conservation Initiatives

Energy use and associated climate change implications are an important priority within Genentech's overall Environmental Sustainability Program. Genentech has initiated significant industry leadership efforts toward energy conservation and offsetting climate change effects. As of 2014, Genentech had reduced its on-site energy use per employee by 24%, as compared with 2009. Genentech most recent energy conservation goal is to target a 30% absolute reduction in CO_2 emissions from on-site energy use by 2020, compared to 2010 levels. In 2016, Genentech's CO_2 emissions from on-site energy use were already 16% lower than in 2010 emission levels. These emission reductions have been driven by a combination of projects that have resulted in decreasing total energy use, combined with other initiatives for "greening" of the electricity purchased and used by Genentech. Some of these projects and initiatives have included:

- Dozens of energy efficiency projects have been implemented throughout the Campus, focusing on HVAC, lighting, air balance and steam systems. New buildings are specifically being designed to meet higher performance measures for energy efficiency.
- Genentech is a signatory to the WWF/WRI Renewable Energy Buyers Principles, working on a number of fronts to increase on-site generation of renewable energy, and to procure renewable energy from renewable sources.
- Genentech has embarked on its first on-Campus solar energy project, which will ultimately consist of 16,000 solar panels spread across Campus. These solar arrays are expected to generate 6 megawatts of power on the sunniest days, translating to about 25% of the Campus' energy needs on a typical workday.
- Genentech has initiated construction of a Site Utility Project that incorporates the latest technologies and high-efficiency system designs for industrial cooling and building air conditioning. The environmental performance goal of this project targets a 50% reduction in energy used to produce refrigeration components of process cooling and air conditioning throughout all Campus buildings.
- Genentech is also exploring the potential of installing a new combined heat and power (CHP) plant, likely within the Lower Campus and within an Opportunity Area as identified in the Master Plan Update. This CHP would be a cogeneration plant that would use a natural gas power station to generate electricity for Campus use. Rather than releasing by-product heat from this facility into the environment, the CHP would efficiently use the residual process to heat water needed for industrial manufacturing and lab operations. Such a facility would increase use of natural gas, but could substantially reduce direct electrical consumption at the Campus (perhaps by as much as 70 million kw/year) and offset a substantial portion of the electrical demands of new Campus growth.

These initiatives demonstrate that the Project would not result in wasteful, inefficient or unnecessary consumption of energy or fail to increase reliance on renewable energy sources.

Regulatory Requirements

Regulatory Requirement Utilities 8 – Energy Conservation: All new development pursuant to the Project will be required to comply with all applicable regulatory requirements related to energy, including but not limited to the standards of Title 24 of the California Code of Regulations and the newest California Green Building Standards Code, as applicable, which incorporate energy-conserving design and construction requirements.

Adherence to these codes and regulatory measures would ensure the Project does not result in wasteful, inefficient or unnecessary consumption of energy.

Mitigation Measures

No mitigation measures are required. Compliance with federal, state, and local regulatory requirements would ensure potential impacts of the Project related to energy would be less than significant.

Cumulative Effects

Utilities 9: The Project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects, would not result in cumulatively considerable impacts to utilities and service systems. (**Less than Significant**)

Much of the analysis presented above for Project-specific effects also includes analysis of potential cumulative impacts to utilities and service systems. The Project, in combination with other cumulative development, would result in increased demands on utilities and service systems, as summarized below:

Water Supply

The Water Supply Assessment prepared for this EIR by Cal Water concludes that, for the next 20-plus years, the SSF District will be able to provide adequate water supplies to meet existing and projected cumulative customer demands under normal water year conditions. Within all three Cal Water Peninsula Districts served by SFPUC, the combination of existing local and purchased water supplies are adequate to meet forecasted demands for the Project, plus those demands associated with existing Cal Water customers and all other cumulative developments for the next 20-plus years under normal hydrologic year conditions. Cumulative water supply impacts are less than significant.

- For a single dry year, available water supplies may be less than expected demand if SFPUC supplies are reduced (which historically has not occurred). If SFPUC does reduce its supplies, Cal Water will implement demand reduction measures on all customers to offset any reductions in existing supply sources.
- During a 3-year dry period, Cal Water will assess any supply reduction notifications from SFPUC, the availability of water from its treated surface source in Bear Gulch District, and determine whether it can continue to pump groundwater at its historically normal rate. Cal Water will determine what additional demand reduction measures may be needed to reduce demand to match available supplies. This is expected to result in an adequate supply for all three Cal Water peninsula districts for the years 2020 to 2040.

Wastewater Discharge Requirements

The SSF WQCP operates pursuant to a Sewer System Management Plan (SSMP), which demonstrates that its operations meet the requirements of both the RWQCB and the Statewide WDR. The SSMP sets forth requirements for direct and indirect contributors to the WQCP, established through waste discharge permits, that enable compliance with all applicable State of California laws and federal laws required by the Clean Water Act, and General Pretreatment Regulations (40 CRF, Part 403). It is unlawful to discharge wastewater into the WQCP system without such a permit. Cumulative development may include wastewater-generating industrial uses that will need to be individually assessed for appropriate waste discharge permits and pollutant reduction plans to ensure compliance with waste discharge requirements. Compliance with these requirements by all regulated development will reduce cumulative waste discharge effects to less than significant levels.

Wastewater Treatment and Disposal Capacity

The South San Francisco Water Quality Control Plant (WQCP) is owned and operated by South San Francisco and San Bruno, and all wastewater flows from these cities and several other cities are collected and treated

at the WQCP. Treated effluent from the WQCP combines with secondary effluent discharges from the cities of Burlingame, Millbrae and the San Francisco International Airport. The combined flows are pumped into the North Bayside System Unit (NBSU) outfall, which discharges to the San Francisco Bay. The current rated treatment capacity for average dry-weather flow is 13 million gallons per day (mgd), and a peak wet-weather flow capacity of 62 mgd, which corresponds to the estimated flow from a 5-year storm. According to the City of South San Francisco's updated Water Quality Control Plant Facility Plan (Facility Plan Update) of April of 2011, cumulative dry-weather wastewater flows to the WQCP as projected for the year 2040 is 10.3 mgd, or 2.6 mgd less than the current rated treatment capacity. The Facility Plan Update concludes that, if then-current trends of relatively low per capita flows and limited residential development continue, the treatment capacity of 13 mgd will be adequate for a 30-year period, with an available reserve capacity of about 2.6 mgd. The WQCP has adequate capacity to absorb the additional wastewater treatment and disposal demands generated by the Project in addition to other projected cumulative wastewater flows. Cumulative impacts related to wastewater treatment and disposal capacity are less than significant.

Wastewater Collection Infrastructure

All cumulative development within the East of 101 area that require a discretionary land use approval (e.g., Administrative Review, Minor Use Permits and Conditional Use Permits) is required to pay East of 101 Sewer Fees. These fees represent "fair-share" payments towards the availability of sewer collection, treatment and disposal capacity for all cumulative development. In the longer-term, cumulative development in the East of 101 Area may require that the City undertake improvements to the main sewer collection system and/or treatment facilities, beyond those improvements already assumed in the City's Capital Improvement Program. These potential sewer system improvements provide citywide benefits, and would be financed (if needed), through issuance of sewer revenue bonds. Through these measures, cumulative effects on wastewater collection infrastructure are reduced to less than significant levels.

Electricity and Gas

There are no known capacity limitations within the existing electrical system or gas system. Service providers of these utilities will be able to serve new cumulative development from known and available sources. Cumulative impacts would be less than significant.

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Other Less than Significant Effect

The Master Plan Update (the Project) would have less than significant impacts or no impacts pertaining to several of the CEQA topics identified in the CEQA Guidelines Appendix G Checklist, based on the characteristics of the Project and its location. This chapter of the EIR provides a brief description of the regulatory framework, significance criteria and reasons for finding no significant impacts. Certain information about the environmental setting is incorporated where necessary to provide context for the impact conclusion. Topics addressed in this chapter of the EIR include:

- Agriculture and Forest Resources
- Minerals

Agriculture and Forest Resources

There are no local, state or federal laws, regulations, plans, or policies related to agricultural and forest resources that are applicable to the Project. Agricultural and forest resources impacts were evaluated based on the California Department of Conservation Farmland Mapping and Monitoring Program, the San Mateo County Williamson Act Program map and site visits.

Farmlands, Agricultural Zoning and Williamson Act Contracts

Agriculture 1: The Project would not convert designated farmland under the Farmland Mapping and Monitoring Program, nor would it conflict with any existing agricultural zoning or a Williamson Act contract, nor would it involve any changes to the environment that would result in the conversion of designated farmland. (**No Impact**)

The California Department of Conservation, Division of Land Resource Protection maps important farmland, including Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance and Grazing Land. Agricultural land is rated according to soil quality and irrigation status; the best quality land is called Prime Farmland. The Project site is not identified as any type of farmland, but is instead identified as “Urban and Built-up.”

Zoning of the Project Site is the Genentech Master Plan zoning designation, which is not intended for agricultural use. There are no Williamson Act contracts applicable to any properties within the Project Site, and there are no identified urban agricultural sites on the Project Site or vicinity.

Mitigation Measures

None necessary

Forest Lands

Agriculture 2: The Project would not conflict with existing zoning for, or cause rezoning of, forestland or timberland, nor would it result in the loss of or conversion of forestland to non-forest uses. (**No Impact**)

There is no timberland or Timberland Production zoning applicable to the Project Site. None of the trees on or adjacent to the Project Site are managed for a public benefit, and even though one of the identified habitat types within the Project Area is "Ornamental Woodland", this habitat type is not considered forestland for purposes of CEQA. The Project would not result in the loss of forestland or the conversion of forestland to non-forest use. There would be no impact with respect to forestland or timberland.

Mitigation Measures

None needed, and no mitigation measures are necessary.

Cumulative Agricultural Effects

The Project would not result in a cumulatively considerable contribution to a significant cumulative impact on agricultural resources or forestland or timberland. No other proposed, reasonably foreseeable or probable cumulative projects in the East of 101 Area are mapped as either Prime Farmland, Unique Farmland or Farmland of Statewide or Local Importance, and there are no parcels under Williamson Act contract. There is no timberland or Timberland Production zoning applicable in the East of 101 Area.

Mineral Resources

There are no local, state or federal ordinances or policies related to mineral resources that are applicable to the Project. Mineral resource impacts are evaluated based on the California Department of Conservation, Division of Mines and Geology Mineral Lands Classification system.

Availability of Mineral Resources

Minerals 1: The Project would not have a significant adverse impact on the availability of a known mineral resource or a locally important mineral resource recovery site. (**No Impact**)

The Project Site is urbanized and located in an urbanized, industrial area in the East of 101 portion of South San Francisco. The Project Site is classified under the Mineral Lands Classification system as an area where available information is inadequate for assignment to any other mineral classification zone, and not designated as an area of significant mineral deposits, and the Project Site has not been delineated as a locally important mineral recovery site in the General Plan. There are no mining activities on the Project Site, and no mining activities are known to have occurred there. Portions of the Project Site are located over Bay fill, where no subsurface mineral resources would be expected. There are no designated mineral resource recovery sites in the vicinity, whose operations or accesses would be adversely affected by the Project.

Mitigation Measures

None needed

Cumulative Mineral Resource Effect

The Project would not result in a cumulatively considerable contribution to a significant adverse cumulative impact on mineral resources. No other proposed, reasonably foreseeable or probable cumulative projects in the East of 101 Area are mapped as containing mineral resources or resource recovery sites.

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Alternatives

Introduction and Overview

CEQA Guidelines require an analysis of a reasonable range of alternatives for any project subject to an EIR. The purpose of the alternatives analysis is to provide decision-makers and the public with a discussion of alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. Evaluation of alternatives should present the proposed action and all the alternatives in comparative form, to define the issues and provide a clear basis for choice among the alternatives.

CEQA requires that the lead agency adopt mitigation measures or alternatives, where feasible, to substantially lessen or avoid significant environmental impacts that would otherwise occur. Where a lead agency has determined that even after adoption of all feasible mitigation measures, a project as proposed would still result in significant environmental effects that cannot be substantially lessened or avoided, the agency must first determine whether any alternatives are both environmentally superior, and feasible. CEQA provides the following guidelines for discussing project alternatives:

- An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation (§15126.6(a))
- An EIR is not required to consider alternatives which are infeasible (§15126.6(a))
- The discussion of alternatives shall focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project (§15126.6(b))
- The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects (§15126.6(c))
- The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis and comparison with the proposed project (§15126.6(d))

Accomplishing Basic Project Objectives

The following primary Project Objective establishes the Project's functional needs for anticipated future growth and flexibility at the Genentech Campus:

1. Campus Setting: Retain close physical relationships between Genentech's various business units that are critical toward meeting the long-term growth needs of the company, and that can only be made possible in a campus setting:
    - Enable scientists to work in a collaborative environment that supports research, development and production goals by clustering Genentech's scientific facilities in close proximity.
    - Maximize the efficiency and support capabilities of administrative functions by keeping these functions centralized and physically proximate to scientific facilities.

- Retain Genentech's ability to transform scientific discoveries into new medicines quickly and efficiently by retaining close physical relationship between R&D and manufacturing facilities.
- Provide efficient logistics support to the Campus with ready access to warehouse and distribution facilities.
- Foster a sense of community among its employees and with the broader South San Francisco community by creating interconnectivity and ease of access.
- Assure Genentech has continued proximity to world-class scientific and academic institutions.

This primary objective is further enhanced with an updated planning framework for the Campus, focused on the following additional Project Objectives:

2. Land Use: Create a dynamic development plan for the Genentech Campus that can guide Genentech's future growth, while providing the needed flexibility to adapt and innovate.
3. Urban Design: Establish a framework for place-making within the Genentech Campus that can inform individual decisions on incremental growth in a manner that fosters and stimulates increased interaction and collaboration throughout the Campus
4. Transportation: Seek to minimize the number of vehicle trips generated by new development within the Genentech Campus, and collaborate with the City and other partners to increase opportunities for alternative modes of transportation serving the East of 101 Area. Ensure the Campus is well served by an integrated system of pedestrian, bicycle and shuttle facilities that enhance neighborhood and Campus connectivity.
5. Infrastructure and Sustainability: Identify and plan for necessary future expansion of Genentech utility needs to assure uninterrupted Campus growth and expansion, while seeking to minimize consumption of natural resources through conservation and sustainability principles.

The range of alternatives addressed in this EIR include only those alternatives to the Project that could feasibly accomplish most of these basic objectives of the Project, and that could avoid or substantially lessen one or more significant effects.

Alternatives Considered but Rejected

No New Development Alternative

The Project is a revision of the existing 2007 Genentech Campus Master Plan and the underlying Genentech Master Plan zoning district. The "no project" alternative will be the continuation of the existing Master Plan and existing zoning regulations into the future (see further discussion of the No Project Alternative, below). This EIR does not analyze nor does it foresee any "no build" scenario under which there is no new development beyond what exists at the Campus under the current baseline condition.

Alternative Site Location

In considering the range of alternatives to be analyzed in an EIR, the CEQA Guidelines state that an alternative site location should be considered when, "feasible alternative locations are available and significant effects of the project would be avoided or substantially lessened by putting the project in another location."

Genentech's corporate headquarters and main laboratory facilities are located in the East of 101 Area of South San Francisco, but Genentech does have additional manufacturing facilities in Vacaville and Oceanside, California and in Hillsboro, Oregon. Genentech also has a manufacturing facility in Singapore. It is possible that Genentech could consider an alternative of developing additional office, laboratory and associated

building space as envisioned under the Project at one of these other locations. However, development of the Project at one of these other locations would not enable Genentech to achieve its basic Project objectives:

- An alternative location for the Project would not cluster Genentech's scientific facilities in close proximity, and would not enable Genentech to keep its administrative support functions centralized and physically proximate to its scientific facilities
- An alternative location would not foster the sense of community among its employees and with the broader South San Francisco community
- An alternative location would not assure Genentech of continued proximity to world-class scientific and academic institutions such as Stanford, UC San Francisco and UC Berkeley
- No alternative location would enable Genentech to continue its participation as part of what is now believed to be the largest biotechnology "cluster" in the world, sharing the East of 101 Area with over 200 other biotech companies within the approximately 500-acre "Birthplace of Biotechnology" in the South San Francisco East of 101 Area

There is no information to suggest that development of up to approximately 4.3 million square feet of Genentech operational facilities at any of these other locations would avoid or substantially lessen any significant effects of the Project, but instead would likely transfer those effects from one place to another.

For these reasons, an alternative site location was eliminated from further consideration in this EIR.

Alternatives Analyzed

The three alternatives analyzed in this EIR are listed below. These alternatives are intended to meet the CEQA requirements for the EIR to describe the no project alternative as well as a range of reasonable alternatives to the Project that would feasibly attain most of the basic objectives of the Project, but would avoid or substantially lessen significant effects.

Alternative #1: No Project

CEQA Guidelines Section 15126.6(e)(3)(A) states that, if the project is the revision of an existing land use or regulatory plan, policy or operation, the "no project" alternative will be the continuation of the existing plan, policy or operation into the future.

Under Alternative #1: No Project, the current 2007 Master Plan and the existing Genentech Master Plan Zoning District (Chapter 20.260 of the City of South San Francisco Zoning Code) would remain in place as the guiding land use policies and regulations for the Campus. Consistent with growth projections as analyzed in the prior 2007 Master EIR and 2012 Supplemental Master EIR, new development within the Campus would remain limited to a maximum buildout of up to 6 million square feet of building space, plus the 821,000 square feet added as the South Campus (originally the Britannia East Grand project) in 2013. Buildout of Alternative #1 would be limited to a maximum of 2.1 million square feet of net new development on the Campus, over the current baseline of approximately 4.7 million square feet, for a total of approximately 6.8 million square feet. This building space would be further regulated by land use type and by sub-campus location as indicated in the 2007 Campus Master Plan.

Alternative 2: Reduced Project

Alternative 2: Reduced Project would establish an overall growth limit within the Campus boundaries of up to 7.9 million square feet, or an overall floor area ratio (FAR) of 0.88 times the total area of the approximately 208-acre Campus. A 7.9 million square-foot buildout potential represents a mid-point between the 6.8 million square-foot buildout of the currently effective 2007 Master Plan, and the 9 million square-foot buildout potential of the proposed Project. This Reduced Alternative would enable construction of approximately 3.2 million square feet of net new building space. Buildout of up to 7.9 million square feet would exceed the 6

million square-foot building space cap on the original 2007 Master Plan, and modifications to the existing Genentech Master Plan Zoning District would be necessary to accommodate this increase in building space.

It is uncertain whether Genentech would include the same Trip Cap and commensurate TDM program under the Reduced Alternative as is proposed under the Project. For conservative purposes, this EIR Reduced Project Alternative assumes that the Genentech Campus would meet a trip reduction rate consistent with current City requirements. Pursuant to SSF Municipal Code section 20.400.003, projects within the Business and Technology Park land use designation and with an FAR of between 0.8 and 1.0 are required to achieve a minimum trip reduction rate of 35 percent. Alternative #2 would have an FAR of approximately 0.87, and thus be subject to the 35 percent TDM requirement.

Alternative 3: Alternative Mix of Land Uses

To maximize flexibility, the Master Plan Update allows the land use mix within the Campus to evolve over time, depending upon Genentech's future needs. To provide detail and specificity for this EIR, the Project Description provides one potential detailed buildout scenario that meets the goals of the Master Plan Update, and is used in this EIR for qualitative and quantitative analytical purposes. Under Alternative #3, the overall net new development within the Campus would be retained at approximately 4.3 million square feet (same as the Project), but the mix of land uses within the Campus would be fixed (rather than flexible), and with a substantially different mix of land use types, as follows:

- 1.7 million square feet of net new office space,
- 2 million square feet of net new lab space
- 300,00 square feet of net new manufacturing space
- 300,00 square feet of new employee amenity space

This Alternative Mix would represent a shift from higher trip-generating office land use to lower trip-generating lab and manufacturing space uses. One of the purposes of having an Alternative that would require an alternative mix in the buildout land use composition of the Campus is to determine whether such a different land use mix may result in reduced environmental effects as compared to the Project.

Summary of Alternatives

Table 20-1 compares the amount of development and applicable TDM requirements as proposed by the Project to the three alternatives.

Table 20-1: Project and Alternatives Development Summary (Million Square Feet, MSF)

	Existing Campus[1]	Potential Net New Bldg. Space	Total Buildout	FAR (at 208-acre Campus)	Trip Cap?	Effective TDM Rate
Project	4,715	4,293	9,008	1.00	Yes	47% - 50%
Alternative 1: No Project/2007 Master Plan	4,715	2,106	6,821	0.75	No	32%
Alternative 2: Reduced Project	4,715	3,200	7,900	0.87	No	35%
Alternative 3: Different Land Use Mix	4,715	4,293	9,008	1.00	No	42%

1. Includes development within the original 2007 Master Plan Campus boundaries, the 2013 addition of the Britannia East Grand project as South Campus, and other smaller additions made in 2013

Overview of Alternatives Analysis

Each of the alternatives is more fully described below, and their potential environmental effects are disclosed. The environmental effects of each alternative are also compared to those of the Project. As permitted by CEQA (CEQA Guidelines Section 15126.6[d]) the effects of the alternatives are discussed in less detail than the impact discussions of the Project. However, the alternatives analysis is conducted at a sufficient level of detail to provide the public, other public agencies, and City decision-makers adequate information to evaluate the alternatives as compared to the Project. For each of the alternatives, the significance of each impact is compared to applicable thresholds. These significance conclusions assume implementation of those same regulatory requirements and mitigation measures as applied to the Project (if necessary). The impacts of each alternative are also compared to the impacts of the Project to indicate whether the alternative would:

- avoid potentially significant impacts of the Project
- result in impacts that are greater than those of the Project
- result in impacts less significant (or of a lesser magnitude) than those impacts of the Project, or
- generally have the same impact as the Project

Alternative #1: No Project – Continuation of the 2007 Master Plan

CEQA Guidelines Section 15126.6(e) requires that a "no project" alternative be evaluated, along with its impacts. The "no project" alternative must be the practical result of non-approval of the project.

Description of Alternative #1: No Project

Total Buildout Potential

The practical result of non-approval of the Project is continuation of the 2007 Master Plan and its limitation of 6 million square feet of total building space, plus the addition of the South Campus (originally the 821,000 square-foot Britannia East Grand project). In 2013, the City took action to amend its zoning, adding the South Campus and several additional properties now part of the Upper and West Campus to the Genentech Master Plan zoning district. These additional properties (which total 44.7 acres) were also added to the Master Plan boundaries.[1]

Under the 2007 Master Plan limitations, the 6 million square-foot cap on building space, plus the 2013 addition of the South Campus, limits potential net new growth to approximately 2.1 million square feet (as shown in **Table 20-2)**. The South Campus is assumed to be additive under Alternative #1 because the original Britannia East Grand project was approved and a separate EIR for that project was certified in 2002, well before 2013 when this area was incorporated into the Genentech Campus.

Table 20-2: Alternative #1 Buildout Potential

	2007 Master Plan Buildout Potential (sf)[1]	Existing (2017) Status (sf)[2]	Potential New Development (sf)
Lower Campus	1,625,000	1,237,000	388,000
Mid Campus	910,000	554,000	356,000
Upper Campus	1,387,000	1,107,000	280,000
West Campus	737,000	737,000	0
"Expansion"	1,341,000	258,000	1,083,000
Campus, sub-total:	6,000,000	3,894,000	2,106,000
plus South Campus	821,000	821,000	0
Total:	**6,821,000**	**4,715,000**	**2,106,000**
Resulting FAR:	0.76		

Note: Totals do not precisely match due to rounding

1. Per Table 20.260.003(l): Genentech Growth and Development Projections, SSF Municipal Code

2. Per Genentech Master Plan, 2015/16 Annual Report, pg.8

The 2007 Master Plan also allocates growth potential in building space between four different types of land uses: office, lab, manufacturing/warehouse, and amenity space. The net new development by land use type that is currently permitted pursuant to the 2007 Master Plan limitations is as shown on **Table 20-3**.

[1] City of South San Francisco, Zoning Text and Map Amendments, May 16, 2013

Table 20-3: Alternative #1 Buildout Potential by Land Use Type (SF)

	Office	Lab	Mfg. / Warehouse	Amenity	Total Bldg. Area
2007 Master Plan Buildout	2,632,000	2,000,000	1,046,000	322,000	6,000,000
Plus South Campus	230,500	568,000		22,500	821,000
Total Buildout Potential:	2,862,500	2,568,000	1,046,000	344,500	6,821,000
Less Existing 2017 Baseline	- 1,566,000	- 1,718,000	- 1,285,000	- 145,000	- 4,715,000
Potential New Development	**1,296,000**	**850,000**	**-239,000**	**199,000**	**2,106,000**

As indicated by the negative new development in the manufacturing and warehouse category, the 2007 Master Plan assumed that certain existing manufacturing and/or warehouse space at the Campus would be redeveloped for new office or lab space.

Figure 20-1 shows the Opportunity Sites assumed in the 2007 Master Plan. As Figure 20-1 indicates, most of these Opportunity Sites are similar to those of the Project, and include properties along the western edge of the Campus as well as potential redevelopment of several properties that contain buildings that may no longer be useful or efficient in the Lower and Upper Campus. However, only those Opportunity Sites indicated in the 2007 Master Plan are assumed as development opportunities under Alternative #1.

Based on the potential new development by land use types, and the assumed space requirements per seated worker as assumed for the Project, Alternative #1 would generate approximately 6,650 net new jobs at the Campus, or approximately 53% of the 12,500 new jobs expected pursuant to the Project.

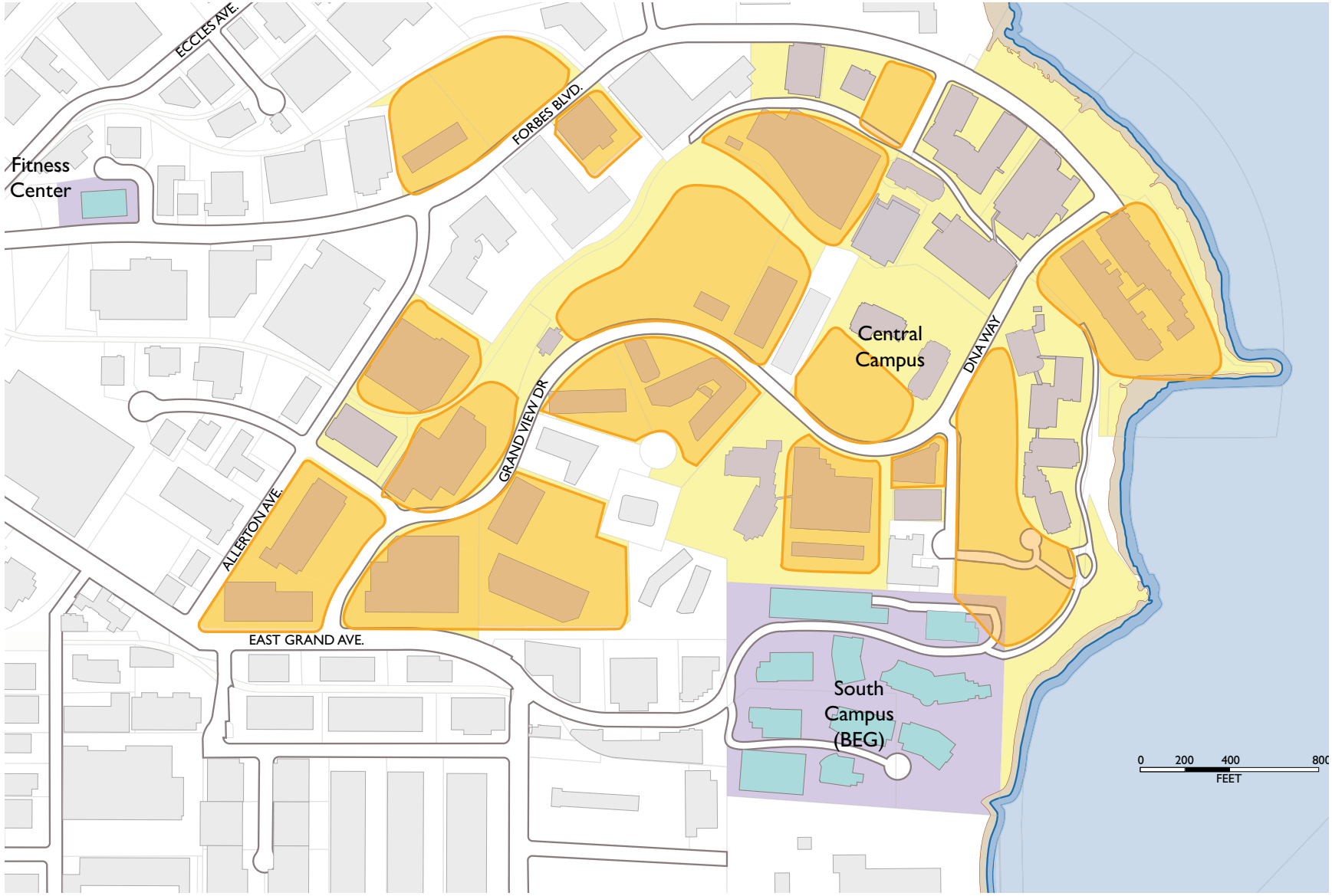

Figure 20-1
No Project Alternative - 2007 Genentch Campus Master Plan

Source: South San Francisco, Genentech Campus 10-Year Facility Master Plan, 2007

Comparative Environmental Effects of the No Project Alternative (Alternative #1)

Impacts Reduced as Compared to Project

Certain environmental effects would be reduced under Alternative #1 as compared to the Project. For the most part (as more fully described below), these reductions effectively lower the magnitude of air quality and greenhouse gas emissions, the number of new vehicle trips, and the demands on public infrastructure as compared to the Project. However, these reductions are either not fully capable of reducing impacts to less than significant levels, or are not necessary to reduce any significant impacts of the Project that are not otherwise reduced through implementation of regulatory requirements or mitigation measures.

Air Quality/Construction-Period Criteria Pollutants (LTS with MM)

With approximately 50% of the construction of new building space as assumed for the Project (2.1 MSF versus 4.3 MSF under the Project), Alternative #1 would generate less overall construction-period criteria pollutant emissions. This potential impact was concluded to be less than significant with implementation of regulatory requirements and identified mitigation measures (construction-period BMPs) for the Project. These regulations and mitigation measures would be similarly applicable to Alternative #1, and this is not a significant impact of the Project that would be avoided under Alternative #1. Further, construction-period criteria pollutants are reported against an annualized emission rate. If approximately 50% of the total emissions were to be generated in approximately 50% of the overall construction period as assumed for the Project, the annual emission rates would be similar.

Air Quality/Operational Criteria Pollutant Emissions (SU)

Proportionally, Alternative #1 would likely generate only about one-half of the criteria pollutants from area sources (architectural coatings, and consumer products and solvents used in the new offices and laboratories), and about one-half of the mobile sources as compared to the Project. However, even a 50% reduction in emission sources would not be able to reduce operational ROG emissions to below threshold levels, and may be unable to reduce NOx emissions to less than threshold levels. A 50 % reduction in operational emission sources of PM10 would be sufficient to reduce these criteria pollutants to below threshold levels. Impacts under Alternative #1 would be reduced, but remain significant and unavoidable.

Air Quality/Operational Health Risk (LTS with MM)

Proportionally, Alternative #1 would generate approximately one-half of the number of new sources of TAC emissions from less laboratory space, fewer diesel emergency generators and less natural gas combustion facilities. With fewer TAC emissions, Alternative #1 would generate lower overall TAC concentrations. However, potential exposure and resulting health risks would continue to vary depending on a number of factors including emission source locations. Like the Project, any new operational source of TAC emission would be required to operate within the emission parameters as used in the analysis prepared for the Project, could only be located on those Opportunity Sites found to not contribute to operational-period health risks, or would require preparation of subsequent project-specific health risk analysis.

Geology/Landslide Potential (LTS)

The Project foresees the potential that development may occur on Opportunity Sites located along the base of the existing steep hillsides. To accommodate these hillside structures, cuts into the hillside would be required, potentially exacerbating slope failure and/or result in landslide conditions if not conducted in a safe manner and consistent with applicable excavation design and slope stability standards. The 2007 Master Plan regarded these existing steep slopes as a constraint to new development, and did not consider the potential for construction within these areas. Development pursuant to Alternative #1 would not include those Opportunity Sites that are located along the base of the existing steep hillsides. Alternative #1 would avoid or

reduce the potential for Slope failure or landslide conditions. This potential impact was concluded to be less than significant with implementation of regulatory requirements and identified mitigation measures for the Project.

GHG/Operational and other Land Use Emissions (LTS)

Alternative #1 would reduce operational GHG emissions attributable to mobile sources, indirect water use, wastewater treatment, and solid waste disposal and landscaping. Like the Project, these operational-related GHG emissions would be fully covered under the SSF CAP and do not represent a cumulatively considerable contribution to global climate change. Alternative #1 would also reduce the Project's land use-based GHG emissions and like the Project, these types of emissions would not exceed the efficiency thresholds for year 2020 or 2030. Like the Project, Alternative #1 would not contribute significantly to global climate change, and this impact would similarly be considered less than cumulatively considerable.

Land Use/ Consistency with the South San Francisco Municipal Code (LTS)

By definition, the No Project Alternative is the physical result of continuation of the 2007 Master Plan and the Genentech Master Plan zoning district. As such, Alternative #1 is fully consistent with these plans and regulations. Alternative #1 would not require any zoning changes as requested by the Project for lot coverage, temporary limitations on allowable FAR, building heights or off-street parking ratios.

Trip Generation and Resulting Traffic Impacts (SU)

Under Alternative #1, the total net new development at the Campus is reduced to 2,106 KSF (or by about 50% as compared to the Project), and assumes a mix of new land uses as defined in the 2007 Master Plan. As indicated in **Table 20-4**, applying the base AM peak-hour trip rates (without TDM) to the potential buildout of Alternative #1 would yield an expected total of 7,007 AM peak hour trips arriving at the Campus without TDM. However, buildout of Alternative #1 would result in a Campus-wide FAR of approximately 0.76, requiring implementation of a TDM program capable of achieving a 32% reduction in AM peak hour trips.[2] As also indicated in Table 20-4, a 32% trip reduction would yield a total of 4,765 AM peak hour Campus trips for Alternative #1.[3]

[2] Per Table 20.400.03 for the underlying Business and Technology Park zoning

[3] Although it is not practical to retroactively apply escalating TDM rates (pursuant to changing Municipal Code requirements) to previously approved/existing development within the Campus, the City and Genentech have historically reported on the Genentech TDM Program's effectiveness on a Campus-wide basis, taking into account both existing development and pending projects. The question of whether escalating TDM requirements should apply to previously approved development has not been of issue, primarily because Genentech's TDM Program has been consistent in voluntarily out-performing all applicable City requirements.

Table 20-4: Alternative #1 Trip Generation and TDM Requirement

Land Use	Building Space (ksf)	AM Base Trip Rate	AM Trips	Total AM Peak Trips
Existing				
Office	1,566	1.29	2,021	
Labs	1,718	1.03	1,766	
Mfg.	1,285	0.35	448	
Amenity	145	1.03	149	
subtotal:	**4,715**		4,384	**4,384**
		Existing TDM Rate:	42%	
			2,543	
Plus Alternative #1				
Office	1,296	1.29	1,627	
Labs	850	1.03	874	
Mfg.	-239	0.35	-83	
Amenity	200	1.03	205	
subtotal:	**2,106**		2,623	**2,623**
Total:	**6,821**	Total AM Peak Trips (before any TDM):		**7,007**
Campus FAR:	**0.76**	**Level of Campus-wide TDM required:**		**32%**
		Resulting Trips, with 32% TDM:		**4,765**

In comparison, the Project's Trip Cap would limit total AM peak hour trips at buildout to 5,216 trips. Therefore, Alternative #1 would reduce AM peak hour trips at buildout by approximately 451 trips (or 9% fewer trips) as compared to the Project, when measured post-TDM.[4]

At those intersections and freeway segments where the Project's contribution of trips is at, or only slightly above threshold levels, this 9% reduction in trips would reduce, and may be capable of avoiding certain Project-specific traffic impacts. However, a reduction of about 450 AM peak hour trips would not be sufficient to reduce Project-specific or cumulative effects on most local intersections or mainline freeway segments, and these impacts would remain significant and unavoidable.

Utilities/Water Demand (LTS)

Using the same water demand factors as applied to the Project, Alternative #1 is estimated to generate an increased water demand of approximately 163,000 gallons per day, or a 55% reduction in water demand as compared to the Project. This water demand takes into account all of the water conservation strategies and initiatives that Genentech has implemented throughout the existing Campus. Since the WSA prepared for the Project concludes that the District will be able to provide adequate water supplies to meet existing and

[4] The number of AM peak hour trips generated under the No Project Alternative is not equal to the Project's Trip Cap. The Trip Cap is based on a minimum 47 percent reduction in drive-alone trips. Prior assumptions that applied at the time the 2007 Master Plan was approved was a trip reduction rate of 21% per the 2007 Master Plan MEIR, and a trip reduction rate of 9.5% per the 2002 Britannia East Grand EIR. The City's current TDM requirements, which would now apply to the No Project Alternative, represent increases in required TDM performance that have been adopted by the City over time.

projected customer demands for the next 20-plus years under normal water year conditions, the same would be true under Alternative #1.

Impacts Increased as Compared to Project

Alternative #1 would not result in any environmental effects that would be greater than those of the Project.

Impacts Similar to those of the Project

The following provides a list of potential environmental effects pursuant to Alternative #1 that would be substantially similar to those of the Project. Alternative #1 would not be capable of reducing any of the following impacts from significant to less than significant levels, and/or would not reduce any significant impacts of the Project that are not otherwise reduced through implementation of regulatory requirements or mitigation measures.

Aesthetics

Alternative #1 would not increase building space within the Campus to the same extent as would the Project and the scale of new buildings would unlikely be as tall or large as envisioned under the Project. Although Alternative #1 would still change the existing visual character of the Campus, this change will not be as substantial as under the Project. However, like the Project, the visual changes under Alternative #1 would not be adverse, and would not be visually inconsistent with the current Campus or surrounding areas.

- Scenic vistas (LTS)
- Scenic resources as seen from a State Scenic Highway (LTS)
- Visual character (LTS)
- Light and glare (LTS with Mitigation)

Air Quality

Although Alternative #1 would not increase employment, new construction or operational activities to the same extent as would the Project, Alternative #1 would generally result in air quality impacts that are similar to the Project related to the following topics:

- Consistency with Clean Air Plan (LTS)
- Construction-period emissions of criteria pollutants (LTS with Mitigation)
- Construction-period health risk (LTS with Mitigation)

Biological Resources

Alternative #1 would result in development on many of the same Opportunity Sites as identified for the Project, resulting in generally the same types of impacts on biological resources:

- Tidal aquatic species and essential fish habitats (LTS)
- Burrowing Owl (LTS)
- Harbor Seal and California Sea Lion (LTS)
- Bird strikes (LTS)
- Sensitive natural communities (LTS)
- Wetlands and other waters (LTS)
- Environmental corridors (LTS)

- Local tree protection policies and HCPs (LTS)
- Secondary biological effects of sea level rise adaptation strategies (LTS)
- California Ridgway's Rail (LTS with Mitigation)
- San Francisco Common Yellowthroat and Alameda Song Sparrow (LTS with Mitigation)
- Invasive species (LTS with Mitigation)

Cultural Resources

Alternative #1 would result in development on many of the same Opportunity Sites as now identified for the Project, resulting in generally the same types of effects on cultural resources:

- Historic resources (LTS)
- Paleontological resources (LTS)
- Currently unknown archaeological resources (LTS with Mitigation)
- Tribal cultural resources (LTS with Mitigation)

Geology

Alternative #1 would result in development on many of the same Opportunity Sites as now identified for the Project, resulting in generally the same types of geological effects, and subject to the same required compliance with existing regulatory requirements:

- Seismic hazards (LTS)
- Differential settlement and unstable or expansive soils (LTS)
- Substantial soil erosion or loss of topsoil (LTS)
- Septic tanks (No Impact)

Greenhouse Gas Emissions

Alternative #1 would substantially reduce the volume of GHG emissions as compared to the Project, but would still result in the same types of GHG emissions impacts:

- Stationary source emissions subject to Cap-and-Trade (LTS)
- Permitted stationary source emissions (LTS)

Hydrology

Alternative #1 would result in development on many of the same Opportunity Sites as now identified for the Project, resulting in generally the same types of hydrology impacts and subject to the same regulatory requirements:

- Water quality (LTS)
- Groundwater (LTS)
- Drainage patterns and runoff (LTS)
- Flood hazards (LTS)

Land Use

The following land use effects and consistency determinations for Alternative #1 would be similar to those of the Project:

- Consistency with the Comprehensive Airport Land Use Compatibility Plan for SFO (Consistent)
- Consistency with Genentech's BCDC Permits (Consistent)
- Consistency with South San Francisco General Plan (1999) Land Use Element (Consistent)
- Consistency with the East of 101 Area Plan (Consistent)
- Physically dividing an established community (LTS)
- Conflicts with policies or regulation adopted to avoid or mitigate an environmental effect (LTS)
- Conflicts with applicable Habitat Conservation Plan (LTS)

Noise

Alternative #1 would result in construction activity and operations on many of the same Opportunity Sites as now identified for the Project, resulting in generally the same types of noise impacts:

- Operational noise (LTS)
- Operational ground-borne vibration (LTS)
- Excessive noise due to location within an Airport Land Use Plan (No Impact)
- Construction noise (LTS with Mitigation)
- Construction-period ground-borne vibration (LTS with Mitigation)
- Substantial permanent increase in ambient noise (SU)

Population, Housing and Employment

Alternative #1 would result in an increase in employment at the Genentech Campus, resulting in generally the same types of impacts on population, housing and employment, as would the Project. Although Alternative #1 would increase employment to a lesser extent than would the Project, the following impacts would remain similarly less than significant.

- Inducing substantial population growth (LTS)
- Displacing substantial numbers of existing housing units (No Impact)
- Displace substantial numbers of people (No Impact)

Public Services

Alternative #1 would result in an increase in employment at the Genentech Campus, resulting in generally the same types of impacts to public services, as would the Project. Although Alternative #1 would not increase employment and commensurate demands on public services to the same extent as would the Project, the following impacts would remain similar:

- Police services (LTS)
- Fire and emergency medical services (LTS)
- Recreation (LTS)

Transportation

Whereas Alternative #1 would reduce AM peak hour trips at buildout by approximately 425 trips, or an 8% reduction as compared to the Project (when measured post-TDM), Alternative #1 would have similar traffic and transportation-related impacts as compared to the Project for the following topics:

- Vehicle miles travelled (VMT): (the City's required 32% reduction in drive-alone rate is assumed to result in a commensurate 32% reduction in baseline traffic, resulting in a daily per employee VMT rate of more than 15% below the regional or Citywide average)
- Internal Vehicle Circulation (existing roadways provide sufficient vehicular circulation to serve circulation needs)
- Pedestrian Circulation (not detrimental to existing pedestrian facilities, no conflict with adopted plans and programs regarding pedestrian mobility or safety)
- Bicycle Circulation (fair share contribution toward bicycle improvements in the East of 101 Area through payment of East of 101 Traffic Impact Fees)

Utilities and Service Systems

Alternative #1 would result in an increase in building space and employment at the Genentech Campus, resulting in generally the same types of impacts on utilities and service systems as would the Project. Although Alternative #1 would not increase demands on utilities and service systems to the same extent as would the Project, the following impacts would remain similar:

- Water supply infrastructure (LTS)
- Exceedances of wastewater treatment requirements (LTS)
- Wastewater treatment and disposal capacity (LTS)
- Wastewater collection infrastructure (LTS)
- Stormwater facilities (LTS)
- Solid waste disposal (LTS)
- Energy (LTS)

Alternative 2: Reduced Project

CEQA Guidelines Section 15126.6(b and c) require that, "the discussion of alternatives shall focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project." The range of potential alternatives to the proposed project "shall include those that could feasibly accomplish most of the basic objectives of the project". The Reduced Project Alternative (Alternative #2) has been defined as an alternative that is capable of reducing the magnitude certain significant effects of the Project, and accomplishing most of the basic Project Objectives - but to a lesser extent than would the Project.

Description of Alternative 2: Reduced Project

Total Buildout Potential

For purposes of alternatives analysis, Alternative #2 establishes an overall growth limit within the approximately 207-acre Campus boundaries of up to 7.9 million square feet of building space, or an overall FAR of 0.88. A buildout potential of 7.9 million square feet represents the mid-point between the 6.8 million square-foot buildout of the currently effective 2007 Master Plan, and the 9 million square-foot buildout potential of the proposed Project, and represents a net increase of approximately 3.2 million square feet of net new growth.

Table 20-5 presents the development potential of Alternative #2 as aggregated by neighborhood campus, based on a reduction of growth within each neighborhood campus proportional to the reduction of overall Campus growth. These development potentials are based on the assumption that certain Opportunity Sites may not be developed or redeveloped with new buildings, and/or that new development may be reduced in height, mass and scale as compared to the Project. This table demonstrates how a projected net new development of up to approximately 3.2 million square feet of building space may be allocated across the Campus by neighborhood campus locations.

Table 20-5: Alternative #2 Buildout Potential, by Neighborhood Campus (sf)

	Existing - 2017	Growth	Buildout
Lower Campus	1,236,000	534,000	1,770,000
Mid Campus	554,000	408,000	962,000
Upper Campus	1,107,000	970,000	2,073,000
West Campus	995,000	1,086,000	2,081,000
South Campus	821,000	191,000	1,012,000
Total	**4,715,000**	**3,190,000**	**7,900,000**
		Average FAR:	**0.87**

Buildout of up to 7.9 million square feet would exceed the building space cap of the 2007 Master Plan, and modifications to the existing Genentech Master Plan and Genentech Master Plan Zoning District would be necessary to accommodate this building space.

Table 20-6 presents how the approximately 3.2 million square feet of net new development potential under Alternative #2 is allocated between new office, lab and amenity space, based proportionally to the reduction of overall Campus growth (an approximate 26% reduction in building space per each land use type as compared to the Project).

Table 20-6: Alternative #2 Buildout Potential, by Land Use Type (sf)					
	Office	Lab	Mfg. / Warehouse	Amenity	Total Bldg. Area
Existing 2017 Baseline	1,566,000	1,718,000	1,285,000	145,000	4,715,000
Potential Net New Development, Reduced Project	1,800,000	1,165,000	0	225,000	3,190,000
Reduced Project Buildout	**3,366,000**	**2,883,000**	**1,285,000**	**370,000**	**7,900,000**

Based on the potential new development by land use types, and the assumed space requirements per seated worker as assumed for the Project, Alternative #2 would generate approximately 10,250 net new jobs at the Campus, or approximately 80% of the 12,500 new jobs expected pursuant to the Project.

Trip Cap

It is uncertain whether Genentech would include the same Trip Cap and commensurate TDM program under the Reduced Alternative as is proposed under the Project. For conservative purposes, this EIR Reduced Project Alternative assumes that Genentech would not volunteer to implement a Trip Cap or to achieve the goal of a 50 percent reduction in drive-alone trips, and instead would comply with the requirements of the City's TDM Ordinance (Municipal Code section 20.400). With a total of 7.9 million square feet distributed across the 207.9-acre Campus, Alternative #2 would result in an FAR of approximately 0.87, requiring a minimum trip reduction rate of 35%.[5]

Other Campus Improvements

It is assumed that Alternative #2 would include other Campus-wide improvements as described under the Project (potentially at a reduced extent based on reduced needs), including:

- potential closure of DNA Way as a through street during off-peak hours to allow this street segment to function as a designated pedestrian environment
- accommodating the predicted demand of parking spaces in new parking structures located throughout the Project Area
- providing for on-Campus pedestrian improvements as assumed in the Project Description
- new manufacturing, processing and research activities will need to be individually assessed pursuant to waste discharge permits, and may be required to construct and implement pollutant reduction plans, potentially including expansion of on-site pre-treatment pH neutralization systems of post-process wastewater.
- continued extension of purple pipes to all new development projects and landscaping
- potential construction of a PG&E substation
- continuation of the on-Campus solar energy project, with new solar panels installed on building rooftops
- construction of the on-going Site Utility Project for high-efficiency industrial cooling and building air conditioning systems

[5] pursuant to Table 20.400.003 of the City Zoning Ordinance

- potentially installing a new combined heat and power (CHP) plant as a cogeneration plant that would use a natural gas power station to generate electricity

Comparative Environmental Analysis of the Reduced Project Alternative (Alternative #2)

Impacts Reduced as Compared to Project

Certain environmental effects would be reduced under Alternative #2, as compared to the Project. For the most part, these reductions lower the magnitude of air quality and greenhouse gas emissions, and the demands on public infrastructure as compared to the Project. However, these reductions are not necessary to reduce any significant impacts of the Project that are not otherwise reduced through implementation of regulatory requirements or mitigation measures.

Air Quality/Operational Criteria Pollutant Emissions (SU)

Proportionally, Alternative #2 would likely generate about 74% of the criteria pollutants from area sources (architectural coatings, and consumer products and solvents used in the new offices and laboratories), and about 74% of the mobile source emissions, as compared to the Project. However, the corresponding 26% reduction in emission sources would not reduce operational emissions of ROG or NOx to below threshold levels, and may not reduce operational emissions of PM10 to below threshold levels. Impacts under Alternative #2 would be reduced, but remain significant and unavoidable.

Air Quality/Operational Health Risk (LTS with MM)

Proportionally, Alternative #2 would result in approximately 26% fewer new sources of TAC emissions from less laboratory space, fewer diesel emergency generators and less natural gas combustion facilities. With fewer TAC emission sources, Alternative #2 would generate lower overall TAC concentrations. However, potential exposure and resulting health risks would continue to vary depending on a number of factors including emission source locations. Like the Project, any new operational source of TAC emission would be required to operate within the emission parameters as used in the analysis prepared for the Project, could only be located on those Opportunity Sites found to not contribute to operational-period health risks, or would require preparation of subsequent project-specific health risk analysis.

GHG/Operational and other Land Use Emissions (LTS)

Alternative #2 would reduce operational GHG emissions attributable to mobile sources, indirect water use, wastewater treatment, and solid waste disposal and landscaping. Like the Project, these operational-related GHG emissions would be fully covered under the SSF CAP and do not represent a cumulatively considerable contribution to global climate change. Alternative #2 would also reduce the Project's land use-based GHG emissions, and like the Project, these types of emissions would not exceed the efficiency thresholds for year 2020 or 2030. Like the Project, Alternative #2 would not contribute significantly to global climate change, and this impact would similarly be considered less than cumulatively considerable.

Utilities/Water Demand (LTS)

Using the same water demand factors as applied to the Project, Alternative #2 is estimated to generate an increased water demand of approximately 219,000 gallons per day, or about 74% of the water demand as compared to the Project. This water demand takes into account all of the water conservation strategies and initiatives that Genentech has implemented throughout the existing Campus. The Water Supply Assessment (WSA) prepared for this EIR by CalWater indicates that the Project's expected increase in water demand is included within CalWater's forecast of future water demands of the three Peninsula Districts. As such, Alternative #2's reduced water demand would similarly be included within CalWater's future demand

forecast, and could be met for the next 20-years under normal water year conditions, the same as would occur under the Project.

Impacts Increased as Compared to Project

Alternative #2 would not result in any environmental effects that would be greater than those of the Project.

Impacts Similar to those of the Project

Alternative #2 would result in development on perhaps fewer, but many of the same Opportunity Sites as identified for the Project, resulting in generally the same types of physical environmental effects. Alternative #2 would result in less overall development, but that development would include the same land uses (offices, labs and amenity space) as those of the Project. The following provides a list of potential environmental effects pursuant to Alternative #2 that would be similar to those of the Project, with the only differences being the comparative magnitude of the effect. Alternative #2 would not be capable of reducing any of the following impacts from significant to less than significant levels, and/or would not reduce any significant impacts of the Project that are not otherwise reduced through implementation of regulatory requirements or mitigation measures.

The following effects pursuant to Alternative #2 would be the same as those of the Project, assuming compliance with all applicable regulatory requirements and implementation of the same mitigation measures as identified for the Project.

Transportation

Alternative #2 assumes a 26% reduction in development potential, but the same proportional mix of new land uses and the same base (pre-TDM) trip generation rates per land use type as the Project. Therefore, the net new AM peak-hour base trips for Alternative #2 (without TDM) is approximately 76% of the trips as calculated for the Project (without TDM), yielding an expected total of 8,135 AM peak hour trips arriving at the Campus without TDM. However, buildout of Alternative #2 would result in a Campus-wide FAR of approximately 0.88, requiring implementation of a TDM program capable of achieving a 35% reduction in AM peak hour trips. As also indicated in **Table 20-7**, a 35% trip reduction would yield a total of approximately 5,287 trips during the AM peak hour under Alternative #2. In comparison, the Project's Trip Cap would limit total AM peak hour trips at buildout to 5,216 trips. Therefore, Alternative #2 would result in approximately 71 more AM peak hour trips (or a 1% increase) as compared to the Project, when measured post-TDM. Effectively, Alternative #2 and the Project would generate the same number of AM peak hour trips, resulting in virtually the same traffic impacts.

Table 20-7: Alternative #2 Trip Generation and TDM Requirement				
Land Use	**Building Space (ksf)**	**AM Base Trip Rate**	**AM Trips**	**Total AM Peak Trips**
Existing				
Office	1,566	1.29	2,021	
Labs	1,718	1.03	1,766	
Mfg.	1,285	0.35	448	
Amenity	145	1.03	149	
subtotal:	4,715		4,384	**4,384**
		Existing TDM Rate:	42%	
			2,543	
Plus Alternative #3				
Office	1,800	1.29	2,322	
Labs	1,165	1.03	1,197	
Mfg.	0	0.35	0	
Amenity	225	1.03	231	
subtotal:	3,190		3,751	**3,751**
Total:	**7,905**	Total AM Peak Trips (before any TDM):		**8,135**
Campus FAR:	0.88	Level of Campus-wide TDM required:		35%
		Resulting Trips, with 35% TDM:		**5,287**

Aesthetics

Alternative #2 would not increase building space within the Campus to the same extent as would the Project, and the scale of new buildings may not be as tall or large as envisioned under the Project. Alternative #2 would still change the existing visual character of the Campus, but like the Project, the visual changes under Alternative #2 would not be adverse, and would not be visually inconsistent with the current Campus or surrounding areas.

- Scenic vistas (LTS)
- Scenic resources as seen from a State Scenic Highway (LTS)
- Visual character (LTS)
- Light and glare (LTS with Mitigation)

Air Quality

Although Alternative #2 would not increase employment, new construction or operational activities to the same extent as would the Project, Alternative #2 would generally result in air quality impacts that are similar to the Project related to the following topics:

- Consistency with Clean Air Plan (LTS)
- Construction-period emissions of criteria pollutants (LTS with Mitigation)

- Construction-period health risk (LTS with Mitigation)

Biological Resources

Alternative #2 would result in development on many of the same Opportunity Sites as identified for the Project, resulting in generally the same types of effects on biological resources:

- Tidal aquatic species and essential fish habitats (LTS)
- Burrowing Owl (LTS)
- Harbor Seal and California Sea Lion (LTS)
- Bird strikes (LTS)
- Sensitive natural communities (LTS)
- Wetlands and other waters (LTS)
- Environmental corridors (LTS)
- Local tree protection policies and HCPs (LTS)
- Secondary biological effects of sea level rise adaptation strategies (LTS)
- California Ridgway's Rail (LTS with Mitigation)
- San Francisco Common Yellowthroat and Alameda Song Sparrow (LTS with Mitigation)
- Invasive species (LTS with Mitigation)

Cultural Resources

Alternative #2 would result in development on many of the same Opportunity Sites as now identified for the Project, resulting in generally the same types of effects on cultural resources:

- Historic resources (LTS)
- Paleontological resources (LTS)
- Currently unknown archaeological resources (LTS with Mitigation)
- Tribal cultural resources (LTS with Mitigation)

Geology

Alternative #2 would result in development on many of the same Opportunity Sites as now identified for the Project, resulting in generally the same types of geological effects. As indicated for the Project, the following geological effects pursuant to Alternative #2 would be less than significant, primarily a result of required compliance with existing regulatory requirements:

- Seismic hazards (LTS)
- Differential settlement and unstable or expansive soils (LTS)
- Substantial soil erosion or loss of topsoil (LTS)
- Septic tanks (No Impact)
- Landslides (LTS with Mitigation)

Greenhouse Gas Emissions

Alternative #2 would reduce the volume of GHG emissions as compared to the Project, but would still generally result in the same types of GHG emissions impacts:

- Stationary source emissions subject to Cap-and-Trade (LTS)
- Permitted stationary source emissions (LTS)

Hydrology

Alternative #2 would result in development on many of the same Opportunity Sites as now identified for the Project, resulting in generally the same types of hydrology impacts:

- Water quality (LTS)
- Groundwater (LTS)
- Drainage patterns and runoff (LTS)
- Flood hazards (LTS)

Land Use

As indicated for the Project, most of the following effects on land use and policy consistency determinations for Alternative #2 would be less than significant. Like the Project, Alternative #2 would require amendments to certain provisions of the South San Francisco Municipal Code

- Consistency with the Comprehensive Airport Land Use Compatibility Plan for SFO (Consistent)
- Consistency with Genentech's BCDC Permits (Consistent)
- Consistency with South San Francisco General Plan (1999) Land Use Element (Consistent)
- Consistency with the East of 101 Area Plan (Consistent)
- Physically dividing an established community (LTS)
- Conflicts with policies or regulation adopted to avoid or mitigate an environmental effect (LTS)
- Conflicts with applicable Habitat Conservation Plan (LTS)
- Consistency with the South San Francisco Municipal Code (Inconsistent, amendments needed)

Noise

Alternative #2 would result in construction activity and operations on many of the same Opportunity Sites as now identified for the Project, resulting in generally the same types of noise impacts:

- Operational noise (LTS)
- Operational ground-borne vibration (LTS)
- Excessive noise due to location within an Airport Land Use Plan (No Impact)
- Construction noise (LTS with Mitigation)
- Construction-period ground-borne vibration (LTS with Mitigation)
- Substantial permanent increase in ambient noise (SU)

Population, Housing and Employment

Although Alternative #2 would increase employment to a lesser extent than would the Project, it would still result in an increase in employment at the Genentech Campus, resulting in generally the same types of impacts on population, housing and employment:

- Inducing substantial population growth (LTS)
- Displacing substantial numbers of existing housing units (No Impact)
- Displace substantial numbers of people (No Impact)

Public Services

Although Alternative #2 would not increase employment and commensurate demands on public services to the same extent as would the Project, Alternative #2 would result in an increase in employment at the Genentech Campus resulting in generally the same types of impacts to public services:

- Police services (LTS)
- Fire and emergency medical services (LTS)
- Recreation (LTS)

Utilities and Service Systems

Although Alternative #2 would not increase employment, new construction and commensurate demands on utilities and services to the same extent as would the Project, Alternative #2 would result generally the same types of impacts:

- Water supply infrastructure (LTS)
- Exceedances of wastewater treatment requirements (LTS)
- Wastewater treatment and disposal capacity (LTS)
- Wastewater collection infrastructure (LTS)
- Stormwater facilities (LTS)
- Solid waste disposal (LTS)
- Energy (LTS)

Alternative 3: Different Land Use Mix

Description of Alternative #3

Under the Different Land Use Mix Alternative (Alternative #3), the overall net new development within the Campus would be retained at approximately 4.3 million square feet (same as the Project), but the mix of land uses within the Campus would have a different land use mix, fixed as a not-to-exceed total by land use type. This alternative would remove the flexibility of adapting new development to accommodate changing needs of the Campus and, as indicated in **Table 20-8**, would include more lab space and growth in new manufacturing space, with a commensurate reduction in office space as compared to the EIR Project Description.

Table 20-8: Alternative #3, Buildout Potential by Land Use Type (sf)

	Office	Lab	Mfg.	Amenity	Total Bldg. Area
Existing 2017 Baseline	1,566,000	1,718,000	1,285,000	145,000	4,715,000
Potential Net New Development, Alternative #3	1,693,000	2,000,000	300,0000	300,000	4,293,000
Relative % of Net New Development	39%	46%	7%	7%	
Alternative #3 Buildout	3,260,000	3,718,000	1,585,000	445,000	9,008,000
Relative change in buildout, as compared to Project	-730,000	+433,000	+300,000	-3,000	same

Alternative #3 presents a scenario as to how the Project Area may develop over time, but with an established, or "fixed" composition of future land uses that is substantially different than the EIR Project Description.

Trip Cap

As part of the Master Plan Update, the Project includes a TDM program goal to achieve a 50 percent reduction in drive-alone trips at buildout, and a commensurate Trip Cap. The Trip Cap is equivalent to the number of drive-alone vehicle trips as previously analyzed in the 2007 Master EIR and subsequent 2012 Supplemental Master EIR for the Campus Master Plan, and the 2002 Britannia East Grand EIR for the area now known as the South Campus. The Trip Cap holds this previously analyzed number of drive-alone trips constant, while increasing the underlying entitlement from approximately 6.8 million square feet, up to 9 million square feet of building space. To achieve this Trip Cap, Genentech proposes to implement TDM programs for all of its employees at levels that can reduce drive-alone trips such that the Trip Cap is not exceeded.

This Trip Cap is intended to provide Genentech and the City of South San Francisco with flexibility to modify and adapt the land use mix within the Campus over time depending upon future needs, while holding a constant "cap" on the number of net new AM peak-hour vehicle trips that the ultimate land use mix can generate. The Trip Cap is used as a proxy, or means by which the maximum land use development under the Master Plan Update is measured. By holding the Trip Cap constant, a variety of land use scenarios can be accommodated at the Campus (including this Different Land Use Mix Alternative) without exceeding the previously analyzed off-Campus traffic effects. One of the purposes of Alternative #3 is to compare the

flexibility of the Master Plan Update and its proposed "Trip Cap" to an alternative that instead "fixes" the land use program for buildout of the Campus with a different mix of land uses that generate a relatively lower base trip rate.

Comparative Environmental Analysis of Alternative #3

Impacts Reduced as Compared to Project

The potential environmental effects that would be reduced under the Alternative #3 as compared to the Project is relatively short because Alternative #3 is, in many respects, the same as the Project. Alternative #3 results in the same buildout potential of 9 million square feet of net new building space, new development would occur on the same Opportunity Sites, employment growth would be relatively similar, and new land uses would include the same types of office, lab and amenity space as those of the Project. Therefore, the following potential environmental effects pursuant to Alternative #3 would be substantially similar to those of the Project, with the only differences being the comparative magnitude of effects.

Transportation (SU)

Under Alternative #3, the land use mix is balanced in favor of a greater percentage of net new lab space and manufacturing space, with a commensurate reduction in office space. The AM peak hour trip rate for lab space is approximately 80% of the trip rate for office space, and the trip rate for manufacturing space is approximately 27% of the trip rate for office space. As indicated in **Table 20-9,** these differences in trip rates per building space would generate approximately 4,653 net new AM peak hour base trips (without considering any TDM reductions), or about 90% fewer net new AM peak hour base trips than the Project, prior to TDM reductions. When added to the existing AM peak hour trips prior to TDM, Alternative #3 would result in a buildout of 9,037 AM peak hour base trips, or about 4% less than the 9,432 AM peak hour base trips generated under buildout of the Project.

As also indicated in Table 20-9, Alternative #3 could achieve the Trip Cap threshold of 5,216 total AM peak hour trips by implementing a TDM program capable of achieving an approximately 42% reduction in AM peak hour trips, generally consistent with Genentech's current trip reduction rate. In comparison, the Project will require implementation of a TDM program capable of achieving a greater reduction in AM peak hour trips.

Table 20-9: Alternative #3 Trip Generation and TDM Requirement

Land Use	Building Space	AM Base Trip Rate	AM Trips	Total AM Peak Trips
Existing				
Office	1,566	1.29	2,021	
Labs	1,718	1.03	1,766	
Mfg.	1,285	0.35	448	
Amenity	145	1.03	149	
subtotal:	**4,715**		4,384	**4,384**
		Existing TDM Rate:	42%	
			2,543	
Plus Alternative #3				
Office	1,693	1.29	2,184	
Labs	2,000	1.03	2,056	
Mfg.	300	0.35	105	
Amenity	300	1.03	308	
subtotal:	**4,293**		4,653	**4,653**
Total:	**9,008**	Total AM Peak Trips (before any TDM):		**9,037**
		Trip Cap:		-5,216
		# of Base Trips Exceeding Trip Cap:		3,821
		Level of Campus-wide TDM required:		**42.3%**
		Total Alternative #3 Trips, with 42% TDM:		5,216

After adjusting for the Trip Cap and necessary TDM effectiveness, Alternative #3 would result in the same traffic and transportation effects as those of the Project:

- Local intersections and arterial roadway segments (significant and unavoidable impacts at several locations, payment of East of 101 Traffic Fees as mitigation)
- Freeway ramps and mainline freeway segments (significant and unavoidable impacts at several locations)
- Vehicle miles travelled (the Trip Cap's required 42% reduction in drive-alone rate is assumed to result in a commensurate 42% reduction in AM peak hour trips, resulting in a daily per employee VMT rate of more than 15% below the regional or Citywide average)
- Internal vehicle circulation (existing roadways provide sufficient vehicular circulation to serve circulation needs)
- Pedestrian circulation (not detrimental to existing pedestrian facilities, no conflict with adopted plans and programs regarding pedestrian mobility or safety)
- Bicycle circulation (fair share contribution toward bicycle improvements in the East of 101 Area through payment of East of 101 Traffic Impact Fees)

Impacts Greater than those of the Project

Utilities/Water Demand (LTS with Mitigation)

The increased emphasis on new lab space as compared to office space, and the potential increase in manufacturing space under Alternative #3 would result in a greater demand on water supply than the Project. Alternative #3 is estimated to generate an increased water demand of approximately 428,000 gallons per day, or a 45% increase in water demand as compared to the Project (approximately 294,000 gpd). This water demand takes into account all of the water conservation strategies and initiatives that Genentech has implemented throughout the existing Campus, and conservatively assumes that the increase in use of water for additional manufacturing purposes will be proportional to current industrial water use at the Campus. The Water Supply Assessment (WSA) prepared for this EIR by CalWater indicates that the Project's expected increase in water demand is included within CalWater's forecast of future water demands of the three Peninsula Districts, but does not address the potential additional water demands of this Alternative. However, some proportional comparisons can be made based on information provided in the WSA:

- The Project's water demands were found to represent approximately 18% of the overall increase in projected demand within CalWater's SSF District. Comparatively, Alternative #3 would generate a water demand representing approximately 26% of the overall increase in projected demand within CalWater's SSF District, leaving approximately 74% for other development projects.
- The Project's water demands, when added to increased water demands of other known projects in SSF, resulted in a combined water demand representing approximately 45% of the total projected increase in water demands of the District by year 2040, leaving 55% of that increase for other projects and general growth. Comparatively, adding the water demands of Alternative #3 to increased water demands of other known projects in SSF would resulted in a combined water demand representing approximately 53% of the total projected increase in water demands of the District by year 2040, leaving 47% of that increase for other projects and general growth.

Based on these comparisons, it would seem likely that the District would be able to provide adequate water supplies to meet existing and projected future customer demands (including those of the Alternative #3) for the next 20-plus years under normal water year conditions. However, before exceeding the approximately 294,000-gpd increase in water use as assessed in the WSA, a supplemental assessment would likely be necessary. Genentech's sustainability, conservation and water recycling efforts may decrease industrial-based water demands, such that the estimated water demand of Alternative #3 may be overly conservative. For example, Genentech, SSF and the Water District have initiated a joint exploration of the potential to reclaim a portion of treated effluent prior to disposal in the Bay, provide additional on-site treatment at the Campus and use this treated effluent for industrial applications. If such a program were to become successful, it would substantially reduce Campus water demands such that Alternative #3 might generate the same or less demands for water as the Project.

Same or Similar Effects

Alternative #3 would result in development on the same Opportunity Sites as identified for the Project, resulting in the same types of physical environmental effects. Alternative #3 would also result in generally the same overall new development, with land use types that are the same as those of the Project, but with a different composition between offices, lab space and amenity space. Whereas this Draft EIR has found the Project to result in numerous environmental effects that would be less than significant, that would be less than significant assuming compliance with all applicable regulatory requirements, or less than significant with implementation of identified mitigation measures, Alternative #3 would have similar less-than-significant effects. Each of the environmental effects of Alternative #3 would be the same or similar to those of the Project, with the only difference being the comparative magnitude of the effect.

The following effects pursuant to Alternative #3 would be the same as those of the Project, assuming compliance with all applicable regulatory requirements and implementation of the same mitigation measures as identified for the Project:

Aesthetics

- Scenic vistas (LTS)
- Scenic resources as seen from a State Scenic Highway (LTS)
- Visual character (LTS)
- Light and glare (LTS with Mitigation)

Air Quality

- Consistency with Clean Air Plan (LTS)
- Construction-period emissions of criteria pollutants (LTS with Mitigation)
- Construction-period health risk (LTS with Mitigation)
- Operational health risks (LTS with Mitigation)
- Operational criteria pollutant emissions (SU)

Biological Resources

- Tidal aquatic species and essential fish habitats (LTS)
- Burrowing Owl (LTS)
- Harbor Seal and California Sea Lion (LTS)
- Bird strikes (LTS)
- Sensitive natural communities (LTS)
- Wetlands and other waters (LTS)
- Environmental corridors (LTS)
- Local tree protection policies and HCPs (LTS)
- Secondary biological effects of sea level rise adaptation strategies (LTS)
- California Ridgway's Rail (LTS with Mitigation)
- San Francisco Common Yellowthroat and Alameda Song Sparrow (LTS with Mitigation)
- Invasive species (LTS with Mitigation)

Cultural Resources

- Historic resources (LTS)
- Paleontological resources (LTS)
- Currently unknown archaeological resources (LTS with Mitigation)
- Tribal cultural resources (LTS with Mitigation)

Geology

- Seismic hazards (LTS)

- Differential settlement and unstable or expansive soils (LTS)
- Substantial soil erosion or loss of topsoil (LTS)
- Septic tanks (No Impact)
- Landslides (LTS with Mitigation)

Greenhouse Gas Emissions

- Stationary source emissions subject to Cap-and-Trade (LTS)
- Permitted stationary source emissions (LTS)
- Operational emissions fully covered under the SSF CAP (LTS)
- Other operational GHG emissions by year 2020 (LTS)
- Other operational GHG emissions by year 2030 (LTS)

Hydrology

- Water quality (LTS)
- Groundwater (LTS)
- Drainage patterns and runoff (LTS)
- Flood hazards (LTS)

Land Use

- Consistency with the Comprehensive Airport Land Use Compatibility Plan for SFO (Consistent)
- Consistency with Genentech's BCDC Permits (Consistent)
- Consistency with South San Francisco General Plan (1999) Land Use Element (Consistent)
- Consistency with the East of 101 Area Plan (Consistent)
- Physically dividing an established community (LTS)
- Conflicts with policies or regulation adopted to avoid or mitigate an environmental effect (LTS)
- Conflicts with applicable Habitat Conservation Plan LTS)
- Consistency with the South San Francisco Municipal Code (Inconsistent, amendments needed)

Noise

- Operational noise (LTS)
- Operational ground-borne vibration (LTS)
- Excessive noise due to location within an Airport Land Use Plan (No Impact)
- Construction noise (LTS with Mitigation)
- Construction-period ground-borne vibration (LTS with Mitigation)
- Substantial permanent increase in ambient noise (SU)

Population, Housing and Employment

- Inducing substantial population growth (LTS)

- Displacing substantial numbers of existing housing units (No Impact)
- Displace substantial numbers of people (No Impact)

Public services

- Police services (LTS)
- Fire and emergency medical services (LTS)
- Recreation (LTS)

Utilities and Service Systems

- Water supply infrastructure (LTS)
- Exceedances of wastewater treatment requirements (LTS)
- Wastewater treatment and disposal capacity (LTS)
- Wastewater collection infrastructure (LTS)
- Stormwater facilities (LTS)
- Solid waste disposal (LTS)
- Energy (LTS)

Environmentally Superior Alternative

CEQA requires the identification of the environmentally superior alternative in an EIR. Where a no project alternative has been identified as the environmentally superior alternative, CEQA requires the EIR to identify another alternative that would be considered environmentally superior in the absence of the no project alternative.

Table 20-10 provides a summary comparison of the impacts of each of these alternatives relative to those of the Project, for those environmental topics where there is a difference. For each impact topic addressed in the Draft EIR chapters, this table identifies the extent to which this impact would be significant under each alternative, for example:

- no impact (No Impact)
- less than significant (LTS)
- less than significant with implementation of regulatory requirements (LTS with Regs)
- less than significant with implementation of mitigation measures recommended for the Project (LTS with MM)
- significant and unavoidable (SU)

As indicated in this Table, even for those environmental topics where differences between the Project and the alternatives have been identified, none of the alternatives (even the No Project Alternative, which continues the current 2007 Master Plan) is capable of changing a significant impact to less than significant, or is capable of fully avoiding an environmental effect of the Project.[6] Rather, the differences between the

[6] The only alternative that could lower all impacts to levels of less than significant would be an alternative that would reduce development potential from the previously approved 2007 Master Plan. The EIR for that 2007 Master Plan was certified with Statements of overriding considerations for these significant and unavoidable impacts, and that decision is not reconsidered in this EIR.

Project and the alternatives are measured in relative magnitude. Table 20-10 also compares the relative magnitude of impacts under each alternative relative to the magnitude of the impact of the proposed Project. For example:

- the symbol "↓" indicates that the alternative would have a less substantial impact relative to the Project, even if the CEQA conclusion were similar for both the Project and the alternative (e.g., an alternative could have a less substantial adverse effect than does the Project, even though the impact of the Project and the alternative can be addressed through implementation of the same mitigation measure);
- the symbol "↑" indicates that the alternative's impact would be relatively more substantial than the proposed Project; and
- the symbol "←→" indicates that the relative magnitude of the alternative's impact would be the same or similar to the proposed Project.

Table 20-10: Summary of Impacts and Relative Comparison to the Project

Environmental Topic	Project	Alternative 1: No Project	Alternative 2: Reduced Project	Alternative 3: Alternative Mix of Uses
Air Quality				
Construction Emissions	LTS with Regs	LTS with Regs, ↓	LTS with Regs, ↓	LTS with Regs, ←→
Operation Emissions	SU	SU, ↓	SU, ↓	SU, ←→
Operation Health Risk	LTS with MM	LTS with MM, ↓	LTS with MM, ↓	LTS with MM, ↑
Geology and Soils				
Landslide Potential	LTS with MM	LTS, ↓	LTS with MM,←→	LTS with MM, ←→
Greenhouse Gas				
GHG Emissions	LTS	LTS, ↓	LTS, ↓	LTS, ↓
Land Use				
Policy Consistency	Not consistent	Consistent, ↓	Not Consistent ←→	Not Consistent,←→
Transportation:				
Trip Generation/Traffic	SU	SU, ↓	SU, ←→	SU, ↓
Utilities				
Utilities, Water	LTS	LTS, ↓	LTS, ↓	LTS with MM, ↑

Summary Comparisons of Alternatives

As shown in Table 20-10, Alternative #1 (or the No Project Alternative) would result in an order of magnitude reduction in eight different environmental topic areas. Generally, the lower development potential of Alternative #1 (at 6.8 million square feet) would generate less overall construction-period and operational emissions of air quality pollutants, toxic air contaminants, GHGs, and would generate less vehicle trips and would lower demands on utilities as compared to the Project. Alternative #1 has a reduced development footprint, fewer identified Opportunity Sites where new development may occur, and does not include Opportunity Sites on steeper hillsides where mitigation measures would otherwise be required to address potential slope failure.

Based on order of magnitude effects, Alternative #1 (the No Project Alternative) is environmentally superior to the Project and to all other alternatives. However, Alternative #1 does not substantially lessen or avoid a significant environmental effect of the Project that cannot otherwise be substantially lessened or avoided with implementation of all feasible mitigation measures.

Because the No Project Alternative has been identified as the environmentally superior alternative, CEQA requires this EIR to identify another alternative that would be considered environmentally superior in the absence of the No Project Alternative. Alternative #2 (or the Reduced Project Alternative) would result in an order of magnitude reduction in five different environmental topic areas as compared to the Project. Like the No Project Alternative, the lower development potential of Alternative #2 (at 7.9 million square feet) would generate less overall construction-period and operational emissions of air quality pollutants, toxic air contaminants and GHGs, and would lower demands on utilities as compared to the Project. Based on order of magnitude effects, Alternative #2 (the Reduced Project Alternative) is the environmentally superior alternative in the absence of the No Project. However, Alternative #2 (like the No Project Alternative) does not substantially lessen or avoid a significant environmental effect of the Project that cannot otherwise be substantially lessened or avoided with implementation of all feasible mitigation measures.

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CEQA Conclusions

Section Guidelines, Section 15126 and 15130 require that, "*all aspects of a project be considered when evaluating its impact on the environment including planning, acquisition, development and operation. The subjects listed below shall be discussed . . . , preferably is separate sections or paragraphs of the EIR. If they are not discussed separately, the EIR shall include a table showing where each of the subjects are discussed:*"

- Significant environmental effects (including cumulative effects) of the Project
- Mitigation measures proposed to minimize significant effects
- Significant environmental effects (including cumulative effects) that cannot be avoided if the Project is implemented
- Growth-inducing effects of the Project
- Alternatives to the Project, and
- Significant irreversible environmental changes that would be involved in the Project should it be implemented

Each of these subjects is discussed in this EIR. The following summary identifies where in this EIR these subjects are addressed, and provides a brief conclusion or summary of those subjects.

Summary of Significant Impacts

Chapter 5 through 19 of this EIR each include a description of the existing (or baseline) physical setting, the thresholds of significance for assessing potentially significant environmental impacts, and an identification of individual significant effects of the Project. Impacts are identified by their levels of significance based on the following categories:

- those effects found to have No Impact (no noticeable adverse effect on the environment)
- Less than Significant Impacts (an environmental effect that would not exceed the threshold of significance),
- impacts that are Less than Significant with Mitigation Measures (impacts that can be reduced to a less than significant level with implementation of recommended mitigation measures), and
- Significant and Unavoidable Impacts (impacts that exceed the threshold of significance and cannot be avoided or reduced through implementation of identified mitigation measures)

Qualitative and location-based environmental effects have been assessed in this EIR for certain topics. These types of environmental effects identify where new development or redevelopment activities pursuant to the Project may adversely affect location-based or site-specific environmental resource (e.g., aesthetics, biological resources, cultural and historic resources, geology and soils, hazards and hydrology). Additionally, the buildout scenario of the Project has been used to generate employment estimates and land use projections for more quantitative analyses. Quantitative impacts have been identified for a number of growth-based environmental topics (e.g., air quality emissions, greenhouse gas emissions, land use and planning, noise sensitivity and noise generation, employment, public services, transportation and utilities).

The Executive Summary (Chapter 2) of this EIR provides a tabular summary of all environmental effect of the Project as analyzed in this EIR.

Cumulative Effects

Chapter 5 through 19 of this EIR each concludes with an analysis of cumulative effects. Depending on the topic, the cumulative context varies with the geography of cumulative implications. For example, cumulative effects related to climate change are global in scale, and cumulative effects related to air quality emissions of criteria air pollutants affect the entire San Francisco Air Basin. Conversely, some cumulative effects are local in nature, such as cumulative water quality effects on those waters that are tributary to the Project Area. The majority of cumulative effects discussed in this EIR (specifically including traffic) are based on anticipated cumulative growth and development within the East of 101 Area of South San Francisco.

Mitigation Measures Proposed to Minimize Significant Effects

Pursuant to CEQA Guidelines Section 15126.4, Chapter 5 through 19 of this EIR each identifies feasible measures that could minimize significant adverse impacts. Each chapter of the EIR distinguishes between those measures that are proposed by Genentech and included in the Project, those measures that are required pursuant to compliance with regulatory permits or other regulatory processes, and additional measures that the City of South San Francisco has determined as necessary to reduce adverse impacts. Accordingly, this EIR identifies a range of feasible mitigation measures that will minimize significant adverse impacts of the Project. Each type of mitigation measure is identified throughout this EIR, and each will be required as a condition of approval of the Project.

The Executive Summary (Chapter 2) of this EIR provides a tabular summary of all mitigation measures required of the Project as identified in this EIR.

Measures Included in the Project

This EIR recognizes the mitigation measures and sustainability initiatives that are proposed by, and will be implemented pursuant to the Project by Genentech as the Project applicant. These measures are included in the Master Plan Update (the Project), will be implemented as part of on-going corporate commitments and include, but are not limited to the following:

- As part of the Master Plan Update, Genentech proposes to minimize traffic generation and maximizing TDM opportunities. The Master Plan establishes a “Trip Cap” that limits the total number of drive-alone vehicle trips at levels that have already been approved pursuant to prior land use entitlements. Genentech (the Project sponsor) commits to ongoing implementation of its gRide TDM program at levels that far exceed the City’s TDM target and fully offset any increase in single-occupant vehicle trips that might otherwise exceed the Trip Cap.
- Genentech’s has numerous ongoing sustainability initiatives that are internally driven by their private, corporate commitments as included in the Genentech Sustainability Strategic Plan. The Sustainability Strategic Plan includes numerous sustainability initiatives that include, but are not limited to reducing water consumption, lowering energy demands and GHG emissions and reducing waste to landfill disposal.
- Genentech has voluntarily joined the California Climate Action Registry (now the Climate Action Reserve), and is a participant in the California Cap-and-Trade Program. Under the Cap-and-Trade Program, enforceable limits are set on the amount of emissions that Genentech can produce (known as a "cap"), and this cap is gradually reduced over time. Genentech receives permits for the emissions allowable under their cap, but if Genentech does not use all their permits they can auction them off to other emitters (via “trade”), and those emitters can use the additional permits to exceed their cap. Conversely, Genentech can trade for increased permits to offset increased GHG emissions

associated with new development. CARB collects revenue from the permit auctions and uses this revenue to invest in offsetting projects that result in reductions in GHG emissions.

Regulatory Requirements

CEQA Guidelines Section 16126.4B specifically provides that, "compliance with a regulatory permit or other similar process may be identified as mitigation if compliance would result in implementation of measures that would be reasonably expected, based on substantial evidence in the record, to reduce the significant impact to the specified performance standards." Accordingly, this EIR itemizes those regulatory requirements that are applicable to the Project, and that would serve to reduce or avoid otherwise potentially significant environmental effects. Examples of these types of measures include, but are not limited to the following:

- All qualifying construction projects pursuant to the Master Plan Update shall comply with Provision C.6 of the Municipal Regional Permit (MRP), including filing a Notice of Intent for permit coverage under the Construction General Permit and preparation of a Stormwater Pollution Prevention Plan (per *Regulatory Requirement Hydro 1A, Construction General Permit and Stormwater Pollution Prevention Plan*), and incorporating post-construction stormwater controls and low-impact development (LID) measures meeting Provision C.3 requirements for reducing long-term impacts of development on stormwater quality (per *Regulatory Requirement Hydro 1B, Provision C.3 Requirements/Stormwater Management Plan*)
- Each new development project pursuant to the Master Plan Update shall have a site-specific geotechnical study prepared by a certified licensed geotechnical engineer, including site-specific geotechnical recommendations demonstrating compliance with all applicable seismic-related geotechnical engineering standards of the City of South San Francisco Municipal Code, the California Building Code and the California Seismic Hazards Mapping Act, with all recommendations to be incorporated into individual development project designs and construction (*per Regulatory Requirement Geology 1, Seismic Hazards*)
- Genentech shall comply with all State, federal and local regulations, and Genentech programs, practices and procedures that ensure that the potential for worker and/or public exposure to hazardous chemicals from improper or unsafe activities or from accidents meets the guidelines of the American Conference of Governmental Industrial Hygienists' Threshold Limit Values and OSHA's Permissible Exposure Levels (per *Regulatory Requirements Hazards 1A, Use of Chemical Materials*)
- The Project Sponsor shall pay South San Francisco's East of 101 Transportation Impact Fees, representing their fair-share contribution toward intersection improvements included in the East of 101 Traffic Impact Fee Program (per *Regulatory Requirement Transportation 1B - East of 101 Transportation Impact Fee Improvements*)

Additional Mitigation Measures

This EIR also identifies those instances where the City of South San Francisco has determined that, in addition to measures proposed pursuant to the Project and measures required pursuant to existing regulations, additional mitigation measures are warranted to reduce or avoid adverse environmental impacts, or to establish performance standards necessary ensure mitigation to less than significant levels. Examples of these types of mitigation measures include, but are not limited to the following:

- Prior to any construction activity near the coastal salt marsh along the southeastern edge of the Campus a protocol-level survey, which involves a series of site visits between mid-January and late March, shall be conducted by a qualified biologist. The survey needs to be approved by the USFWS and CDFW in advance. If breeding rails are determined to be present, construction activities shall not occur within 750 feet of an identified calling center during the breeding season (per *Mitigation Measure Bio 2B, Protocol-Level Surveys and Buffers*)

- For any construction activity that is within 50 feet of an adjacent off-site property and where construction noise may exceed the 90dBA limit of the SSF Municipal Code, the Project applicant shall be required, by contract specifications, to implement BMPs for construction activity to reduce construction noise levels (per *Mitigation Measure Noise 1A, Construction Period BMPs*)
- The Project Sponsor shall pay its fair-share toward those intersection improvements not currently included in the East of 101 Traffic Impact Fee Program by either; 1) fully funding improvements subject to fee credits if the improvement is subsequently included in the City's CIP update; or 2) paying the City's Transportation Impact Fees if the City does subsequently include these improvements in its CIP (per *Mitigation Measure Transportation 1: Additions to East of 101 Transportation Impact Fee Program*)

Significant and Unavoidable Impacts

Based on the analysis presented in this EIR, the Project would result in the following environmental impacts that would be considered significant and unavoidable:

Air Quality

Operational Criteria Pollutants

Chapter 6 of this EIR concludes that during operations, the Project would result in a cumulatively considerable net increase of criteria pollutants for which the region is non-attainment, including emissions that exceed quantitative thresholds for ozone precursors. Specifically, the Project's average daily operational emissions are projected to exceed 54 pound per day of reactive organic gas (ROG) and nitrogen oxides. Regulatory Requirement AQ 4 - New Source Review Offset requires Genentech to purchase offset credits pursuant to BAAQMD Regulation 2-2: New Source Review, Section 302 Offset Requirements for each new permitted stationary source of NOx and/or ROG emissions, and for any modifications to existing stationary emission sources that result in increased NOx and/or ROG emissions. Although TDM, energy efficiency features and regulatory requirements are incorporated into the Project, total emissions of criteria pollutants from mobile sources and other sources not requiring separate permits from BAAQMD would exceed the thresholds of significance. The health impacts associated with criteria pollutant emissions from the Project are conservatively estimated and the analysis indicates that anticipated health impacts are vanishingly small and that the actual health impacts may be zero.

Noise

Construction Noise

Chapter 14 of this EIR concludes that construction activities pursuant to the Project could generate noise levels that exceed the noise standards established in SSFMC Section 8.32.030. Construction projects pursuant to the Project will be required to implement construction Period BMPs for construction that is within 50 feet of an adjacent off-site property, and to route heavily loaded trucks away from noise-sensitive and vibration-sensitive uses. With implementation of Genentech Noise Attenuation and Logistics Plans, construction-period noise effects on Genentech's own on-Campus buildings would meet applicable OSHA requirements for safe workspaces and other private Genentech-based noise standards for healthy workplaces. Construction noise is temporary and episodic in nature, and construction noise is typically not considered significant if its duration is for a period of less than one year. However, the details of individual construction activities cannot be known in advance, and achieving the noise standards established in SSF Municipal Code is not certain. Mitigation measures presented in this EIR include all reasonable and feasible methods to reduce construction noise effects, but this impact is conservatively considered significant and unavoidable.

Transportation

Chapter 17 of this EIR concludes that under Existing plus Project and/or under Cumulative plus Project scenarios, the Project would make significant contributions to traffic levels that would conflict with applicable plans, ordinances or policies that establish measures for effective levels of service. These impacts are more fully described below.

Local Intersection Level of Service – Existing plus Project

The Project would contribute traffic to intersections in the Project vicinity that would result in conflicts with applicable plans, ordinances or policies that establish measures of effectiveness for intersection levels of service (LOS) or queuing at twenty (20) of the 27 traffic study intersections. Regulatory requirements and/or mitigation measures have been identified that are capable of reducing these impacts at 13 of the 20 affected intersections, but no feasible or certain improvements have been identified as capable of reducing impacts to a less than significant level at 7 affected study intersections.

Payment of fair-share contributions toward signal timing improvements and intersection improvements as included in the City's current East of 101 Transportation Impact Fee Program (Regulatory Requirements Transp 1A and Transp 1B) would reduce Project impacts at 9 intersections. Either fully funding certain improvements subject to fee credits, or paying City Transportation Impact Fees if the City's then-current CIP includes improvements at the time of issuance of building permits (pursuant to Mitigation Measure Transp-1), the Project's impacts would be reduced to less than significant at 4 intersections. However, either there are no feasible improvements capable of reducing the Project's impacts, or implementation of mitigation improvements are within the jurisdiction of a separate agency (Caltrans) at seven (7) intersections, and impacts would remain significant and unavoidable at the following locations:

- 101 NB/Oyster Pt. Boulevard off Ramp (Caltrans jurisdiction)
- 101 SB/Gateway Boulevard/Oyster Pt. Boulevard Off Ramp (Caltrans jurisdiction)
- Gull Drive/Forbes Boulevard (limited right-of-way)
- Airport Boulevard/Miller Avenue/ US-101 SB Off-Ramp (Caltrans jurisdiction)
- Airport Boulevard/Grand Avenue (unavailable capacity for southbound left turn queue)
- South Airport Boulevard/US-101 On- and Off-Ramps/ Wondercolor Drive (constrained right-of-way)
- South Airport Boulevard / I-380 Westbound ramp (constrained right-of-way and downstream queuing on the I-380 westbound ramp)

Freeway Segments – Existing plus Project

The Project would generate more than 100 peak hour trips onto the Congestion Management Program roadway network, resulting in conflicts with applicable plans, ordinances or policies that establish measures for effective levels of service along two freeway segments – southbound US-101 north of Oyster Point Boulevard and northbound US-101 south of Produce Avenue during the morning peak hour. Consistent with C/CAG guidelines, the Project will implement a TDM program that is consistent with and exceeds City requirements. That TDM program will serve to reduce its otherwise greater contribution of trips on the CMP network, including increased traffic on US-101 freeway segments. However, there are no feasible mitigation measures for these impacts to freeway segments due to constrained right-of-way and a corresponding inability to add traffic capacity or reduce vehicular delays, and these impacts remain significant and unavoidable.

Local Intersection Level of Service – Cumulative

The Project would contribute to cumulative traffic levels that would result in conflicts with applicable plans, ordinances or policies that establish measures of effectiveness for intersection levels of service (LOS) at 22 intersections. Regulatory requirements and mitigation measures identified under Existing plus Project conditions (Mitigation Measure Transportation 6A) would reduce Cumulative plus Project impacts to less than significant levels at 3 intersections. Improvements identified in Mitigation Measure Transportation-6B could effectively reduce impacts at 4 of intersections, but these improvements are not currently included under the City's East of 101 Transportation Impact Fee Program or in the City's Capital Improvement Program (CIP), and there is no fair-share funding mechanism is established by the City to provide for fair-share payments toward the improvements. Even with improvements identified in MM Transportation-6B, there are 15 intersections that would be adversely affected by Cumulative plus Project-generated traffic for which there are no feasible improvements capable of reducing cumulative impacts to below threshold levels, and these impacts would remain significant and unavoidable at the following locations:

- Airport Boulevard/Sister Cities Boulevard/Oyster Point Boulevard (constrained roadway right-of-way)
- Dubuque Avenue/Oyster Point Boulevard (no space available to add additional queuing)
- Oyster Point Boulevard/Gateway Boulevard (constrained roadway right-of-way)
- Oyster Point Boulevard/Veterans Boulevard (constrained street right-of-way)
- Oyster Point Boulevard/Eccles Avenue (constrained street right-of-way)
- Gull Drive/Forbes Boulevard (constrained street right-of-way)
- Airport Boulevard/Grand Avenue (adding vehicle capacity would be inconsistent with the Pedestrian Priority Zone identified in the South San Francisco Station Area Specific Plan)
- East Grand Avenue/Gateway Boulevard (roadway widening would conflict with the City of South San Francisco's Complete Streets Policy)
- East Grand Avenue/Harbor Way/Forbes Boulevard (constrained roadway right-of-way)
- Produce Avenue/Airport Boulevard/San Mateo Avenue (constrained roadway right-of-way)
- South Airport Boulevard/Gateway Boulevard (constrained roadway right-of-way)
- South Airport Boulevard/US-101 On- and Off-Ramps (constrained roadway right-of-way)
- South Airport Boulevard/Utah Avenue (no feasible mitigations at this intersection)
- I-380 Westbound Ramp/South Airport Boulevard (unavailable capacity for queue lengths on the southbound right turn movement)

Freeway Ramps - Cumulative

The Project would generate more than 100 peak hour trips onto the Congestion Management Program roadway network, contributing to cumulative traffic levels that would conflict with applicable plans, ordinances or policies that establish measures for effective levels of service at two nearby freeway interchanges under Cumulative plus Project conditions. These freeway ramps include US-101/Oyster Point Boulevard interchange in the PM peak hour and US-101/Produce Avenue interchange in the AM peak hour. Consistent with C/CAG guidelines, the Project will implement a TDM program that is consistent with and exceeds City requirements. That TDM program will serve to reduce its otherwise greater contribution of trips on the CMP network, including its contributions of traffic to freeway ramps, but impacts will remain significant and unavoidable.

Freeway Segments – Cumulative

The Project would generate more than 100 peak hour trips onto the Congestion Management Program roadway network, contributing to cumulative traffic levels that would conflict with applicable plans, ordinances or policies that establish measures for effective levels of service on the following freeway segments:

- Northbound US-101 north of Oyster Point Boulevard (the Project would contribute 1.2 and 3 percent of the cumulative traffic on this freeway segment during both peak hours, respectively)
- Southbound US-101 north of Oyster Point Boulevard (the Project would contribute 5 percent of the cumulative traffic on this freeway segment during the AM peak hour)
- Northbound US-101 between Oyster Point Boulevard and Grand Avenue (the Project would contribute 2 percent of the cumulative traffic on this freeway segment during the PM peak hour)
- Southbound US-101 between Oyster Point Boulevard and Grand Avenue (the Project would contribute 1.1 percent of the cumulative traffic on this freeway segment during the PM peak hour)
- Northbound US-101 between Grand Avenue and Produce Avenue (the Project would contribute 5 percent of the cumulative traffic on this freeway segment during the AM peak hour)
- Southbound US-101 between Grand Avenue and Produce Avenue (the Project would contribute 4 percent of the cumulative traffic on this freeway segment during the PM peak hour)
- Northbound US-101 south of Produce Avenue (the Project would contribute 5 percent of the cumulative traffic on this freeway segment during the AM peak hour)

Consistent with C/CAG guidelines, the Project will implement a TDM program that is consistent with and exceeds City requirements. That TDM program will serve to reduce its otherwise greater contribution of trips on the CMP network, including increased traffic on US-101 freeway segments. There are no feasible mitigation measures for these impacts due to constrained right of way on US-101 and these cumulative impacts remain significant and unavoidable.

Growth-Inducing Effects

As described in Chapter 15 of this EIR, Genentech's presence as the largest employer in the City and founder of one of the largest biotechnology campuses in the world has, and will likely continue to draw a number of support businesses and industries to the area. According to City publications, the East of 101 Area is one of the largest and fastest-growing biotechnology cluster in the world, estimated to have more than 200 biotechnology firms employing over 20,000 people. This growth is primarily a function of non-CEQA factors such as business decisions to be proximate to this growing industry, the availability of a specialty-skilled workforce, and forward-thinking planning efforts by the City. These factors are not typical growth inducement concerns of CEQA, such as the extension of roadways or expansion of infrastructure capacity that would otherwise preclude new development or that would induce growth beyond what is otherwise planned. The Project will not include any physical improvement that would induce growth in CEQA-based concerns beyond that needed to support its own needs, or that would be in addition to City growth plans for the area.

As also described in greater detail in Chapter 15 of this EIR, the Project is estimated to accommodate an increase of approximately 12,550 new jobs, conservative estimated to result in a demand for approximately 9,160 new households. However, Genentech estimates that approximately 75% of its new labor force since 2010 were existing Bay Area residents choosing to change their employment to Genentech, and that only approximately 25% of its new labor force is derived from new residents from outside the Bay Area. Assuming a similar trend that 25% of new Project-generated jobs would be taken by new Bay Area residents, the

Project may more realistically result in a demand for approximately 2,290 new households. An increase of 9,160 new households (or even 2,290 new households assuming 75% of new jobs would be taken by existing Bay Area residents) would exceed the projection of new housing potential in the City of South San Francisco pursuant to its Housing Element. However, Genentech is a regional employer, drawing its employees from across the entire Bay Area region. ABAG's Plan Bay Area 2040 provides a regional forecast for growth, indicating that between 2010 and 2040, the Bay Area is projected to grow from 3.4 to 4.7 million jobs and the population is projected to grow from 7.2 to 9.5 million people. This population will live in approximately 3.43 million households or an increase of approximately 817,000 households over 2010 levels. The Project's potential indirect housing demand represents a small share (between 0.2% and 1.1%) of projected household growth within the Bay Area region. On a regional basis, the Project's demand for new housing is not a significant share of the total projected regional household growth.

Alternatives to the Project

Three alternatives are presented and analyzed in Chapter 20 of this EIR. These alternatives are intended to meet the CEQA requirements for the EIR to describe the no project alternative as well as a range of reasonable alternatives to the Project that would feasibly attain most of the basic objectives of the Project, but would avoid or substantially lessen significant effects. Specifically, these alternatives include:

- Alternative #1: No Project - defined as the current 2007 Master Plan and the existing Genentech Master Plan Zoning District remaining in place, and with new development within the Campus remaining limited to a maximum buildout of up to 6 million square feet of building space, plus the 821,000 square feet added as the South Campus.
- Alternative 2: Reduced Project - establishes an overall growth limit within the Campus boundaries of up to 7.9 million square feet, or the mid-point between the 6.8 million square-foot buildout of the currently effective 2007 Master Plan and the 9 million square-foot buildout potential of the proposed Project.
- Alternative 3: Alternative Mix of Land Uses – representing buildout of 9 million square feet (like the Project) but with a mix of land uses that have a substantially different shift from the higher trip-generating office land use to the lower trip-generating lab and manufacturing space uses. One of the purposes of this Alternative is to demonstrate the flexibility of the Master Plan Update and its proposed Trip Cap to respond to potentially changing building space demands at the Campus over time.

None of the alternatives is fully capable of changing a significant impact of the Project to less than significant impact, or is capable of fully avoiding an environmental effect of the Project. Rather, the differences between the Project and the alternatives are measured in relative magnitude. Generally, the lower development potential of Alternative #1 (the No Project) would generate less severe impacts as compared to the Project. CEQA requires this EIR to identify an alternative, other than the No Project Alternative, that would be considered environmentally superior. The lower development potential of Alternative #2 would generate less severe overall impacts as compared to the Project, and Alternative #2 is environmentally superior in terms of relative magnitude of impacts. However, Alternative #2 does not substantially lessen or avoid any significant environmental effects of the Project that cannot otherwise be substantially lessened or avoided under the Project with implementation of all feasible mitigation measures identified in this EIR.

Two other alternatives were considered in preparation of this EIR, but rejected. A "No New Development Alternative" was rejected because a "no project" alternative would reject the Project, but would continue the existing 2007 Master Plan and existing zoning regulations into the future. This EIR does not analyze nor does it foresee any "no build" scenario under which there is no new development beyond what exists at the Campus under the baseline condition. An alternative site location was also considered but rejected. Genentech does have other facilities in Vacaville and Oceanside, California, in Hillsboro, Oregon and in

Singapore. While it is possible that Genentech could consider an alternative of developing at one of these other locations, such an alternative would not enable Genentech to achieve its basic Project objectives. Furthermore, there is no information to suggest that development of up to approximately 4.3 million square feet of Genentech operational facilities at any of these other locations would avoid or substantially lessen any significant effects of the Project, but instead would likely transfer those effects from one place to another.

Significant Irreversible Environmental Change

Section 15126.2(d) of the CEQA Guidelines states that significant irreversible environmental changes associated with a proposed project shall be discussed. These irreversible changes include long-term commitments of natural resources and land, use of non-renewable resources during the initial and continued phases of a project, impacts that commit future generations to similar uses (such as highway improvement that provide access to a previously inaccessible area), and irreversible damages that could result from environmental accidents associated with a project.

The Project would increase the intensity of use on the approximately 207-acre Genentech Campus, but the Campus already exists with approximately 4.7 million square feet of industrial, office and R&D land uses. As indicated in Chapter 8 of this EIR, much of the East of 101 Area, including the Project site, has been in industrial or commercial uses since the late 1800s and early 1900s. Thus, the Project would occur on a site that has already been committed to long-term use for similar purposes.

Project construction would result in an irretrievable commitment of non-renewable resources including lumber, steel and other metals, sand and gravel, petrochemicals and water. On-going operations would result in an irretrievable commitment of resources necessary to generate fuel and electricity, as well as resources needed to manufacture products used during operations. However, as indicated in Chapter 18 of this EIR, the use of these materials would not be wasteful, inefficient or unnecessary.

As disclosed in Chapter 14 of this EIR, the routine use, transport and disposal of hazardous materials associated with the Project could potentially result in accidental spills, leaks, toxic releases, fire or explosion. The consequences of an accident or spill involving hazardous materials depend on the specific hazards associated with the material, the facility design and the availability of emergency response equipment. Within the Project, hazardous materials will be stored in laboratories and in designated secured areas designed to prevent accidental release to the environment. In the unlikely event of an accidental release, these small storage volumes limit potential consequences to the individual laboratory in which they are stored. For those employees that work with hazardous materials, the amount of hazardous materials that are handled at any one time is relatively small, reducing the potential consequences of an accident during handling. Major hazardous materials accidents are extremely infrequent. With implementation of fall regulatory requirements related to the use, transport and disposal of hazardous materials, the Project would not create a significant hazard to the public or a significant irreversible environmental change through reasonably foreseeable upset and accident conditions.

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References

Introduction

California, State of, *California Environmental Quality Act* (CEQA), Section 21000, et seq. of the California Public Resources Code
California, *CEQA Guidelines*, Sections 15000 through 15387 of the California Code of Regulations, Title 14, Chapter 3
South San Francisco, City of, Municipal Code, Chapter 20,260, Genentech Master Plan District
South San Francisco, Zoning Text and Map Amendments, May 16, 2013

Project Description

Genentech, 2015/206 Annual Report
Genentech, 2017 Annual Report
Nelson|Nygaard, *Genentech South San Francisco Campus, TDM and Parking Report*, April, 2017
Nelson|Nygaard, *Fall of 2017 Campus Mode Share and Parking Report*
South San Francisco, City of, accessed at: http://www.ssf.net/our-city/biotech/biotech-in-ssf
South San Francisco, *East of 101 Area Plan,* July 1994 (as amended)
South San Francisco, *Britannia East Grand Project EIR*, 2000
South San Francisco, Genentech Facilities Ten-Year Plan Master Plan, adopted April 28, 2007
South San Francisco, *2007 Genentech Corporate Facilities Master Plan Master EIR, 2007*

South San Francisco, Zoning Text and Map Amendments, May 16, 2013
South San Francisco, Resolution No. 84- 2007, Adopting the East of 101 Traffic Impact Fee Study Update and revising the City's Traffic Development Impact Fee within the East of 101 Area
South San Francisco, Resolution No. 71-84, Setting Policy for the Oyster Point Grade Separation Funding
South San Francisco, Municipal Code, Table 20.260.003(I): Genentech Growth and Development Projections

Aesthetics

Bay Area Conservation and Development Commission (BCDC), *San Francisco Bay Plan*, January 2008
South San Francisco, City of, *East of 101 Area Plan*, July 1994 (as amended)
South San Francisco, *General Plan*, 1999 (as amended)
South San Francisco, accessed at: http://www.ssf.net/our-city/biotech/biotech-in-ssf
South San Francisco, accessed at: http://www.ssf.net/home/showdocument?id=164
South San Francisco, Municipal Code, Chapter 20,260, Genentech Master Plan District

Air Quality

Bay Area Air Quality Management District (BAAQMD), *BAAQMD Guidance on CEQA Guidelines and Thresholds of Significance*, May 2017, accessed at: http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines
BAAQMD, 2005. Guidance for Calculating Maximum Hourly Toxic Air Contaminant Emission Rates. Available online at: http://www.baaqmd.gov/~/media/files/engineering/policy_and_procedures/hourlyemissionguidelines.pdf?la=en
BAAQMD, Air Quality Standards and Attainment Status, available at: http://www.baaqmd.gov/research-and-data/air-quality-measurement/ambient-air-monitoring-network
BAAQMD, *2017 Air Quality Summary Reports,* website accessed 9.26.18
BAAQMD, *Complex Permitting Handbook for BAAQMD New Source Review Permitting,* September 2016
Fehr & Peers, *Traffic Impact Analysis*, October 2018
Genentech, inputs for air quality and greenhouse gas analyses (**Appendix 6D**)
Ramboll, Air Quality Technical Appendix, October 2018 (**Appendix 6A**)
Ramboll, CalEEMod Output File for Construction (**Appendix 6B**)
Ramboll, CalEEMod Output File for Project Operations (**Appendix 6C**)
Ramboll, *Analysis of Potential Health Impacts from Criteria Pollutants,* May 2019 (**Appendix 6E**)

Biological Resources

California Department of Fish and Wildlife (CDFWG), *Staff Report on Burrowing Owl Mitigation*, March 7, 2012
CDFW, *Natural Community Conservation Planning* (NCCP), accessed Octber 207 at: https://www.wildlife.ca.gov/Conservation/Planning/NCCP
CDFW, California Natural Diversity Data Base, Rarefind 5, Biogeographic Data Branch, accessed May 2017 at: http://map.dfg.ca.gov/rarefind/view/RareFind.aspx.
Chromczak, D., L. Trulio, and P. G. Higgins, Winter burrowing owl banding project, Natural Community Conservation Planning Local Assistance Grant, Grant Agreement Number P1382111
H. T. Harvey & Associates, *San Bruno Channel Project Pedestrian Bridge California Clapper Rail Surveys*, Project 1810-04, 2009
H.T. Harvey and Associates, Biological Constraints and Opportunities Report, September 2016

H.T. Harvey and Associates, Memorandum regarding the Special-Status Plant Survey and Drainage Ditch Evaluation, July 2017

San Francisco, City of, *Standards for Bird-Safe Buildings*. San Francisco Planning Department, adopted 14 July 2011

Sequoia Audubon Society, *San Mateo County Breeding Bird Atlas*, 2001

South San Francisco, City of, *Genentech Research & Development Overlay District Expansion and Master Plan Update, Draft Supplemental Master EIR*, August 2012

South San Francisco, *Master EIR for Genentech Corporate Facilities, Research & Development Overlay District Expansion and Master Plan Update*, Draft EIR, August 2006

Cultural Resources

Atkins North America Inc., letter to Mr. Gerry Beaudin, South San Francisco Department of Economic and Community Development - Planning Division, Summary of California Historical Resources Information System Records Search for the update to the Master Plan EIR for the Genentech Corporate Facilities Research & Development Overlay District Expansion and Master Plan, December 15, 2011

California Historical Resources Information System (CHRIS) Inventory, Northwest Information Center, Sonoma State University, *Record Search Results for the Proposed Genentech Corporate Campus 10-Year Master Plan*, April 23, 2018

Fredricks, Darold, Rediscovering the Peninsula, article in the San Mateo Daily Journal accessed at: https://www.smdailyjournal.com/news/local/south-city-s-interesting-beginning/article_ba83387b-ae95-5fbf-8ec6-6392d50d3964.html

South San Francisco, City of, *Master EIR for Genentech Corporate Facilities, Research & Development Overlay District Expansion and Master Plan Update, Draft EIR*, prepared by EIP. August 2006

South San Francisco, *Supplemental Master EIR for Genentech Research & Development Overlay District Expansion and Master Plan Update, Final SMEIR*, prepared by Atkins. October 2012

South San Francisco, *Britannia East Grand Project EIR*, 2002

South San Francisco, South San Francisco Municipal Code, Chapter 15.08, Signature Report accessed November 14, 2016 at: http://www.ssf.net/documentcenter/view/14621

Geology and Soils

Association of Bay Area Governments (ABAG) Resilience Program

ABAG, http://gis.abag.ca.gov/website/Hazards/?hlyr=liqSusceptibility, accessed August 2018

ABAG, http://gis.abag.ca.gov/website/Hazards/?hlyr=northSanAndreas, accessed August 2018

California Water Resources Control Board (WRCB), General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, National Pollutant Discharge Elimination System No. CAS000002

South San Francisco, City of, *General Plan*

South San Francisco, *East of 101 Area Plan*

South San Francisco, *Master EIR for Genentech Corporate Facilities, Research & Development Overlay District Expansion and Master Plan Update, Draft EIR*, August 2006

United States Geological Survey (USGS), *A New Earthquake Forecast for California's Complex Fault System*, March 2015, accessed November 23, 2016 at: http://pubs.usgs.gov/fs/2015/3009/pdf/fs2015-3009.pdf

USGS, Geologic Map of the San Francisco South 7.5' Quadrangle and Part of the Hunters Point Quadrangle, San Francisco Bay Area, 1998

Greenhouse Gas Emissions and Climate Change

Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), *Plan Bay Area 2040*, 2018

Bay Area Air Quality Management District (BAAQMD), *Greenhouse Gas Emission Estimates and Draft Forecasts*, DRAFT v2017-Q1, March 2017

BAAQMD, *BAAQMD Guidance on CEQA Guidelines and Thresholds of Significance, M*ay 2017, accessed at: http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

BAAQMD, accessed at http://www.baaqmd.gov/plans-and-climate/climate-protection/local-government-support

California Air Pollution Control Officers Association (CAPCOA), 2016, California Emissions Estimator Model (CalEEMod®), available online at: http://www.caleemod.com/

California Air Resource Board (CARB), *AB 32 Scoping Plan*, accessed at: https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm

CARB, Cap and Trade Program, accessed at https://www.arb.ca.gov/cc/capandtrade/capandtrade.htm

CARB,. Mobile Source Emission Inventory - EMFAC2014, available at: https://www.arb.ca.gov/msei/categories.htm#onroad_motor_vehicles

California Climate Action Team (CCAT), *Report to Governor Schwarzenegger and the California Legislature*, April 2006

CCAT, *State of California Climate Action Team Biennial Report*, 2009

California Energy Commission, *Initial Study / Proposed Negative Declaration For The 2016 Building Energy Efficiency Standards For Residential And Nonresidential Buildings*, February 2015 accessed at : www.energy.ca.gov/2015publications/CEC-400-2015-012/CEC-400-2015-012.pdf

California Legislative Analyst's Office, *The 2017-18 Budget: Cap-and-Trade*, February 2017, accessed at www.lao.ca.gov/reports/2017/3553/cap-and-trade-021317.pdf

California Natural Resources Agency, *2009 California Climate Adaptation Strategy:* A Report to the Governor of the State of California in Response to Executive Order S-13-2008, 2009, accessed at: http://www.climatechange.ca.gov/adaptation/strategy/index.html

California Ocean Protection Council (OPC) Science Advisory Team Working Group, Griggs, G, Árvai, J, Cayan, D, DeConto, R, Fox, J, Fricker, HA, Kopp, RE, Tebaldi, C, Whiteman, EA, *Rising Seas in California: An Update on Sea-Level Rise Science*, California Ocean Science Trust, April 2017, accessed at: http://www.opc.ca.gov/webmaster/ftp/pdf/docs/rising-seas-in-california-an-update-on-sea-level-rise-science.pdf

OPC, State of California Sea-Level Rise Guidance Document, accessed at: http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/

Climate Action Rserve, accessed at: http://www.climateactionreserve.org/ceqa-mitigation-registry/

CoolCalifornia.org, *Local Government Toolkit*, accessed at: http://www.coolcalifornia.org/local-government

Federal Register, Volume 81, No. 206 / Tuesday, October 25, 2016 / Rules and Regulations

Genentech, *Genentech 2007 Corporate Sustainability Report*, July 2008

Genentech, *Sustainability Goals and Performance*, accessed at: https://www.gene.com/good/sustainability/goals-and-performance

Genentech, *Annual Report for 2017*, *Attachment 1,* South San Francisco Campus Mode Share and Parking Report, Fall 2016 Survey, prepared by Nelson|Nygaard, May 2017

Office of the President of the United States, accessed at https://www.whitehouse.gov/presidential-actions/presidential-executive-order-promoting-energy-independence-economic-growth/

International Council for Local Environmental Initiatives (ICLEI) - Local Governments for Sustainability USA, and City of South San Francisco, Government Operations Greenhouse Gas Emissions

Inventory, accessed at http://ca-southsanfrancisco.civicplus.co/DocumentsCenter/Home/View/2473

International Panel on Climate Change (IPCC), *Climate Change 2014: Synthesis Report*, Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)], Geneva, Switzerland, accessed at http://www.ipcc.ch/report/ar5/syr/

Ramboll Environ, Greenhouse Gas Technical Appendix, October 2018

Ramboll Environ, GHG Construction Period GHG Emissions Estimates, CalEEmod Version: CalEEMod.2016.3 (Appendix 10B)

South San Francisco, City of, *South San Francisco Climate Action Plan* (CAP), February 2014

US EPA, *Overview of Greenhouse Gases*, accessed at: https://www.epa.gov/ghgemissions/overview-greenhouse-gases

Hazards and Hazardous Materials

California Department of Toxic Substances Control (DTSC), DTSC EnviroStor database, accessed at: https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=80001530

California Water recources Control Board (SWRCB)/Regional Water Quality Control Board (RWQCB), GeoTracker database, accessed at: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL18341761

Environmental Data Resources, Inc. (EDR), Database Search Report, December 2017

South San Francisco, City of, *Genentech Facilities Master Plan EIR*, 2007

Hydrology and Water Quality

Ackerly, David, Andrew Jones, Mark Stacey, Bruce Riordan. (University of California, Berkeley), 2018, *San Francisco Bay Area Summary Report, California's Fourth Climate Change Assessment*, Publication number: CCCA4-SUM-2018-005

California Department of Water Resources, *Bulletin 118 – Update Westside Groundwater Basin,* 2003

California Regional Water Quality Control Board, *San Francisco Bay Region (RWQCB), Municipal Regional Stormwater NPDES Permit*, Order #R2-2015-0049, NPDES Permit No. CAS612008

RWQCB, *Section 303(d) and Section 305(b) Integrated Report*, April 12, 2017

California Water Service, *2015 Urban Water Management Plan, South San Francisco District*, June 2016

California Water Service, *SB 610 Water Supply Assessment for the Genentech Master Plan Update*, November 21, 2017

Daly City, City of, *Stormwater Pollution Prevention Program*, 1998

Federal Emergency Management Agency (FEMA) Flood Map Service Center - Website accessed September 27, 2017, at: https://msc.fema.gov/portal/

Griggs, G, Árvai, J, Cayan, D, DeConto, R, Fox, J, Fricker, HA, Kopp, RE, Tebaldi, C, Whiteman, EA (California Ocean Protection Council Science Advisory Team Working Group). *Rising Seas in California: An Update on Sea-Level Rise Science*. California Ocean Science Trust, April 2017. Available online at: http://www.opc.ca.gov/webmaster/ftp/pdf/docs/rising-seas-in-california-an-update-on-sea-level-rise-science.pdf

Griggs, et.al., California Ocean Science Trust, *Rising Seas in California: An Update on Sea-Level Rise Science*, April 2017, Table 1b, page 26

San Francisco Bay Conservation and Development Commission (BCDC), *Adapting to Rising Tides, Bay Area Sea Level Rise Analysis and Mapping*, in collaboration with MTC and AECOM, page 11, accessed at: http://www.adaptingtorisingtides.org

San Mateo, County of, San Mateo County Hazards, Dam Failure Inundation Areas - Website accessed October 2, 2017 at: http://planning.smcgov.org/documents/san-mateo-county-hazards-dam-failure-inundation-areas

San Mateo Countywide Water Pollution Prevention Program, accessed at: http://www.flowstobay.org/newdevelopment#hydromod
South San Francisco, City of , *East of 101 Area Plan*, 1994
South San Francisco, *General Plan*, 1999
South San Francisco, Municipal Code, Section 15.56
U.S. Geological Survey, San Francisco South Quadrangle, California, 7.5 Minute Series (Topographic) 1980
Western Regional Climate Center, Weather Station: San Francisco WSO AP, California (047769) - Website accessed September 27, 2017, at: https://wrcc.dri.edu/Climate/west_coop_summaries.php

Land Use and Planning

City/County Association of Governments of San Mateo County (CCAG), C*omprehensive Airport Land Use Compatibility Plan (ALUCP) for the Environs of San Francisco International Airport*, November 2012
BCDC, *Bay Plan* amendments, 2017, accssed at: http://www.bcdc.ca.gov/planning/
Genentech, 2017 Annual Report
San Francisco Bay Conservation and Development Commission (BCDC), *San Francisco Bay Plan*, 2012
South San Francisco, City of, *General Plan Land Use Element and Economic Development Element*, 1994
South San Francisco, *East of 101 Area Plan*, 1994 and as updated February 2016
South San Francisco Municipal Code, Chapter 20: Zoning. Section 20.260 establishing the Genentech Master Plan Zoning Distric
South San Francisco, accessed at: http://www.ssf.net/our-city/biotech/biotech-in-ssf

Noise

California Department of Transportation (Caltrans), *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013
California Governor's Office of Planning and Research, *State of California General Plan Guidelines, Appendix C (Guidelines for the Preparation and Content of the Noise Element of the General Plan),* 2003
City/County Association of Governments of San Mateo County (CCAG), C*omprehensive Airport Land Use Compatibility Plan (ALUCP) for the Environs of San Francisco International Airport*, November 2012
Federal Highway Administration, (FHWA), Typical Construction Equipment Maximum Noise Levels, 2006
Fehr & Peers, *Draft Transportation Impact Assessment*, January 2017
Harris, Miller, Miller & Hanson, Inc., *Transit Noise and Vibration Impact, Final Assessment*, 2006
Harris, et.al., *Handbook of Acoustical Measurements and Noise Control*, 1998
RGD Acoustics, *Traffic Noise Impact Analysis*, August 2017 and as updated June 13, 2018
South San Francisco, City of, *General Plan Noise Element*, 1999
South San Francisco, *East of 101 Area Plan*, 1994 and as updated February 2016
South San Francisco, Municipal Code Chapter 8.32, Noise Ordinance

Public Services

San Francisco Bay Conservation and Development Commission (BCDC), *San Francisco Bay Plan*, 2012
BCDC, Permit #s 18-74(A) and 18-74(B) as amended through December 2009, and Permit #MO5-9 as of 2006
South San Francisco, City of, *General Plan*
South San Francisco, *East of 101 Area Plan*
South San Francisco, *Municipal Services Assessment, Draft Existing Conditions and Needs Assessment Report* (prepared for 2017 Oyster Point Specific Plan Update), November 2017

South San Francisco, S*ubsequent EIR for the Community Civic Campus Project*, (SCH# 1996032052), December 2017

Transportation/Traffic

California Office of Planning and Research (OPR), *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA*, January 2016

Fehr and Peers, *Genentech Master Plan Update, Transportation Impact Assessment* (TIA), August 2019

Metropolitan Transportation Commission (MTC), Travel Demand Model ("Travel Model One") transportation mode

Nelson|Nygaard, *Genentech Campus Mode Share and Parking Report,* , Fall 2017

South San Francisco, City of, *2007 Genentech Campus Master Plan MEIR*, buildout per Table 3-1, AM trip rate per Table 4.7-11

South San Francisco, *Britannia East Grand Project EIR*, 2002, Table 6.9

South San Francisco ,Traffic Model, July 2018

South San Francisco, *General Plan Transportation Element*

Transportation Research Board, 2010 Highway Capacity Manual – Special Report 209

Utilities

California, State of, California Department of Resources Recycling and Recovery, Solid Waste Information System, accessed October 11, 2017 at: http://www.calrecycle.ca.gov/SWFacilities/Directory/Search.aspx

California, State Water Resources Control Board (WRCB), *General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities*, Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, National Pollutant Discharge Elimination System No. CAS000002

California, Department of Resources Recycling and Recovery (CalRecycle), Permit Concurrence for Modified Solid Waste Facility Permit - Facility No. 41-AA-0002, June 2017

California, CalRecycle, accessed at: https://www2.calrecycle.ca.gov/LGCentral/DiversionProgram/JurisdictionDiversionPost2006

California Water Service (CalWater), *SB 610 Water Supply Assessment for the Genentech Master Plan Update*, November 21, 2017

Cal Water, Rule No. 16: Service Connections, Meters, and Customer's Facilities

Carollo Engineers, *South San Francisco/San Bruno Water Quality Control Plant Facility Plan Update*, April 2011

Genentech, existing water demands by building type, 2017

Michael Baker International, *2017 Oyster Point Specific Plan Update - Municipal Services Assessment*, November 2017

Peninsula Clean Energy, *2018 Integrated Resource Plan*, accessed at: https://www.peninsulacleanenergy.com/our-power/integrated-resource-plan/

San Francisco Bay Regional Water Control Board, Order #R2-2014-0012 (NPDES Permit #CA0038130), April 9, 2014

San Mateo, County of, *Countywide Integrated Waste Management Plan*, Multi-Jurisdiction Non-Disposal Facility Element (NDFE), draft June 2010 amendment, accessed at: http://www.recycleworks.org/pdf/multi_jurisdictional_NDFE.pdf

South San Francisco, City of, *Sewer System Management Plan* (SSMP), June 2014 (revised), accessed at: http://www.ssf.net/home/showdocument?id=824

South San Francisco, *South San Francisco/San Bruno Water Quality Control Plant Facility Plan Update*, April, 2011, accessed at: http://www.ssf.net/home/showdocument?id=1330

South San Francisco, accessed at: http://www.ssf.net/departments/public-works/water-quality-control-plant/treatment-process
U.S. EPA, Office of Water, *Industrial User Permitting Guidance Manual*, 833-R-12-001A, September 2012
Wilsey and Ham, *Genentech Campus-wide Water and Sewer System Capacity Summary*, 2017