THE LINCOLN CENTRE LIFE SCIENCES RESEARCH CAMPUS PROJECT

Draft Environmental Impact Report

Case No. EA-14-007
State Clearinghouse No. 2014092049

Prepared for:

City of Foster City

April 2015

URBAN PLANNING PARTNERS INC.

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By:

Urban Planning Partners, Inc.
505 17th Street, 2nd Floor
Oakland, CA 94612

With:

BASELINE Environmental Consulting
ENVIRON
Fehr & Peers
Huffman-Broadway Group, Inc.
LSA Associates, Inc.
Andrew McNichol

April 2015

URBAN PLANNING PARTNERS INC.

NOTICE OF AVAILABILITY
CITY OF FOSTER CITY
LINCOLN CENTRE LIFE SCIENCES RESEARCH CAMPUS
DRAFT ENVIRONMENTAL IMPACT REPORT AND
PUBLIC HEARING – JUNE 4, 2015

State Clearinghouse # 2014092049

NOTICE IS HEREBY GIVEN that the City of Foster City, as Lead Agency, has completed a Draft Environmental Impact Report (DEIR) for the Lincoln Centre Life Sciences Research Campus.

PUBLIC HEARING: The Planning Commission is scheduled to receive public comments on the DEIR on **June 4, 2015, at 7:00 p.m**. at Foster City Council Chambers, located at 620 Foster City Boulevard.

PUBLIC REVIEW TIMELINE: The public review period for the DEIR begins **April 24, 2015 and ends June 8, 2015**. The City must receive all written comments regarding the adequacy of the DEIR within this time period. Written comments may be submitted in person, by mail, by e-mail, or by fax. The mailing address is 610 Foster City Boulevard, Foster City, California 94404, the email address is cviolet@fostercity.org and the fax number is (650) 286-3589. Direct all comments to the attention of Carla Violet, Consultant Planner.

DOCUMENT AVAILABILITY: Copies of the DEIR are available for review Monday through Friday, between the hours of 8:00 a.m. and 5:00 p.m., at the City of Foster City City Hall, Community Development Department, 610 Foster City Boulevard, Foster City, California, 94404, except on specified holidays. The DEIR is also available at the Foster City Public Library, at 1000 East Hillsdale Boulevard, and online, at http://www.fostercity.org/.

PROJECT LOCATION: Approximately 200 through 850 Lincoln Centre Drive - (APNs: 094-532-170; 094-532-180; 094-532-190; 094-532-200; 094-532-250), the approximately 20-acre project site is bounded by East 3rd Avenue to the north; Highway 92 (San Mateo Bridge approach) to the south; the Foster City lagoon outflow channel to the west; and a parking lot and office buildings to the east. Figure 1 depicts the location of the project site.

PROJECT DESCRIPTION: The proposed project would develop an approximately 20-acre site that includes 19 acres owned by BMR-Lincoln Centre LP and 1 acre currently occupied by the public right of way for the terminus of Lincoln Centre Drive. The project proposes a biomedical and life sciences research facility in a campus-like development. Key project components include 555,000 square feet of laboratory and office space housed in three buildings and a 40,000 square feet building to house amenities for employees and visitors. Of the proposed 555,000 square feet of gross floor area, a maximum of 388,500 (70 percent) would be used for office space and the remaining 166,5000 square feet (30 percent) would be for laboratory use.

SIGNIFICANT ANTICIPATED ENVIRONMENTAL EFFECTS: The DEIR provides an evaluation of the potential environmental impacts of the proposed project and recommends mitigation measures to reduce impacts to a less-than-significant level. With the implementation of the proposed mitigation measures, no significant impacts would result with implementation of the proposed project, except for the following impacts:

- Traffic and Transportation, related to the increase in vehicle delay and vehicle trips at the following three signalized intersections and one freeway segment:
  - Foster City Boulevard/Chess Drive under Existing Plus Project Conditions, Background Conditions, and Cumulative Conditions;
  - Norfolk Street/East 3rd Avenue under Background Conditions and Cumulative Conditions;
  - SR 92 Eastbound Ramps/Metro Center Boulevard under Background Plus Project Conditions and Cumulative Plus Project Conditions;
  - Eastbound SR 92, east of Foster City Boulevard under Existing Plus Project Conditions, Background Conditions, and Cumulative Conditions.

These impacts would remain significant and unavoidable, since the mitigation measures identified in the DEIR would not reduce these impacts to a less-than-significant level. The project site is not listed on any of the lists of hazardous materials sites enumerated under Section 65962.5 of the Government Code.

QUESTIONS: If you have any questions about this project, please contact Carla Violet, Consultant Planner at (650) 286-3238 or cviolet@fostercity.org.

Figure 1: Project Site for Lincoln Centre Life Sciences Research Campus

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I. INTRODUCTION

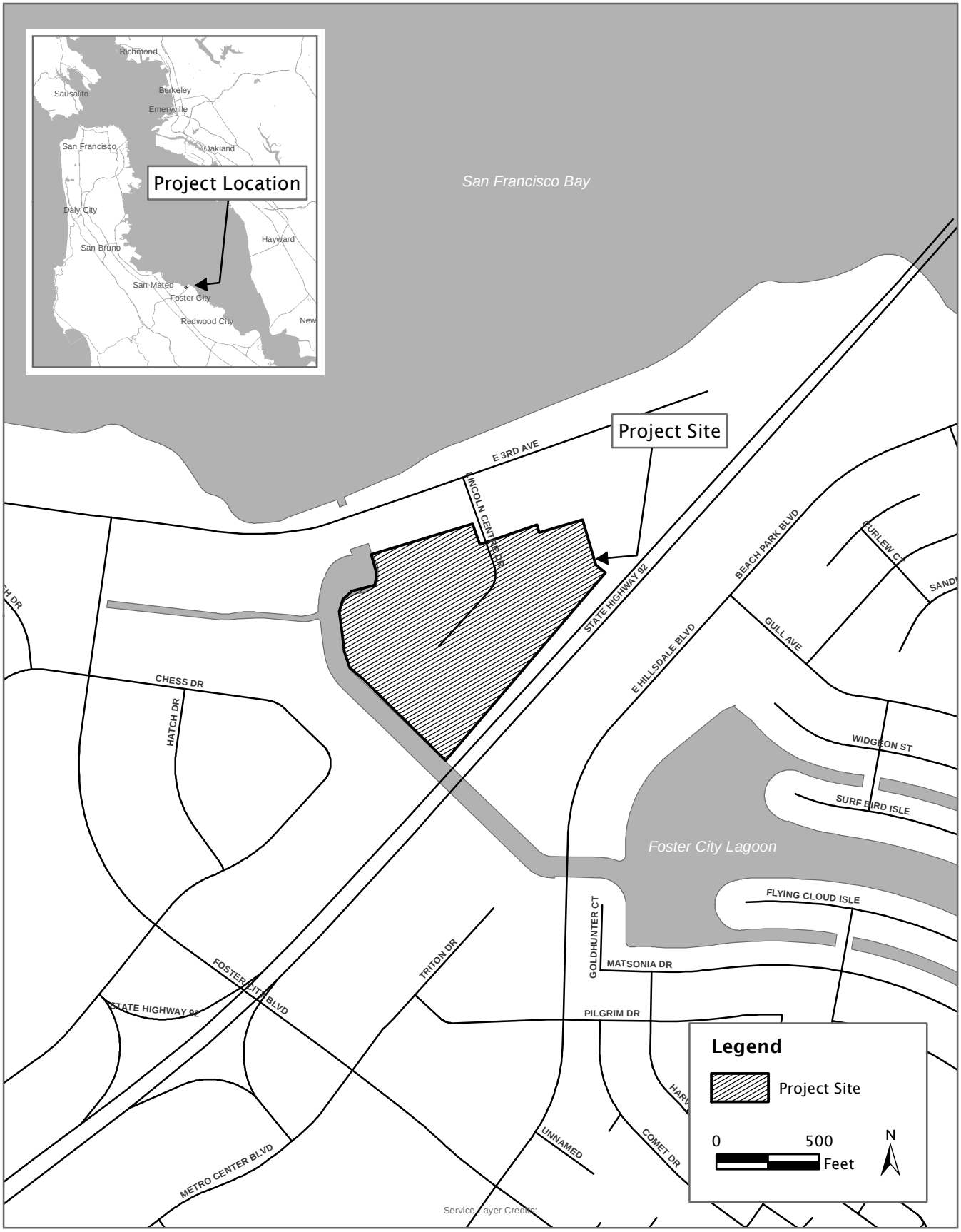
A. PURPOSE OF THE EIR

This Draft Environmental Impact Report (EIR) describes the environmental impacts of the proposed Lincoln Centre Life Sciences Research Campus Project (the project). The intent of this EIR is to inform City staff, the Planning Commission, City Council and other responsible and interested agencies, and the general public of the proposed project and its potential adverse environmental impacts, recommend Standard Conditions of Approval and mitigation measures to lessen or avoid significant adverse impacts, and consider a reasonable range of feasible alternatives to the project. The information contained in the EIR will be reviewed and considered by public agencies prior to making a decision about the proposed project.

The City of Foster City (City) is the lead agency for environmental review of the proposed project. The Draft EIR is available for public review for the period identified in the Notice of Availability attached to the front of this document. During this time, written comments on the Draft EIR may be submitted to the City of Foster City, Community Development Department at the address indicated on the Notice of Availability. Responses to all comments received on the Draft EIR during the specified review period will be included in the Response to Comments Document/Final EIR.

B. PROPOSED PROJECT

The project site includes redevelopment of the 20-acre portion of the 25.9-acre Lincoln Centre Campus site located at approximately 200 through 850 Lincoln Centre Drive, in northeastern Foster City. The project site is the portion of the Lincoln Centre Campus that was previously developed with seven buildings occupied by Life Technologies. The seven buildings were recently demolished. It is bounded by East 3rd Avenue to the north, the San Mateo Bridge approach of California State Route 92 (SR 92) to the south, the Foster City lagoon outflow channel to the west, and the adjoining Bayside Towers office buildings and parking lot at 4000/4100 East 3rd Avenue to the east (see Figure I-1). Approximately 1 acre of the site is occupied by the publicly-owned right-of-way for the terminus of Lincoln Centre Drive. The remaining acreage is privately owned by the project applicant, BMR-Lincoln Centre LP.



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Source: Urban Planning Partners, Inc. 2015

Figure I-1
Lincoln Centre Life Sciences Research Campus Project EIR
Project Vicinity and Regional Location Map

The project would create a new biomedical and life sciences research facility in a campus-like development. It would include four new buildings ranging from two to seven stories and totaling up to 595,000 gross square feet of floor space. Three of the buildings, or 555,000 square feet, would be devoted to office and laboratory space. A maximum of 70 percent (388,500 square feet) of this space would be for office and the remaining 30 percent (166,500 square feet) would be for laboratory/ research space. The fourth building, with 40,000 square feet is proposed for employee and visitor amenities.

The project would also include shared outdoor spaces with various recreational amenities, three open-air parking structures with up to five levels of parking each, and an on-site circulation system composed of an external loop road connected to an interior access roadway.

C. NOTICE OF PREPARATION/EIR SCOPE

The City circulated a Notice of Preparation (NOP) that briefly described the proposed project and the environmental topics that would be evaluated in the EIR. The NOP was initially published and submitted to the State Clearinghouse on September 12, 2014 and then revised on October 6, 2014 with minor updates to the proposed title, project acreage, project description, and an increase in the amount of off-street parking spaces.

The 30-day public comment period for the scope of the EIR lasted from October 7, 2014, to November 6, 2014. The public was advised of the revised NOP and the public scoping session in the following ways: published notices in the Foster City Islander; posted on Foster City website; televised on Foster City TV Channel 27; posted in public noticing locations; posted on electronic marquee at Leo J. Ryan Park; posted on-site; mailed notices to property owners who own property within a 1,000-foot radius; and emailed to the project applicants, owners, and persons who expressed interest in receiving project updates.

The revised NOP was sent to the State Clearinghouse. It was also distributed to responsible and trustee agencies, organizations, and interested individuals.

One public scoping session was held for the project in conjunction with the Planning Commission meeting on November 6, 2014. Comments received by the City on the NOP at the public scoping meeting were taken into account during the preparation of the EIR. No members of the public provided any written or verbal comments. NOP comments were received from the Department of Transportation (Caltrans) and the City/County Association of San Mateo County (C/CAG). Comments from Caltrans stressed the importance of completing a Transportation Impact Study, and listed the key elements of such a study. Caltrans also reminded Foster City that as lead agency,

all project mitigation is the City's responsibility. Comments from the C/CAG also focused on transportation issues. That agency listed suggestions for assessing whether the proposed project complies with the San Mateo County Congestion Management Program. The NOP is included in Appendix A of this document, as are written comments received by the City on the NOP.

The following environmental topics are addressed in this EIR:

A. Land Use
B. Aesthetics and Shade and Shadow
C. Traffic and Transportation
D. Air Quality
E. Geology and Soils
F. Greenhouse Gas Emissions
G. Hazards and Hazardous Materials
H. Hydrology and Water Quality
I. Noise
J. Public Services, Utilities, and Recreation

Environmental topics not warranting detailed evaluation (agriculture and forestry resources, biological resources, cultural resources, population and housing, and mineral resources) are discussed in *Chapter VII, CEQA Required Assessment Conclusions,* subsection D, Effects Found Not to be Significant.

Chapter IV, Planning Policy, provides a discussion of the proposed project's relationship with applicable planning-related policies. This discussion is provided in a standalone chapter of this EIR, since a policy conflict is not in and of itself considered a significant environmental impact under the California Environmental Quality Act (CEQA).

D. REPORT ORGANIZATION

This EIR is organized into the following chapters:

- *Chapter I – Introduction*: Discusses the overall EIR purpose; provides a summary of the proposed project; describes the EIR scope; and summarizes the organization of the EIR.
- *Chapter II – Summary:* Provides a summary of the impacts that would result from implementation of the proposed project and describes Standard Conditions of Approval and mitigation measures recommended to avoid or reduce significant impacts; areas of known controversy; and a description of the project alternatives.

- *Chapter III – Project Description:* Provides a description of the project objectives, project site, site development history, the proposed development, and required approval process.
- *Chapter IV – Planning Policy:* Lists relevant planning policies and describes the project's relationship to each policy.
- *Chapter V – Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures:* Describes the following for each environmental topic: existing conditions (setting), Standard Conditions of Approval, significance criteria, potential environmental impacts and their level of significance, Standard Conditions of Approval relied upon to ensure significant impacts would not occur, and mitigation measures recommended to mitigate identified significant impacts. Cumulative impacts are also discussed in each technical topic section. Potential adverse impacts are identified by levels of significance, as follows: less-than-significant impact (LTS), significant impact (S), and significant and unavoidable impact (SU). The significance level is identified for each impact before and after implementation of the recommended Standard Conditions of Approval or mitigation measure(s).
- *Chapter VI – Alternatives:* Provides an evaluation of three alternatives to the proposed project. The alternatives include the No Project/No Build Alternative, the Current Entitlement Alternative, and the Reduced Project Alternative.
- *Chapter VII – CEQA Required Assessment Conclusions:* Provides the required analysis of effects found not to be significant; growth-inducing impacts; unavoidable significant effects; and significant irreversible changes.
- *Chapter VIII – Report Preparation*: Identifies preparers of the EIR, references used, and the persons and organizations contacted.
- *Appendices:* Includes the NOP and written comments submitted on the NOP; Preliminary Shade Studies, Traffic Impact Study, Air Quality and Greenhouse Gas Emissions, a Biological Evaluation Study, a Cultural Resources Memorandum, and the Water Supply Assessment.

All supporting technical documents and reference documents are available for public review at the City of Foster City Community Development Department.

II. SUMMARY

A. OVERVIEW OF PROPOSED PROJECT

This EIR has been prepared to evaluate the potential environmental effects of the proposed Lincoln Centre Life Sciences Research Campus Project (the project). The project site is located at approximately 200 through 850 Lincoln Centre Drive, on the northeastern edge of Foster City. The project site is approximately 20 acres, 19 acres owned by BMR-Lincoln Centre LP and 1 acre currently occupied by the public right of way for the terminus of Lincoln Centre Drive.

The project seeks to create a new biomedical and life sciences research facility in a campus-like development. The project would include four new buildings ranging in height from 41 feet to 124 feet (including the roof screen). Key elements of the project include:

- Three buildings with up to 555,000 square feet of laboratory and office space:
- Up to 388,500 square feet of office space
- Up to 166,500 square feet of laboratory space
- One building with up to 40,000 square feet of employee and visitor amenities
- Three parking structures of up to five levels (one ground level and up to four stories above ground level)

The site is bounded by East 3rd Avenue and the Foster City Corporation Yard to the north; the San Mateo Bridge approach of SR 92 to the south; the Foster City lagoon outflow channel to the west; and the adjoining Bayside Towers office buildings and parking lot at 4000/4100 East 3rd Avenue to the east. The site is level and includes building pads, surface parking, driveways, landscaped islands, and access roadways left from previous uses.

B. SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

This summary provides an overview of the analysis contained in *Chapters V.* through *VII* of this EIR. CEQA requires a summary to include discussion of: (1) potential areas of controversy; (2) significant impacts and proposed mitigation measures (Standard Conditions of Approval (SCOAs) are also included in this summary); (3) cumulative impacts; (4) significant irreversible and unavoidable impacts; and (5) alternatives to the proposed project. Each of these topics is summarized below.

1. Potential Areas of Controversy

No areas of substantial controversy regarding the project were raised in letters or verbal comments received in response to the initial Notice of Preparation (NOP) dated September 12, 2014 or the final NOP published on October 6, 2014. NOP comments were received from two State of California agencies: the Department of Transportation (Caltrans) and the City/County Association of San Mateo County (C/CAG). Comments from the Department of Transportation encouraged the City to coordinate the preparation of a Transportation Impact Study with Caltrans. Comments from Caltrans stressed the importance of completing a Transportation Impact Study, and listed the key elements of such a study. Caltrans also reminded Foster City that as lead agency, all project mitigation is the City's responsibility. Comments from the C/CAG also focused on transportation issues. That agency listed suggestions for assessing whether the proposed project complies with the San Mateo County Congestion Management Program.

No members of the public provided any written or verbal comments at the Planning Commission hearing on November 6, 2014.

These issues were taken into consideration in the scope of this project and are addressed in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures.*

2. Significant and Significant Unavoidable Impacts

Under CEQA, a significant impact on the environment is defined 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."[1]

As discussed in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures*, and shown in Table II-1 below, the project would result in several potentially significant impacts. The majority of the impacts identified would be mitigated to a less-than-significant level with implementation of the identified SCOAs and/or the recommended mitigation measures; however, ten of the identified transportation impacts at three intersections and one freeway segment may be significant and unavoidable as described below (also see impacts identified as SU in Table II-1).

- Traffic and Transportation, related to the increase in vehicle delay and vehicle trips at the following three signalized intersections and one freeway segment:

[1] California Code of Regulations, Title 14, Section 15382.; Public Resources Code 21068.

- Foster City Boulevard/Chess Drive under Existing Plus Project Conditions, Background Conditions, and Cumulative Conditions;
- Norfolk Street/East 3rd Avenue under Background Conditions and Cumulative Conditions;
- SR 92 Eastbound Ramps/Metro Center Boulevard under Background Plus Project Conditions and Cumulative Plus Project Conditions;
- Eastbound SR 92, east of Foster City Boulevard under Existing Plus Project Conditions, Background Conditions, and Cumulative Conditions.

The potentially significant impacts that could be mitigated to a less-than-significant level with implementation of City SCOAs and/or recommended mitigation measures are identified for the following topics and are evaluated in full detail in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures*, of this EIR:

- Aesthetics and Shade and Shadow
- Traffic and Transportation
- Air Quality
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality

Impacts are anticipated to be less than significant for all other environmental topics.

Cumulative impacts are discussed at the end of each topic section in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures*. The proposed project would only significantly contribute to significant cumulative impacts at the signalized intersections of Norfolk Street/East 3rd Avenue and SR 92 Eastbound Ramps/Metro Center Boulevard.

3. Alternatives to the Proposed Project

Chapter VI, Alternatives, includes analysis of three alternatives to the proposed project to meet the CEQA requirements for analysis of a reasonable range of project alternatives. The three project alternatives analyzed in Chapter VI include:

- The **No Project/No Build Alternative**, which assumes the project would not be developed. The existing site would remain vacant and undeveloped with no new development on the project site.
- The **Current Entitlement Alternative** which assumes development of the seven buildings allowed under the current General Development Plan approved in 1980 and amended in 1981.

- The **Reduced Project Alternative**, which assumes only a portion of the proposed project would be developed.

C. SUMMARY TABLE

Information in Table II-1, Summary of Impacts, Standard Conditions of Approval, and Mitigation Measures, has been organized to correspond with environmental issues discussed in *Chapter V*. The table is arranged in four columns: (1) impacts; (2) level of significance prior to mitigation; (3) required SCOA and/or recommended mitigation measure; and (4) level of significance after mitigation. Levels of significance are categorized as follows: LTS =Less Than Significant, S =Significant and SU =Significant and Unavoidable. A series of SCOAs and/or mitigation measures is noted where more than one mitigation measure is required to achieve a less-than-significant impact, and alternative mitigation measures are identified when available. For a complete description of potential impacts and recommended SCOAs and/or mitigation measures, please refer to the specific discussions in *Chapter V.*

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
A. LAND USE			
Implementation of the proposed project would not result in any significant land use impacts.			
B. AESTHETICS AND SHADE AND SHADOW			
No significant impacts to aesthetics and shade and shadow would occur with implementation of the City SCOAs listed in this table.	LTS	**SCOA 8.2:** An exterior lighting plan including fixture and standard design, coverage and intensity, to be reviewed and approved by the Community Development Department and the Police Department. In its review of the lighting plan, the City shall ensure that any outdoor night lighting proposed for the project is downward-facing, and shielded so as to minimize nighttime glare and lessen impacts to neighboring properties. The City shall also ensure that all development plans for the proposed project conform to the performance standards provided under Section 17.68.080 of the Foster City Municipal Code.	LTS
C. TRAFFIC AND TRANSPORTATION			
TRANS-1: The addition of project traffic would worsen operations at the side-street stop sign-controlled intersection of Lincoln Centre Drive/East 3rd Avenue from acceptable LOS B to unacceptable LOS F in the PM peak hour under Existing Plus Project Conditions. Traffic volumes during the PM peak hour would meet the peak hour volume traffic signal warrant criteria contained in the *Manual on Uniform Traffic Control Devices*, 2003 Edition.	S	TRANS-1: The project sponsor shall be responsible for the installation of a traffic signal at Lincoln Centre Drive/East 3rd Avenue. The signalization of this intersection would improve traffic operations to acceptable LOS B in the PM peak hour, and this impact would be reduced to a less-than-significant level. The traffic signal shall include marked crosswalks with pedestrian signal heads and curb ramps on all approaches. The timing of the signal installation would be based on the completion of traffic engineering studies, including an analysis of all applicable traffic signal warrants, to be approved by the City of Foster City Public Works Department.	LTS
TRANS-2: The addition of project traffic would worsen operations at the signalized intersection of Foster City Boulevard/Chess Drive from LOS E to LOS F in the PM peak hour under Existing Plus Project Conditions.	S	TRANS-2: The project sponsor shall be responsible for the following mitigation measures, which are shown on Figure V.C-9: ▪ The project sponsor shall contribute their fair share for the addition of a second right-turn lane on southbound Foster City Boulevard at Metro Center Drive. The additional southbound right-turn lane is currently under consideration for implementation by the City of Foster City to reduce queuing from the SR 92 eastbound on-ramp to southbound Foster City. However, a portion of the land needed to add the right-turn lane may be owned by Caltrans and subsequently	SU

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		require Caltrans approval. As a result, implementation of this measure may not be feasible (see more discussion below) ▪ Retiming of the traffic signal in the PM peak hour at Foster City Boulevard/Chess Drive to provide additional green time to the southbound approach. Retiming the traffic signal by shifting approximately 10 seconds of green time from the eastbound through movement to the southbound through movement would increase the capacity of the southbound approach without significantly worsening traffic conditions for the eastbound through movement. ▪ Implementing the Transportation Demand Management (TDM) Plan described in Section V.C.2.f.(6) and shown in Appendix C in accordance with the C/CAG TDM Requirements. Existing trip estimates for the project assumed a 6.5 percent reduction in vehicle trips. The TDM Plan would further reduce project vehicle trips, by approximately -14.5 percent and together with the initial 6.5 percent, would result in an approximate 21 percent reduction. As a result the project would only generate 520 AM peak hour and 540 PM peak hour trips. The project applicant shall monitor the effectiveness of the TDM Plan and submit annual monitoring reports to the City as described in Section V.C.2.f.(6). The Community Development Department shall review each annual TDM report and verify that the trip counts meet the established targets or that the appropriate corrective measures are undertaken and/or fines are paid. The City shall require the implementation of an appropriate TDM Plan for the life of the project to also reduce cumulative project impacts on area roadways. The implementation of this mitigation measure would increase capacity on southbound Foster City Boulevard and improve traffic operations to LOS E in the PM peak hour, reducing the project impact at this intersection to a less-than-significant level. The timing of the additional southbound right-turn lane and signal timing would be based on the completion of traffic engineering studies and approval by the City of Foster City Public Works Department. Approval by Caltrans may also be required as some of the property may be owned by Caltrans. If Caltrans approves and permits the City to implement these improvements (or if it is determined that Caltrans approval is not required) and the City	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		implements the improvements, this impact would be mitigated to a less-than-significant level. If Caltrans approval is determined necessary and Caltrans does not approve, and the City is unable to implement these improvements, then this impact would be significant and unavoidable. At this time, without assured approval by Caltrans, this impact is deemed to be significant and unavoidable.	
TRANS-3: The freeway segment of Southbound US 101, south of East Hillsdale Boulevard currently exceeds the CMP LOS standard during the PM peak hour under Existing Plus Project Conditions. The addition of project traffic would increase the traffic volume on this freeway segment by greater than one percent of the segment's capacity.	S	TRANS-3: The project sponsor shall be responsible for implementing the TDM Plan described in Mitigation Measure TRANS-2. Implementation of this measure would reduce the traffic contributed by the project from 1.03 percent to 0.89 percent of the freeway segment's capacity. This level of traffic represents less than one percent of the freeway's capacity. Therefore, this mitigation measure would reduce this project impact to a less-than-significant level.	LTS
TRANS-4: The freeway segment of Eastbound SR 92, east of Foster City Boulevard currently exceeds the CMP LOS standard during the PM peak hour under Existing Plus Project Conditions. The addition of project traffic would increase the traffic volume on this freeway segment by greater than one percent of the segment's capacity.	S	TRANS-4: The project sponsor shall be responsible for implementing the TDM Plan described in Mitigation Measure TRANS-2 to reduce the amount of project traffic added to this segment and therefore the severity of the impact. The associated reduction in vehicle trips would not, however, be sufficient to reduce the project's traffic contribution below the threshold of less than one percent of the freeway's capacity. Therefore the impact would remain significant. The impact is the result of regional traffic increases to which Foster City contributes only a small part. Accommodating additional traffic on this freeway segment would require the addition of capacity by constructing additional lanes, requiring Caltrans approval. At this time, without assured approval by Caltrans nor identified funding, this impact is deemed to be significant and unavoidable.	SU
TRANS-5: The addition of project traffic would increase vehicle delay by more than 4 seconds at the signalized intersection of Norfolk Street/East 3rd Avenue, which operates at LOS F in the AM peak hour under Background Conditions.	S	TRANS-5: Convert the eastbound right-turn lane of East 3rd Avenue to a shared through/right-turn lane and widen the east leg of East 3rd Avenue to accommodate three receiving lanes. The added eastbound through lane shall continue to Church Road. Implementation of the mitigation measure may require removal of on-street parking. This would improve LOS in the AM peak hour from LOS F to LOS E (better than conditions without the project). The mitigation measure shall be implemented prior to certificate of occupancy.	SU

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		The City of San Mateo has jurisdiction to approve of this proposed improvement, but the City of San Mateo has previously stated that this improvement is not acceptable. The project sponsor shall offer the City of San Mateo a pro rata share of the cost of this improvement prior to issuance of a building permit. If the City of San Mateo does not accept the offer to construct the improvement within 5 years of receipt, the offer will become void and compliance with this mitigation measure will be considered fulfilled. Because the impacted location is in an adjacent jurisdiction and the identified improvement is not acceptable to that jurisdiction, the City of Foster City cannot guarantee that it will be implemented. Therefore this impact would remain significant and unavoidable.	
TRANS-6: The addition of project traffic would worsen operations at the side-street stop sign-controlled intersection of Lincoln Centre Drive/East 3rd Avenue from acceptable LOS B to unacceptable LOS F in the PM peak hour under Background Plus Project Conditions. Traffic volumes during the PM peak hour would meet the peak hour volume traffic signal warrant criteria contained in the *Manual on Uniform Traffic Control Devices*, 2003 Edition.	S	TRANS-6: Implementation of Mitigation Measure TRANS-1 would improve operations to LOS B in the PM peak hour and reduce this impact to a less-than-significant level.	LTS
TRANS-7: The addition of project traffic would increase vehicle delay by more than 4 seconds at the signalized intersection of Foster City Boulevard/Chess Drive, which operates at LOS F in the PM peak hour under Background Conditions.	S	TRANS-7: Implementation of Mitigation Measure TRANS-2 would reduce the average vehicle delay to below the condition without the project, but a portion of the mitigation measure may not be feasible, which would result in the impact being significant and unavoidable.	SU
TRANS-8: Mitigation Measure TRANS-7 would worsen operations at the signalized intersection of SR 92 Eastbound Ramps/Metro Center Boulevard from acceptable LOS D to unacceptable LOS F in the PM peak hour under Background Plus Project Conditions.	S	TRANS-8: Reducing vehicle delay at the intersection of SR 92 Eastbound Ramps/Metro Center Boulevard would require the addition of capacity to the eastbound SR 92 on-ramp, requiring Caltrans approval. Currently, there are no planned capacity improvements for this on-ramp. SR 92 to the east of the on-ramp reduces to three lanes approaching the San Mateo Bridge, which limits the capacity of the mainline and causes the existing vehicle queues to extend back to City streets. Extending the	SU

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		merge lane on the SR 92 on-ramp by approximately 400 feet would increase the storage of the on-ramp and reduce vehicle queues so that they do not extend back as frequently onto City streets. If Caltrans approves and permits the City to implement these improvements, the project sponsor shall contribute their fair share to this improvement and this impact could be mitigated to a less-than-significant level, although operations could continue to operate at LOS E or F. If Caltrans does not approve, and the City is unable to implement these improvements, then this impact would be significant and unavoidable. At this time, without assured approval by Caltrans, this impact is deemed to be significant and unavoidable.	
TRANS-9: The freeway segment of Southbound US 101, south of East Hillsdale Boulevard exceeds the CMP LOS standard during the PM peak hour under Background Conditions. The addition of project traffic would increase the traffic volume on this freeway segment by greater than one percent of the segment's capacity.	S	TRANS-9: The project sponsor shall be responsible for implementing the TDM Plan described in Mitigation Measure TRANS-2. Implementation of this measure would reduce the traffic contributed by the project from 1.03 percent to 0.97 percent of the freeway segment's capacity. This level of traffic represents less than one percent of the freeway's capacity. Therefore, this mitigation measure would reduce this project impact to a less-than-significant level.	LTS
TRANS-10: The freeway segment of Eastbound SR 92, east of Foster City Boulevard exceeds the CMP LOS standard during the PM peak hour under Background Conditions. The addition of project traffic would increase the traffic volume on this freeway segment by greater than one percent of the segment's capacity.	S	TRANS-10: The project sponsor shall be responsible for developing and implementing the TDM Plan described in Mitigation Measure TRANS-4. At this time, without assured approval by Caltrans nor identified funding, this impact is deemed to be significant and unavoidable.	SU
TRANS-11: The addition of project traffic at the signalized intersection of Norfolk Street/East 3rd Avenue would increase vehicle delay by more than 4 seconds in the AM peak hour (which operates at LOS F without the project) and worsen traffic operations from LOS D to LOS E in the PM	S	TRANS-11: Implementation of Mitigation Measure TRANS-5 would improve intersection operations from LOS F to LOS E in the AM peak hour (better than conditions without the project) and LOS D in the PM peak hour. The City of San Mateo has jurisdiction to approve of this proposed improvement, but the City of San Mateo has previously stated that this improvement is not acceptable. The project sponsor shall offer the City	SU

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
peak hour under Cumulative Conditions.		of San Mateo a pro rata share of the cost of this improvement prior to issuance of a building permit. If the City of San Mateo does not accept the offer to construct the improvement within 5 years of receipt, the offer will become void and compliance with this mitigation measure will be considered fulfilled. Because the impacted location is in an adjacent jurisdiction and the identified improvement is not acceptable to that jurisdiction, the City of Foster City cannot guarantee that it will be implemented. Therefore this impact would remain significant and unavoidable.	
TRANS-12: The addition of project traffic would worsen operations at the side-street stop controlled intersection of Lincoln Centre Drive / East 3rd Avenue from acceptable LOS B to unacceptable LOS F in the PM peak hour under Cumulative Plus Project Conditions. Traffic volumes during the PM peak hour would meet the peak hour volume traffic signal warrant criteria contained in the *Manual on Uniform Traffic Control Devices*, 2003 Edition.	S	TRANS-12: Implementation of Mitigation Measure TRANS-1 would improve operations to LOS B in the PM peak hour and reduce this cumulative impact to a less-than-significant level.	LTS
TRANS-13: The addition of project traffic would worsen traffic operations at the intersection of Vintage Park Drive / Chess Drive from acceptable LOS D to unacceptable LOS E under Cumulative Conditions.	S	TRANS-13: The project sponsor shall contribute their fair share to the restriping of northbound Vintage Park Drive to include a shared through right-lane. This improvement is shown in Figure V.C-14 and is currently under-consideration for implementation by the City of Foster City. Implementation of this mitigation measure would improve traffic operations to LOS D in the PM peak hour and reduce this cumulative impact to a less-than-significant level. The timing of this measure would be based on the completion of traffic engineering studies, if required, and approval by the City of Foster City Public Works Department.	LTS
TRANS-14: The addition of project traffic would increase vehicle delay by more than four seconds at the signalized intersection of Foster City Boulevard / Chess Drive, which operates at LOS F in the PM peak hour under Cumulative Conditions.	S	TRANS-14: Implementation of Mitigation Measure TRANS-2 would reduce the average vehicle delay to less than the vehicle delay under current conditions (i.e., without the project) but a portion of the mitigation measure may not be feasible, which would result in the impact being significant and unavoidable.	SU

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
TRANS-15: Mitigation Measure TRANS-14 would worsen operations at the signalized intersection of SR 92 Eastbound Ramps/Metro Center Boulevard from acceptable LOS D to unacceptable LOS F in the PM peak hour under Cumulative Plus Project Conditions.	S	TRANS-15: Reducing vehicle delay below current levels (i.e., without the project) would require implementation of Mitigation Measure TRANS-8 to add capacity eastbound SR 92 on-ramp, requiring Caltrans approval. If Caltrans approves and permits the City to implement these improvements, the project sponsor shall contribute their fair share to this improvement and this impact could be mitigated to a less-than-significant level, although operations could continue to operate at LOS E or F. If Caltrans does not approve, and the City is unable to implement these improvements, then this impact would be significant and unavoidable. At this time, without assured approval by Caltrans, this impact is deemed to be significant and unavoidable.	SU
TRANS-16: The freeway segment of Southbound US 101, south of East Hillsdale Boulevard exceeds the CMP LOS standard during the PM peak hour under Cumulative Conditions. The addition of project traffic would increase the traffic volume on this freeway segment by greater than one percent of the segment's capacity.	S	TRANS-16: The project sponsor shall be responsible for implementing the TDM Plan described in Mitigation Measure TRANS-2. Implementation of this measure would reduce the traffic contributed by the project from 1.03 percent to 0.97 percent of the freeway segment's capacity. This level of traffic represents less than one percent of the freeway's capacity. Therefore, this mitigation measure would reduce this cumulative impact to a less-than-significant level.	LTS
TRANS-17: The freeway segment of Eastbound SR 92, east of Foster City Boulevard exceeds the CMP LOS standard during the PM peak hour under Cumulative Conditions. The addition of project traffic would increase the traffic volume on this freeway segment by greater than one percent of the segment's capacity.	S	TRANS-17: The project sponsor shall be responsible for developing and implementing the TDM Plan described in Mitigation Measure TRANS-4. At this time, without assured approval by Caltrans nor identified funding, this impact is deemed to be significant and unavoidable.	SU
TRANS-18: The project could decrease the performance of public transit facilities due to additional demand for public shuttles that currently operate at full capacity.	S	TRANS-18: The project sponsor shall prepare an analysis of its projected public transit ridership, and develop a plan for how that ridership will be accommodated. The plan may include, among other things, funding a pro rata share of expansion of existing public transit services; funding a pro rata share of new public transit services; or a demonstration that the project reduces or eliminates additional demand for public transit due to alternate means of transportation including, but not limited to, private shuttles. The initial plan shall be submitted to the City for approval during the use permit process. If the plan requires use of	LTS

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		shuttles under the jurisdiction of the Peninsula Traffic Congestion Relief Alliance, the plan must be approved by Alliance staff as well as the City. The plan may be modified, provided the modification is approved by the City and, as relevant, Alliance staff. The project sponsor shall demonstrate to the satisfaction of the Community Development Director that sufficient capacity will be available to accommodate all project trips that are expected to use public buses and/or public shuttles. Prior to issuance of a building permit, the project sponsor shall demonstrate compliance with this measure at a level sufficient to accommodate the trips to be generated by the development. This mitigation measure would ensure that the project does not cause ridership on public shuttles and public buses to exceed capacity to the point of decreasing performance.	
TRANS-19: Project construction activities could interfere with circulation patterns.	S	TRANS-19: During the use permit process, the project sponsor shall develop and submit a construction management plan for City approval that specifies measures that would reduce impacts to motor vehicle, bicycle, pedestrian, and transit circulation. The construction management plan shall include the following: ▪ Location of construction staging areas for materials, equipment, and vehicles. ▪ Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur. ▪ Identification of haul routes for movement of construction vehicles that would minimize impacts on vehicular and pedestrian traffic, circulation, and safety; and provision for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by the project sponsor. ▪ Provisions for removal of trash generated by project construction activity. ▪ A process for responding to, and tracking, complaints pertaining to construction activity, including identification of an on-site complaint manager. ▪ Provisions for pedestrian and bicycle circulation through the	LTS

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		congestion zone. The project sponsor shall implement the construction management plan prior to the start of construction. Implementation of this measure would reduce project construction impacts to a less-than-significant level.	
D. AIR QUALITY			
AIR-1: The project's average daily emissions of ROG, PM_{10} exhaust, or $PM_{2.5}$ exhaust during construction would not exceed the BAAQMD significance thresholds, but average daily emissions of NOx would exceed the BAAQMD significance thresholds resulting in a significant impact.	S	AIR1: The project will implement the following mitigation measure during construction: ▪ Idling time of off-road equipment will be less than 2 minutes; and ▪ Tier 3 engines will be used for three cranes during the building construction phase. ▪ As an alternative to the two measures above, the project shall achieve a performance standard of not exceeding the BAAQMD daily NOx emission threshold of 54 pounds per day, which shall be demonstrated to the satisfaction of the City by a qualified air quality consultant. Alternative means of achieving this Performance Standard include use of Tier 3 engines on different pieces of equipment; use of Tier 4 equipment; use of Level 3 selective catalytic reduction (SCR) on Tier 3 equipment; and use of alternative fuels (biodiesel/biofuel, hybrid-electric, and/or electrification).	LTS
AIR-2: If the project is constructed in multiple phases and the daycare is anticipated to be in use prior to the completion of construction of the entire site, an HRA should be performed to determine the health impact of the remaining construction activities on the daycare children.	S	AIR-2: In the case that the on-site daycare is in operation in advance of completion of construction of the project, the project shall achieve a performance standard of meeting the BAAQMD thresholds of 10 in a million for cancer risk, 1.0 for chronic or acute hazard index, and 0.3 $\mu g/m^3$ for $PM_{2.5}$ concentration. Depending upon the amount and location of construction remaining once the daycare opens, that threshold could be achieved with a reduction in emissions of roughly 30 percent on top of the mitigated emissions achieved with AIR-1. That reduction is achievable using a combination of the measures including Tier 3 engines, Tier 4 engines, Level 3 diesel particulate filter on Tier 3 equipment, alternative fuels such as biodiesel/biofuel, hybrid-electric, electrification, and/or MERV filters on the daycare.	LTS
No significant construction-related air quality impacts associated with fugitive dust would occur with implementation of the City SCOAs listed in this table.	LTS	**SCOA 9.12:** The following controls shall be implemented at all construction sites within the project to control dust production and fugitive dust. ▪ Water all active construction areas at least twice daily and more often	LTS

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		during windy periods; active areas adjacent to existing sensitive land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers to control dust; ▪ Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard; ▪ Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites; ▪ Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites; and ▪ Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets. ▪ Blowing dust shall be reduced by timing construction activities so that paving and building construction begin as soon as possible after completion of grading, and by landscaping disturbed soils as soon as possible. ▪ Water trucks shall be present and in use at the construction site. ▪ All portions of the site subject to blowing dust shall be watered as often as deemed necessary by the City in order to insure proper control of blowing dust for the duration of the project. ▪ Watering on public streets shall not occur. ▪ All vehicle speeds on unpaved roads shall be limited to 15 mph. ▪ 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. ▪ 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. ▪ All construction equipment shall be maintained and properly tuned in accordance with manufacturer‘s specifications. All equipment shall be checked by a certified visible emissions evaluator. ▪ Streets will be cleaned by street sweepers or by hand as often as	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		deemed necessary by the City Engineer. ▪ Watering associated with on-site construction activity shall take place between the hours of 8 a.m. and 7 p.m. and shall include at least one late-afternoon watering to minimize the effects of blowing dust. ▪ All public streets and medians soiled or littered due to this construction activity shall be cleaned and swept on a daily basis during the workweek to the satisfaction of the City. ▪ 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.	
E. GEOLOGY AND SOILS			
No significant geology and soils impacts would occur with implementation of the City Standard Conditions of Approval listed in this table.	S	**SCOA 2.2:** Three (3) sets of a site specific, design level, fault zone geotechnical report satisfactory to the Chief Building Official, including one electronic or pdf version, shall be submitted for review and approval to the Building Division and contain design recommendations for grading, footings, retaining walls, and provisions for anticipated differential settlement for each construction site within the project area. Specifically: ▪ Each investigation shall include an analysis of expected ground motions at the site identified faults. The analysis shall be in accordance with applicable City ordinances and policies, and consistent with the most recent version of the California Building Code, which requires structural design that can accommodate ground accelerations expected from identified faults. The analysis presented in the geotechnical investigation report shall provide recommendations to minimize seismic damage to structures from total and differential settlements and to protect steel and concrete (and any other material that may be placed in the subsurface) from long-term deterioration caused by contact with corrosive on-site soils. All design measures, recommendations, design criteria, and specifications set forth in the final geotechnical investigation report shall be implemented. ▪ The investigations shall determine final design parameters for the	LTS

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		walls, foundations, foundation slabs, surrounding related improvements, and infrastructure (utilities, roadways, parking lots and sidewalks). ▪ The investigations shall be reviewed and approved by a registered geotechnical engineer. All recommendations by the project engineer, geotechnical engineer, shall be included in the final design, as approved by the City of Foster City. ▪ The geotechnical report shall include a map prepared by a land surveyor or civil engineer that shows all field work and location of the "No Build" zone. The map shall include a statement that the locations and limitations of the geologic features are accurate representations of said features as they exist on the ground, were placed on this map by the surveyor, the civil engineer or under their supervision, and are accurate to the best of their knowledge. ▪ The geotechnical report for the project shall include evaluation of fixtures, furnishings, and fasteners with the intent of minimizing collateral injuries to building occupants from falling fixtures or furnishings during the course of a violent seismic event. Recommendations that are applicable to foundation design, earthwork, and site preparation that were prepared prior to or during the projects design phase, shall be incorporated in the project. ▪ Final seismic considerations for the site shall be submitted to and approved by the Building Division prior to commencement of the project. ▪ If deemed necessary by the Chief Building Official, a peer review may be required for the geotechnical report. Personnel reviewing the geologic report shall approve the report, reject it, or withhold approval pending the submission by the applicant or subdivider of further geologic and engineering studies to more adequately define active fault traces. ▪ A licensed geotechnical engineer or their representatives shall be retained to provide geotechnical observation and testing during all earthwork and foundation construction activities. The geotechnical engineer shall be allowed to evaluate any conditions differing from those encountered during the geotechnical investigation and shall provide supplemental recommendations, as necessary. At the end of	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		construction, the geotechnical engineer shall provide a letter regarding contractor compliance with project plans and specifications and with the recommendations of the final geotechnical investigation report and any supplemental recommendations issued during construction. The letter shall be submitted for review to the Building Division. The final geotechnical investigation report shall provide recommendations to minimize the potential damage to structures from total and differential settlement and to protect steel and concrete (and any other material that may be placed in the subsurface) from long-term deterioration caused by contact with corrosive on-site soils. All design measures, recommendations, design criteria, and specifications set forth in the final geotechnical investigation report shall be implemented. **SCOA 5.3:** Due to potential differential settlement, flexible connections shall be provided for gas, electric, sewer, water and other utilities. Hinged, reinforced slabs shall be provided at transitions from building to sidewalks, walkways and driveways.	
F. GREENHOUSE GAS EMISSIONS			
Implementation of the proposed project would not result in any significant greenhouse gas impacts.			
G. HAZARDS AND HAZARDOUS MATERIALS			
HAZ-1: Encountering abandoned subsurface asbestos-cement (AC) water lines during subsurface maintenance activities performed during the operational phase of the project could result in the accidental release of asbestos fibers into the environment.	S	HAZ-1: During the operational phase of the proposed project, any contractors or maintenance personnel that may perform excavation activities on the project site shall be informed that AC pipes may be encountered in the subsurface. The contractors or maintenance personnel shall be informed that if AC pipes are encountered which must be removed to accommodate the construction or maintenance activities, the removal of the AC pipes must be performed by a qualified contractor in accordance with applicable Federal, state, and local regulations. The contractors or maintenance personnel shall be informed that if AC pipes are damaged, work must be stopped in the area of the damaged AC pipe, and the area must be cordoned off until removal of the damaged AC pipe can be performed by a qualified	LTS

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		contractor in accordance with applicable regulations.	
No significant construction-related hazards and hazardous materials impacts would occur with implementation of the City SCOAs listed in this table.		**SCOA 1.22:** The applicant shall prepare a project-specific Construction Risk Management Plan (CRMP) to protect construction workers, the general public, and the environment from subsurface hazardous materials previously identified and to address the possibility of encountering unknown contamination or hazards in the subsurface. The CRMP shall: 1) Provide procedures for evaluating, handling, storing, testing and disposing of soil and groundwater during project excavation and dewatering activities, respectively; 2) Require the preparation of a project specific Health and Safety Plan that identifies hazardous materials present, describes required health and safety provisions and training for all workers potentially exposed to hazardous materials in accordance with state and federal worker safety regulations, and designates the personnel responsible for Health and Safety Plan implementation; 3) Require the preparation of a contingency plan that shall be applied should previously unknown hazardous materials be encountered during construction activities. The contingency plan shall be developed by the contractor(s), with the approval of the City and/or appropriate regulatory agency, prior to demolition or issuance of the first building permit. The contingency plan shall include provisions that require collection of soil and/or groundwater samples in the newly discovered affected area by a qualified environmental professional prior to further work, as appropriate. The samples shall be submitted for laboratory analysis by a state-certified laboratory under chain-of-custody procedures. The analytical methods shall be selected by the environmental professional. The analytical results of the sampling shall be reviewed by the qualified environmental professional and submitted to the appropriate regulatory agency, if appropriate. The environmental professional shall provide recommendations, as applicable, regarding soil/waste management, worker health and safety training, and regulatory agency notifications, in accordance with local, state, and federal requirements. Work shall not resume in	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		the area(s) affected until these recommendations have been implemented under the oversight of the City of regulatory agency, as appropriate; and 4) Designate personnel responsible for implementation of the CRMP. The CRMP shall be submitted to the Fire Department for review and approval prior to construction activities.	
		SCOA 1.23: The contractor(s) shall designate storage areas suitable for material delivery, storage, and waste collection. These locations must be as far away from catch basins, gutters, drainage courses, and water bodies as possible. All hazardous materials and wastes used or generated during project site development activities shall be labeled and stored in accordance with applicable local, state, and federal regulations. In addition, an accurate up-to-date inventory, including Material Safety Data Sheets, shall be maintained on-site to assist emergency response personnel in the event of a hazardous materials incident. All maintenance and fueling of vehicles and equipment shall be performed in a designated, bermed area, or over a drip pan that will not allow run-off of spills. Vehicles and equipment shall be regularly checked and have leaks repaired promptly at an off-site location. Secondary containment shall be used to catch leaks or spills any time that vehicle or equipment fluids are dispensed, changed, or poured. **SCOA 1.24:** Emergency Preparedness and Response Procedures shall be developed by the contractor(s) for emergency notification in the event of an accidental spill or other hazardous materials emergency during project site preparation and development activities. These Procedures shall include evacuation procedures, spill containment procedures, required personal protective equipment, as appropriate, in responding to the emergency. The contractor(s) shall submit these procedures to the City prior to demolition or development activities. **SCOA 9.22:** If the presence of hazardous materials is found on site, site remediation may be required by the applicable state or local regulatory agencies. Specific remedies would depend on the extent and magnitude	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		of contamination and requirements of the regulatory agency(ies). Under the direction of the regulatory agency(ies) and the City, a Site Remediation Plan shall be prepared, as required, by the applicant. The Plan shall: 1) specify measures to be taken to protect workers and the public from exposure to the potential hazards and, 2) certify that the proposed remediation would protect the public health in accordance with local, state, and federal requirements, considering the land use proposed. Excavation and earthworking activities associated with the proposed project shall not proceed until the Site Remediation Plan has been reviewed and approved by the regulatory oversight agency and is on file with the City. **SCOA 9.23:** Engineering fill brought on-site shall be demonstrated, by analytical testing, not to pose an unacceptable risk to human health or the environment. Threshold criteria for acceptance of engineered fill shall be selected based on screening levels and protocols developed by regulatory agencies for protection of human health and leaching to groundwater (e.g., Water Board ESLs). The engineered fill shall be characterized by representative sampling in accordance with U.S. EPA's SW-846 Test Methods, by a qualified environmental professional and demonstrated to meet the threshold criteria above. The results of the sampling and waste characterization shall be submitted by the contractor(s) to the City and SMCEHD prior to construction. **SCOA 9.24:** The contractor shall prepare a Waste Disposal and Hazardous Materials Transportation Plan prior to construction activities where hazardous materials or materials requiring off-site disposal would be generated. The Plan shall include a description of analytical methods for characterizing wastes, handling methods required to minimize the potential for exposure, and shall establish procedures for the safe storage of contaminated materials, stockpiling of soils, and storage of dewatered groundwater. The required disposal method for contaminated materials (including any lead-based paint, asbestos, or other hazardous building materials requiring disposal, see SCOA 9.25, below), the approved disposal site, and specific routes used for transport of wastes to and from the project site shall be indicated. The	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		Plan shall be prepared prior to demolition or development activities and submitted to the City. The Waste Disposal and Hazardous Materials Transportation Plan may be prepared as an addendum to the Waste Management Plan required by Chapter 15.44 (Ordinance 523) of the Foster City Municipal Code. **SCOA 9.25:** Hazardous materials and wastes generated during demolition activities, such as fluorescent light tubes, mercury switches, lead based paint, asbestos containing materials, and PCB wastes, and subsurface hazardous building materials generated during grading and trenching activities, such as asbestos-cement piping, shall be managed and disposed of in accordance with the applicable universal waste and hazardous waste regulations. Federal and state construction worker health and safety regulations shall apply to the removal of hazardous building materials and demolition activities, and any required worker health and safety procedures shall be incorporated into the contractor's specifications for the project. The disposition of hazardous building material wastes shall also be considered in the preparation of the Waste Management Plan required pursuant to the City's Ordinance 523. Documentation of the surveys and abatement activities shall be provided to the City prior to the demolition of structures located at the project site.	
H. HYDROLOGY AND WATER QUALITY			
No significant impacts to hydrology and water quality would occur with implementation of the City SCOAs listed in this table.	S	**SCOA 1.13:** Prior to issuance of a building permit, the plans shall demonstrate compliance with the San Mateo Countywide Water Pollution Prevention Program, (see http://flowstobay.org/bs_new_development.php) including, but not limited to, submittal of checklists related to impervious surface and stormwater: 1.13.1 C.3 and C.6 Data Collection Form 1.13.2 Project Applicant Checklist for NPDES Permit Requirements 1.13.3 Stormwater Requirements Checklist 1.13.4 Stormwater Control Plan: A Stormwater Control Plan (SWCP) shall be required and approved by the City prior to issuance of the first building permit. Any improvements identified in the SWCP shall be constructed prior to first occupancy to the satisfaction of the Public	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		Works Director/City Engineer. **SCOA 2.6:** Prior to issuance of a building permit, any development involving one or more acres of total land area must obtain a General Permit from the State Water Resources Control Board. This permit requires the owner/developer to do the following: a) Along with the project applicant, attend a pre-construction meeting with the Community Development Director, Chief Building Official and other departments the Community Development Director invites to discuss the project conditions of approval, working hours, site maintenance and other construction matters; b) Acknowledge in writing that they have read and understand the project conditions of approval, particularly those pertaining to construction practices and site safety, and will make certain that all project sub-contractors have read and understand them prior to commencing work and that a copy of the project conditions of approval will be posted on site at all times during construction. **SCOA 2.7.** The applicant shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential adverse impacts to surface water quality during the construction period. The SWPPP shall be prepared by a Qualified SWPPP Developer (QSD). The SWPPP shall include the minimum BMPs required for the identified Risk level. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association Stormwater Best Management Handbook-Construction. The SWPPP shall be designed to address the following objectives: 1) All pollutants and their sources, including sources of sediment associated with construction activity are controlled; 2) Where not otherwise required to be under a Regional Water Board permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated; 3) Site Best Management Practices (BMPs) are effective and result in the reduction or elimination of pollutants in stormwater discharges and	

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Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		authorized non-stormwater discharges from construction activity to the Best Available Technology and Best Conventional Technology (BAT/BCT) standard; and 4) Stabilization BMPs installed to reduce or eliminate pollutants after construction are completed. 5) Best Management Practices (BMPs) shall be designed to mitigate construction-related pollutants and at a minimum, include the following: a. Practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The SWPPP shall specify properly-designed centralized storage areas that keep these materials out of the rain. b. Reduce erosion of exposed soil which may include, but are not limited to: soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins. The potential for erosion is generally increased if grading is performed during the rainy season because disturbed soil can be exposed to rainfall and storm runoff. c. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control (i.e. keeping sediment on the site). End-of-pipe sediment control measures (e.g. basins and traps) shall be used only as secondary measures. Ingress and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment wash-down facilities shall be designed to be accessible and functional during both dry and wet conditions. 6) The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and shall include both dry and wet weather inspections. In addition, in accordance with State Water Resources Control Board Resolution No. 2001-046, monitoring shall be required during the construction period for pollutants that may be present in the runoff that are "not visually detectable in runoff." To educate on-site personnel and maintain awareness of the importance of stormwater quality protection, site supervisors shall	

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Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		conduct regular tailgate meetings to discuss pollution prevention. The frequency of the meetings and required personnel attendance list shall be specified in the SWPPP. A QSD shall be responsible for implementing BMPs at the site. The QSD shall also be responsible for performing all required monitoring, and BMP inspection, maintenance and repair activities. The developer shall retain an independent monitor to conduct weekly inspections and provide written monthly reports to the City of Foster City Public Works Department to ensure compliance with the SWPPP. Water Board personnel, who may make unannounced site inspections, are empowered to levy considerable fines if it is determined that the SWPPP has not been properly prepared and implemented. **SCOA 2.8:** The applicant shall fully comply with the C.3 provisions of the Municipal Regional Stormwater NPDES Permit (MRP). Responsibilities include, but are not limited to, designing Best Management Practices (BMPs) into the project features and operation to reduce potential impacts to surface water quality associated with operation of the project. These features shall be included in the design-level drainage plan and final development drawings. Specifically, the final design shall include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development. All Stormwater control measures outlined in the San Mateo Countywide Water Pollution Prevention Program's January 2013 C.3 Stormwater Technical Guidance manual (or updated version) shall be incorporated into the project design. Low Impact Development features, including rainwater harvesting and reuse, and passive, low-maintenance BMPs (e.g., grassy swales, porous pavements) are required under the MRP. Higher-maintenance MBP's may only be used if the development of at-grade treatment systems is not possible, or would not adequately treat runoff. Funding for long-term maintenance for all BMPs must be specified (as the City will not assume maintenance responsibilities for these features).The applicant shall establish a self-perpetuating drainage system maintenance program for the life of the project that includes annual inspections of any stormwater detention devices and drainage	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		inlets. Any accumulation of sediment or other debris would need to be promptly removed. In addition, an annual report documenting the inspection and any remedial action conducted shall be submitted to the Public Works Development for review and approval. The City of Foster City Public Works Department shall ensure that the SWPPP and drainage plan are prepared and are adequate prior to approval of the first building permit for the site. **SCOA 5.15:** Prior to issuance of a building permit, a complete storm drainage study of the proposed development must be submitted showing the amount of runoff, and existing and proposed drainage structure capacities. This study shall be subject to review and approval by the Engineering Division. All needed construction improvements will be made by the applicants. No overloading of the existing system will be permitted. A hydrology/hydraulic analysis shall be completed on the existing storm drain system to verify it is adequately sized to handle the run-off from the project. **SCOA 5.16:** Prior to issuance of a building permit, existing storm drain pipe lines on the project site and downstream thereof shall be televised to verify they have not become filled with sediment and cleaned out concurrently. **SCOA 5.17:** Prior to issuance of a building permit, should the City determine that the City's storm drain system or storm drain pumping capacity requires expansion or modification as a result of the applicants' development, the applicants shall pay for all necessary improvement costs. The timing and amount of payment shall be as determined by the City. **SCOA 5.18:** Post-construction survey reports shall be completed on the existing storm drain system. Any necessary repairs to restore the facilities shall be an element of the report. If required, the existing storm drains shall be cleaned as necessary during and at the completion of the proposed project.	

TABLE II-1 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	Mitigation Measures/SCOAs	Level of Significance With SCOA or Mitigation Measure
		SCOA 9.3: The applicant or any future owner shall provide and conduct regular maintenance of the site in order to eliminate and control the accumulation of trash, excess/waste materials and debris. **SCOA 9.5:** The property owners/tenants are prohibited from discharging any commercial fertilizers, pesticides or herbicides into the lagoon or water features. **SCOA 9.9:** The applicant/property owners/tenants shall control accumulations of petroleum wastes and other pollutants in the streets and parking areas by frequent sweeping.	
I. NOISE			
Implementation of the proposed project would not result in any significant noise impacts.			
J. PUBLIC SERVICES, UTILITIES, AND RECREATION			
Implementation of the proposed project would not result in any significant public services, utilities, and recreation impacts.			

III. PROJECT DESCRIPTION

This chapter describes the proposed Lincoln Centre Life Sciences Research Campus Project (the project), evaluated in this EIR. The chapter begins with a description of the project site, the regional and planning context, the project objectives, and a discussion of relevant project background. These are followed by a detailed description of the project, a discussion of the intended uses of the EIR, and an explanation of required project approvals and entitlements.

A. PROJECT SITE

1. Location and Site Characteristics

Project Site

The project site comprises approximately 20 acres in Foster City. Foster City is located in San Mateo County, midway between the cities of San Francisco and San Jose. It is bordered by San Francisco Bay to the north and east, the cities of Belmont and Redwood City to the south, and the City of San Mateo to the west. Figure III-1 shows the project site's regional and local context. Local access to the site is via 3rd Avenue to Lincoln Centre Drive, which terminates within the project site. Regional access to the site is via U.S. Highway 101 to East 3rd Avenue exit from the north, California State Route 92 (SR 92) to Foster City Blvd/East Hillsdale Boulevard exit from the west and south, and SR 92 to Foster City Boulevard/East Hillsdale Boulevard exit from the east.

The project site is located at approximately 200 through 850 Lincoln Centre Drive, on the northeastern edge of Foster City. It is roughly triangular in shape, bounded by East 3rd Avenue and the Foster City Corporation Yard to the north, the San Mateo Bridge approach of SR 92 to the south, the Foster City lagoon outflow channel to the west, and the adjoining Bayside Towers office buildings and parking lot at 4000/4100 East 3rd Avenue to the east.

The project site is approximately 20 acres, 19 acres owned by BMR-Lincoln Centre LP and 1 acre currently occupied by the public right of way for the terminus of Lincoln Centre Drive. It includes the following five San Mateo County assessor's Parcels:

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Source: Urban Planning Partners, Inc. 2015

Figure III-1
Lincoln Centre Life Sciences Research Campus Project EIR
Project Location Map

- APN 094-532-170
- APN 094-532-180
- APN 094-532-190
- APN 094-532-200
- APN 094-532-250

The site is generally level. It was previously developed with seven one- and two-story office/warehouse and lab buildings totaling approximately 280,000 square feet. All seven buildings were recently demolished by the current owner and project applicant. The site now contains remaining building pads, surface parking and access roadways. As a result, 14.9 acres of the site are covered in impermeable surfaces. The remaining 4.1 acres contain pervious surfaces which are primarily landscaped areas.

2. Surrounding Land Uses

The project site is situated between the San Francisco Bay to the north and the lagoon channel to the west. The majority of immediately surrounding land uses are comprised of office, light industrial, or research and development use which include the following:

- Foster City Corporation Yard and a six-story office building developed as part of the Lincoln Centre Campus in the 1980s (see B. Project Background, below), and East 3rd Avenue to the north;
- SR 92 and a series of office complexes to the south;
- Foster City lagoon outflow channel, light industrial land use, including the Chess Hatch office research complex, to the west; and
- Bayside Towers office buildings and associated parking lot at 4000/4100 East 3rd Avenue to the east.

A more detailed discussion of existing and planned land uses is provided in *Section V.A, Land Use*, and Figure V.A-1 illustrates the existing land uses on and surrounding the project site.

3. General Plan and Zoning Designation

The General Plan land use classification for the project site, as established by the Land Use and Circulation Element of the City's General Plan,[1] is Research/Office Park (ROP). Lincoln Centre was subsequently developed with seven one- and two-story office/warehouse buildings, totaling approximately 280,000 square feet, and one six-story building of approximately 94,148 square feet.

[1] City of Foster City, 2004. *General Plan, Land Use and Circulation Element*, November.

Properties designated as ROP typically are used for office, research & development, and manufacturing operations with relatively clean, quiet, and low-impact operations. The intensity of use in ROP designation is generally medium-level, with the FAR of existing ROP developments in Foster City ranging from 0.2 to 0.6. The land use classifications for the project site and surrounding area are shown in Figure IV-1, in *Section IV, Planning Policy*. The applicant has submitted an application for a General Plan Amendment to increase the FAR at the site to 0.68, and amend General Plan diagrams to delete the terminus of Lincoln Centre Drive within the project site.

The zoning designation for the project site, as established by Chapter 7.28 of the City of Foster City Municipal Code, is Commercial Mix/Planned Development District (C-M/PD). The C-M/PD District is designed to accommodate a strategic, appropriate mix of commercial uses in a single planned development. The PD District allows for flexibility in the design standards of such developments. According to the code, those standards are to be established, along with development parameters and zoning, by a required General Development Plan (GDP)/Rezoning. The zoning designations of the project site and surrounding area are shown in Figure IV-2 of *Section IV, Planning Policy*. The applicant has applied to rezone the site from C-M/PD to C-M/PD with an amended GDP.

B. PROJECT BACKGROUND

The project site occupies a portion of a larger development area known as Lincoln Centre. A series of plans and permits were approved for Lincoln Centre, and the project subsequently developed, in the early 1980s.

The City Council of Foster City approved a General Development Plan (GDP) for the 25.9-acre Lincoln Centre site in 1980. This GDP allowed for the development of ten, two-story office/warehouse buildings totaling 369,774 square feet of gross floor area and 343,394 square feet of building area as well as 1,091 parking spaces. The GDP was amended in 1981 to further specify development on a 12.7-acre portion of the site. The amendment allowed for the development of three, one-story office/ warehouse buildings totaling 120,460 gross square feet; one, six-story office building totaling 94,148 square feet of gross floor area; and 664 parking spaces,[2] in that portion of the site.

Lincoln Centre was subsequently developed with seven one- and two-story office/warehouse and lab buildings, totaling approximately 280,000 square feet, and one six-story building of approximately 94,148 square feet.

[2] City of Foster City, Resolution No. P-136-80, Exhibit A.

Current project applicant BMR-Lincoln Centre LP purchased a portion of Lincoln Centre land from the previous tenant, Life Technologies, in the spring of 2013. On February 4, 2014, the applicant submitted a Demolition permit to clear the seven existing one- and two-story buildings. As noted above, those seven buildings have been demolished. The remaining six-story office building is located outside the project site, and therefore was not demolished. On June 25, 2014, BMR-Lincoln Centre LP submitted a Preliminary Review application to the Foster City Community Development Department for the proposed project, to be located on the portion of the original Lincoln Centre previously developed with the seven one- and two-story buildings.

The City Council held a Development Project Preliminary Review meeting on July 21, 2014 to introduce the proposed Lincoln Centre Campus redevelopment project to the City Council and the public. On August 11, 2014, BMR-Lincoln Centre LP submitted applications for both GDP/Rezoning and Environmental Assessment related to the Lincoln Centre Life Sciences Research Campus Project. On September 12, 2014, the applicant submitted an application for a General Plan Amendment. Subsequently, BMR-Lincoln Centre LP submitted a revised GDP package on October 3, 2014 showing revised site layout, a completed Environmental Assessment Information Form, General Plan Amendment text changes, and a Transportation Demand Management (TDM) plan. The name of the project was changed and the amount of off-street parking increased to 1,793 spaces. In addition, the project site was increased to include one (1) additional acre currently occupied by Lincoln Centre Drive and owned by the City. Further revisions to the GDP application were submitted on February 20, 2015 and April 6, 2015, which included updates to building heights, setbacks, and square footage. An application for a Specific Development Plan (SDP)/Use Permit was submitted March 19, 2015.

C. PROJECT OBJECTIVES

The project seeks to create a new biomedical and life sciences research facility in a campus-like development. An overarching goal of the project is to foster a collaborative and innovative setting that attracts innovative, high quality companies to Foster City. The project applicant's objectives are:

- Create a campus of sufficient size to meet current market demand and attract a major life sciences tenant interested in establishing a substantial amount of integrated office and laboratory uses at a single location, thus enhancing Foster City's reputation as a center for life sciences companies.
- Redevelop an underdeveloped site at an infill location, in the midst of existing infrastructure and surrounded by similar uses.

- Increase the amount of life sciences office and research facilities available in Foster City by a sufficient increment to create a substantial economic benefit to the City.
- Create enough development to support aesthetic improvements at a gateway entrance to Foster City.
- Maximize General Plan policies designating the site for research/office park uses.
- Develop a project of sufficient size to support the provision of convenient on-site amenities for staff and visitors.
- Develop a project of sufficient size to support the provision of usable open spaces that facilitate interaction, collaboration and easy access to various parts of the campus.
- Create more economic development opportunities in Foster City.

D. PROPOSED PROJECT

The proposed project includes development of up to 555,000 square feet of laboratory and office space housed in three buildings and a 40,000 square feet building to house amenities for employees and visitors. The project applicant anticipates that a maximum of 388,500 square feet, or 70 percent of the floor area, would be used for office space. The remaining, at least 166,500 square feet (30 percent), would be dedicated to laboratory uses.[3]

A conceptual master site plan is shown in Figure III-2. In summary, the project includes the elements described below.

1. Office and Laboratory Buildings

The project proposes a total of three buildings. As shown in Figure III-2 Site Plan, Buildings A and B would be a maximum of four stories in height (76 feet including roof screen) and 160,000 square feet each. Building C would be a maximum of seven stories in height (124 feet including roof screen) with a maximum of 235,000 square feet. All three buildings would wrap around a large central green space and auto court. Building A would sit at the northeast corner towards the entrance to the campus while Buildings B and C would be located in the southwest corner of the campus. A visual simulation of the proposed buildings' architectural massing is shown in Figure III-3.

[3] To ensure that maximum water demand is studied, the EIR's analysis of water supply impacts studied a variant of 30% office / 70% laboratory. Detailed architectural and engineering designs will be added as phases are designed.

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Source: HOK, 2014; Urban Planning Partners, 2015

Figure III-2
Lincoln Centre Life Sciences Research Campus Project EIR
Concept Site Plan

30.12.2014 P:\14-010 FCBMR\PRODUCTS\Graphics
Source: HOK, 2015

Figure III-3
Lincoln Centre Life Sciences Research Campus Project EIR
Architectural Massing

2. Amenities Building

A proposed 40,000 square feet of employee and visitor amenities would be housed in a fourth building up to two stories in height (41 feet including roof screen) and located adjacent to Building A on the north side of the campus. The amenities, which might include a café or childcare facility, would not be designed to attract customers from outside the project site.

3. Parking Structures and On-Site Circulation and Loading

Access to the proposed project would be through a main driveway located where Lincoln Centre Drive currently meets the northern boundary of the site. An external loop road would encircle the majority of the site. The external road would connect at four locations to an interior road for campus shuttles, visitor drop off, and emergency access. The interior road includes visitor drop-off areas at each building entry around the central landscaped area. Four loading docks are proposed at the ends of each building for commercial deliveries. Bicycle, parking, and electric vehicle parking would be included per City requirements.

The project would provide approximately 1,793 parking spaces, a 15 percent reduction in the minimum amount required (as permitted by Section 17.62.060(D)(3) of the Municipal Code), as shown in Table III-1. This reduction is the result of the parking credit allowed in association with the proposed TDM plan. The parking spaces would be located in three, open-air parking structures with up to five levels of parking (one ground level and up to four stories above ground level) each. The draft TDM Plan is currently under review by C/CAG. Conformance with the C/CAG requirement will be verified by the City during the Specific Development Plan/Use Permit review process that would be conducted prior to implementation of the project.

4. Open Space

The proposed buildings encircle a central landscaped area that serves as a gathering, relaxation, and meeting place. There is also a landscaped open space feature on the northwest corner of the site, situated along the bordering lagoon waterway. Pedestrian pathways and sidewalks are proposed throughout the site. Additionally, the project would include outdoor recreational amenities, including outdoor meeting nodes, a waterfront esplanade, an exercise circuit, BBQ and picnic areas, and recreational courts. Existing perimeter trees on the site would be preserved whenever feasible, and drought-tolerant landscaping would also be used where possible.

TABLE III-1 PARKING CALCULATION TABLE

Land Use	Square Feet	Municipal Code Requirements	Number of Parking Spaces	15% Parking Credit (TDM Plan)
Office	388,500	1 space per 250 Gross Square Feet	1,554	1,321
Laboratory	166,500	1 space per 300 Gross Square Feet	555	472
Total	**555,000**		**2,109**	**1,793**

Source: BMR-Lincoln Centre LP, 2014.

5. Hydrology

The proposed buildings would be designed to withstand the hydrostatic pressure of the groundwater, which ranges from 4 to 6 feet below the surface. This would render dewatering unnecessary during the operational phase. The proposed buildings and hardscape elements would leave 6 to 9 acres of pervious surfaces at the site, as compared to the 4.1 acres of pervious surfaces that currently exist on site. Due to the decrease in impervious surfaces and associated net decrease in stormwater runoff, on-site stormwater detention is not currently anticipated. The storm drainage system will be located within the grading footprint, and will convey runoff to approximately the same point where it now discharges at the site.

Water quality treatment would be accomplished with measures such as bio-retention ponds, flow-through planters, and sub-surface pre-fabricated bio-treatment devices. These would also be developed within the grading footprint, and sized to accommodate the project. The extensive landscaped areas on the site allow more than ample space for C3 water treatment facilities.

6. Employment

As explained above, the project includes up to 555,000 square feet of laboratory and office space. A maximum of 70 percent of the floor area, or 388,500 square feet, would be used for office space. The remaining, at least 30 percent, or 166,500 square feet, would be used for laboratories.

Employee projections differ between the two types of uses. Typically, 1,000 square feet of office space accommodates a slightly higher number of employees than the same quantity of laboratory space. Table III-2 provides a breakdown of projected employment for the proposed project.

TABLE III-2 PROJECTED EMPLOYMENT

Land Use	Employees per 1,000 Sq Ft	Square Feet	Employees
Laboratory	2.57	166,500	428
Office	3	388,500	1,166
Total		**555,000**	**1,594**

Source: BMR-Lincoln Centre LP, 2014.

E. CONSTRUCTION SCHEDULE

To insure that the most intense level of construction activity is analyzed, development of the entire 20-acre site is studied as occurring in a single phase lasting approximately 12 months. Construction is anticipated to begin January of 2016, and terminates in December of 2016. Major phases and dates of this construction schedule, as proposed, are identified in Table III-3.

According to the GDP phasing, the proposed project is anticipated to be built in two phases. During Phase 1 Buildings A, B, and D and PS-2 would be built. During Phase 2, Building C, PS-1, and PS-3 would be built. Both phases are included in the Specific Development Plan/Use Permit application.

TABLE III-3 PROPOSED CONSTRUCTION SCHEDULE

Phase	Estimated Time	Start Date	Finish Date
Site demolition	3 weeks	January 2016	January 2016
Rough grading and earthwork	4 weeks	January 2016	February 2016
Auger Pile Driving	6 weeks	January 2016	March 2016
Rough utility and foundation work	7 weeks	February 2016	April 2016
Core and shell construction	9 months	March 2016	December 2016

Source: BMR-Lincoln Centre LP, 2014.

F. USES OF THIS EIR

It is anticipated that this EIR will provide environmental review of all discretionary approvals and actions required for the proposed project. Approvals would be required before development of the project could be initiated. As Lead Agency for the proposed project, the City of Foster City would be responsible for the majority of these approvals. Other agencies also may have some authority related to the project

and its approvals. A list of permits and approvals that may be required by the City and other agencies, without limitations, is provided in Table III-4.

1. Discretionary Approvals

Key discretionary actions required by the City of Foster City are outlined below.

a. Environmental Review

An Environmental Assessment, in the form of an Environmental Impact Report (EIR), will be prepared in accordance with the California Environmental Quality Act (CEQA). The EIR will analyze the environmental impacts of the proposed project.

b. General Plan Amendment

The maximum Floor Area Ratio (FAR) of the proposed project, at 0.68, would be greater than that allowed by the current ROP designation for the General Plan for Lincoln Centre. A General Plan Amendment would be required to increase the FAR and accommodate the proposed intensity of development. In addition, the applicant has requested all maps and diagrams in the General Plan be updated to reflect vacation and privatization of Lincoln Centre Drive.

c. General Development Plan/Rezoning

The current C-M/PD zoning designation of the project site requires a General Development Plan (GDP)/Rezoning to establish the development standards applicable to the project. The GDP outlines zoning standards such as density, site layout,

setbacks, lot sizes, and building heights, among others. The project would be ultimately be rezoned from C-M/PD to C-M/PD with an amended General Development Plan.

d. Tentative Map

A Tentative Map approval is required to authorize the subdivision of the project site into additional parcels that accommodate new uses. A Tentative Map is also required for the division of land into additional parcels.

e. Specific Development Plan/Use Permit

Specific Development Plan (SDP)/Use Permit approvals will be necessary to allow the construction of any improvements or buildings. Site development, building design and architecture, as well as the details of any improvements, are considered as part of this approval. An SDP/Use Permit in a PD District includes architectural review and requires approval by the Foster City Planning Commission.

TABLE III-4 REQUIRED PERMITS AND APPROVALS

Lead Agency	Permit/Approval
City of Foster City	▪ Environmental Review ▪ General Plan Amendment ▪ General Development Plan/Rezoning ▪ Tentative Map ▪ Specific Development Plan/Use Permit ▪ Development Agreement ▪ Building Permits ▪ Lincoln Centre Drive right-of-way vacation and privatization
Responsible Agencies	
San Francisco Bay Regional Water Quality Control Board (RWQCB) Caltrans	▪ National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge

Source: Urban Planning Partners, 2014.

f. Development Agreement

Project approvals may include a Development Agreement between the project developer and the City to establish the terms of the development, vest the entitlements and local land use approvals, and to further outline the improvements and other obligations of the project developer.

g. Lincoln Centre Drive Vacation and Privatization

Vacating and privatizing the southern portion of Lincoln Centre Drive would be necessary to accommodate the proposed internal roadway and access to the site.

IV. PLANNING POLICY

This chapter includes a discussion of the proposed Lincoln Centre Life Sciences Research Campus Project's (project) relationship to applicable planning-related policies (including land use policies). This discussion is provided in a stand-alone chapter (rather than part of *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures*) because a policy conflict is not, in and of itself, considered a significant environmental impact under CEQA. A project's inconsistency with a policy is only considered significant if such inconsistency would cause *physical* environmental impacts. Policies are discussed in select topical sections of the EIR where applicable policies relate to physical elements and are intended to avoid or mitigate an environmental effect.

In reviewing this chapter, it is important to understand that the determination of whether a project is consistent with a specific policy can be subjective. As a result, policy consistency determinations are ultimately made by the City's local decision-making body (e.g., Planning Commission or City Council). It is not the purpose of this EIR to interpret policy. Goals and policies are interpreted by the decision-makers. The analysis in this chapter is intended to provide the decision-makers with a list of the goals and policies that are pertinent to the project and site. The analysis represents the findings of policy review by the EIR author and is intended to provide a guide to the decision-makers for policy interpretation.

The main guiding documents regulating land use within and around the project site are the:

- Foster City General Plan (particularly the Land Use and Circulation Element);
- Foster City Zoning Ordinance; and the
- San Mateo County Comprehensive Airport Land Use Plan.

Consistency of the proposed project with other non-land use related policies is addressed in the appropriate topical sections of the EIR (e.g., air quality). Applicable land use policies from each of the documents listed above are described below.

A. FOSTER CITY GENERAL PLAN

This section provides a description of the Foster City General Plan (General Plan) and includes a discussion of the proposed project's relationship to applicable goals, policies, and programs outlined in the General Plan. Applicable planning-related policies in the General Plan and the relationship of the proposed project with these policies are summarized in Table IV-1 located at the end of this chapter.

The General Plan is a comprehensive plan for the growth, development and conservation of the City. The General Plan includes policies related to: land use and circulation, housing, parks and open space, conservation, and noise and safety. These topics are addressed within individual elements of the General Plan. The General Plan Land Use and Circulation Element is applicable to land uses within the project site. It is described below.

1. Land Use and Circulation Element

a. Overview

The Land Use and Circulation Element establishes a pattern for land use and sets clear standards for the density of population and the intensity of development for proposed land uses. The Element establishes a direct link between the timing, amount, type, and location of development with the traffic, service, and infrastructure demands generated by development. The overall vision of the Land Use and Circulation Element is for the City to "maintain the integrity and high quality living environment of the City's residential neighborhoods; achieve a successful buildout that balances jobs and housing, infrastructure capacity with development needs, and reinforces Metro Center and the City Center; and respond to longer-term land use and circulation needs in an appropriate manner."

The General Plan designation of the project site is Research/Office Park (ROP), as depicted in Figure IV-1. Properties designated as ROP typically are used for office, research and development (R&D) and manufacturing operations with relatively clean, quiet and low-impact operations. Projects with an appropriate mix of retail and residential uses may also be considered compatible with the ROP designation. A maximum Floor Area Ratio (FAR) of 0.60 is allowed in areas with the ROP designation.

b. Relationship to Project

The project would include the development of a life sciences-oriented research and office complex arranged in a campus-like setting. The development would include up to 555,000 square feet of office/laboratory uses in three separate buildings, as well as a 40,000-square-foot amenities building and three parking structures. As part of the project, an amendment to the General Plan is proposed to increase the FAR currently allowed by the ROP designation, from 0.60 to 0.68. Additionally, the applicant has requested all maps and diagrams in the General Plan be updated to reflect vacation and privatization of a portion of Lincoln Centre Drive. Approval of the proposed General Plan Amendment would ensure the project is consistent with the development parameters of the ROP designation.

The proposed project is generally consistent with the goals and policies of the General Plan Land Use and Circulation Element, as detailed in Table IV-1at the end of this chapter.

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Source: Foster City, 2014; Urban Planning Partners, Inc. 2015

Figure IV-1
Lincoln Centre Life Sciences Research Campus Project EIR
General Plan Land Use Designations

2. Parks, Open Space and Conservation Element

a. Overview

The Parks, Open Space and Conservation Element of the General Plan addresses the preservation of parks and open space, and the conservation of natural resources within the City. The intent of this element of the General Plan is to provide policies which maintain and improve existing natural resources, parks, and open space in Foster City. The overall vision of this element is to preserve and improve the quality of life within existing neighborhoods; assure the proper development of undeveloped property; and assure that redevelopment of developed or underutilized property occurs in an appropriate manner. The Foster City General Plan has a parkland standard of 5 acres per 1,000 residents.

b. Relationship to Project

As discussed in *Chapter III, Project Description,* the proposed project would increase employment on the site by approximately 1,594 new employees. The creation of these jobs could indirectly induce population growth in the City, increasing the demand for parks and recreational facilities. As described in *Section V.J, Public Services, Utilities and Recreation,* the City is far surpassing its goal of providing 5 acres of parkland per 1,000 residents. The proposed project would provide open space areas and various active and passive recreational amenities for employees to use while at work. Although the project could indirectly induce population growth due to project employees relocating to the area, this population increase would generally be dispersed in areas throughout Foster City and surrounding cities. This pattern of population growth would also disperse the demand for parks and recreational facilities. As such, an increase in demand for parks and open space indirectly associated with the proposed project would not cause the project to be inconsistent with the Parks, Open Space and Conservation Element. In addition, the proposed project includes a designed outdoor feature along Foster City Lagoon, and would expand access to the waterfront. This is consistent with the goals and policies of the Parks, Open Space and Conservation Element.

3. Noise Element

a. Overview

The Noise Element of the General Plan identifies and appraises noise issues in the community as a basis for the goals, policies, and implementing actions necessary to maintain conditions desirable and appropriate for Foster City. To meet these objectives, the Noise Element requires that new development or redevelopment projects be compatible with surrounding land uses. The Noise Element thus establishes land use compatibility standards and suggests ways to reduce noise impacts to adjacent sensitive land uses.

b. Relationship to Project

As concluded in *Section V.I, Noise*, neither construction nor ongoing operation of the project would exceed noise-related land use compatibility standards established in the General Plan. Although construction activities would generate an increase in noise levels for off-site receivers, the increase in cumulative noise levels would be less than perceivable and would not occur during recognized hours of sleep. They would also be consistent with the requirements for construction noise that exist in Section 17.68.030 of the Foster City Municipal Code.

According to the Noise Element of the Foster City General Plan, if the predicted future sound level is greater than 60 dBA Ldn, a 3-dBA increase in noise due to the project would be considered a significant noise impact. As detailed in *Section V.I, Noise,* the project would not result in an increase of 3-dBA or greater. The project would be consistent with the City's established noise-related policies.

B. FOSTER CITY ZONING ORDINANCE

The following provides a description of the City of Foster City Zoning Ordinance (Zoning Ordinance) as well as the project's consistency with applicable provisions of the Zoning Ordinance.

1. Overview

The Zoning Ordinance (Title 17 of the Foster City Municipal Code) implements the land use policies of the General Plan and other City plans, policies, and ordinances. It achieves this by dividing the City into zoning districts, each of which is assigned different regulations regarding physical development. These regulations direct the type of allowable uses, as well building construction, nature, extent and intensity.

The current zoning designation for the project site, as established Chapter 17.28 of the Municipal Code, is Commercial Mix/Planned Development District (C-M/PD) as shown in Figure IV-2. According to Chapter 17.36, PDs, or Planned Development Combining Districts, "accommodate various types of development…or a combination of uses which can be made appropriately a part of a planned development." The purpose of PDs is to "allow flexibility of design which is in accordance with the objectives and spirit of the General Plan."

Applications for development in a PD district must include a General Development Plan (GDP)/Rezoning that establishes design standards, development parameters and traditional zoning standards such as site layout, setbacks, lot sizes, and building heights, among others. If and when the GDP is approved, it becomes a part of the zoning map of the City.

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Source: Foster City, 2014; Urban Planning Partners, Inc. 2014

Figure IV-2
Lincoln Centre Life Sciences Research Campus Project EIR
Zoning Designations

The project site was previously included in Lincoln Centre, a GDP adopted in 1980 and amended in 1981. The current application and accompanying GDP would replace prior approvals for the project site. Specific findings must be made by the City Council in order to approve or conditionally approve a GDP, as identified in Section 17.36.030 of the Zoning Ordinance.

Following approval of a GDP, the City requires the submittal and approval of a Specific Development Plan (SDP)/Use Permit before the construction of any buildings or improvements can occur. Site development, building design and architecture, as well as the details of any improvements, are considered as part of this approval. If the project is phased, the SDP can address the specific phase for which development approval is requested. An SDP/Use Permit in a PD District includes architectural review and requires approval by the Foster City Planning Commission.

General development criteria related to PD Districts are contained in Section 17.36.070 of the Zoning Ordinance and address the following topics:

- Design and location to conserve energy resources;
- Clustering of buildings;
- Compatibility with wildlife habitat areas;
- Minimizing impacts from traffic on residential streets;
- Minimizing grading;
- Protection of visual quality, major watercourses, vegetative communities, and wildlife habitats;
- Planting of appropriate vegetation;
- Undergrounding of utility lines;
- Provision of adequate services and utilities; and
- Approval of phases of development only if each phase is designed to stand as an independent development and each phase meets the requirements for PD zoning.

2. Relationship to Project

As stated above, the project's location in the C-M/PD zoning district requires the approval of a GDP/Rezoning which will amend the current GDP (adopted in 1980). The proposed GDP identifies development standards for the project site, including density, setbacks, lot sizes, building heights, etc. via a series of site plans, circulations plans, site sections and architectural massing illustrations. The proposed GDP/Rezoning is consistent with the intent of the C-M/PD district. At the time of SDP approval, the proposed project would be required to undergo the City's Design Review process to ensure that the project conforms to the design review criteria for mixed-use development.

As proposed, the project is generally consistent with the provisions of the City's Zoning Ordinance.

C. SAN MATEO COUNTY COMPREHENSIVE AIRPORT LAND USE PLAN

The project site is located within the vicinity of two airports governed by the San Mateo County Comprehensive Airport Land Use Plan (CLUP). A description of the proposed project's relationship to and consistency with the CLUP is provided below.

1. Overview

State law requires an airport land use commission to prepare and adopt a CLUP for each public-use airport in the county.[1] The CLUP is a tool used by airport land use commissions to fulfill their purpose of promoting airport/land use compatibility. The purpose of the CLUP is to provide for the orderly growth of each public airport and surrounding area and to safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general.

The CLUP is focused on the following three major concerns: 1) aircraft noise impact reduction; 2) the safety of persons on the ground and in aircraft flight; and 3) height restrictions and airspace protection.[2] The project site is located within the airport influence areas of both the San Francisco International and San Carlos Airports. The Airport Land Use Plans for each respective airport and applicable policies are discussed below.

a. San Carlos Airport

The project site is located approximately 4.2 miles north of the San Carlos Airport. Although the project site is located outside of the mapped height restriction area for this airport, it is located within Area A of the Airport Influence Area (AIA).[3] This boundary defines an area within which a real estate disclosure notice must be provided to a buyer or lessee of property within the boundary, regarding the proximity of the nearby airport.

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[1] California Public Utilities Code Section 21675(a).

[2] City/County Association of Governments of San Mateo County (C/CAG), 1996. San Mateo County Comprehensive Airport Land Use Plan, 1996. Adopted November 14, 1996; City/County Association of Governments of San Mateo County (C/CAG), 2012, Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport, adopted October 2012.

[3] City/County Association of Governments of San Mateo County (C/CAG), 2004, CCAG Land Use Committee Recommendation: Revised Airport Influence Area Boundary for San Carlos Airport – Areas A & B, adopted October 2004.

The project site is located outside of the 55 dB Community Noise Equivalent Level (CNEL) aircraft noise contour for the San Carlos Airport. This noise contour is used by the Airport Land Use Commission as the threshold for triggering review and evaluation of proposed land use policy actions in proximity to the airport with respect to noise impacts.[4]

Certain types of land uses are recognized by the Airport Land Use Commission as hazards to air navigation in the vicinity of the San Carlos Airport. These land uses include any of the following:

- Any use that would direct a steady or flashing light toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in straight final approach toward a landing.
- Any use that would cause sunlight to be reflected toward an aircraft in an initial straight climb following takeoff or toward an aircraft engaged in straight final approach toward a landing.
- Any use that would generate smoke or rising columns of air.
- Any use that would attract large concentrations of birds within approach-climbout areas.
- Any use that would generate electrical interference that may interfere with aircraft communications or aircraft instrumentation.

b. San Francisco International Airport

The project site is located approximately 7.3 miles south of San Francisco International Airport. The project site is located within Area A of the AIA, which includes all of San Mateo County, all of which is overflown by aircrafts flying to and from San Francisco International Airport at least once per week at altitudes of 10,000 feet or less above mean sea level.[5] Airport Influence Area A denotes the Real Estate Disclosure Area, within which the real estate disclosure requirements of State law apply. The law requires that the following statement must be included in the notice of intention to offer the property for sale:

> ***Notice of Airport in Vicinity***
>
> *This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport*

[4] City/County Association of Governments of San Mateo County (C/CAG), 1996, San Mateo County Comprehensive Airport Land Use Plan, 1996, adopted November 14, 1996, p. IV-25 to IV-27.

[5] City/County Association of Governments of San Mateo County (C/CAG), 2012, Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport, adopted October 2012.

operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.

The project site is also within the Area B of the San Francisco International Airport AIA, referred to as the Policy/Project Referral Area. The Airport Land Use Commission has statutory duties to review land use policy actions proposed in Area B. Such actions include General Plan updates and amendments, new Specific Plans, and changes to local zoning ordinances.[6]

Additionally, although the project site is not located within the Federal Aviation Administration (FAA) Federal Aviation Regulations (FAR) Part 77 airspace protection criteria for the airport, it is located within the far southeast side of the 14 Code of Federal Regulations (CFR) Part 77 Airport Imaginary Surfaces. The highest obstruction permitted within the project site associated with the approach surface is approximately 700 feet.[7]

2. Project Relationship

The project site is located outside of the mapped height restriction areas for the San Carlos Airport and San Francisco International Airport. Building heights are therefore not regulated by the CLUP. Implementation of the Standard Condition of Approval detailed in *Section V.B, Aesthetics and Shade and Shadow,* would reduce potential impacts associated with increased light and glare. It is anticipated that construction materials would be similar to other buildings in the area and would not create conflicts with design restrictions regarding light or direction of light towards aircraft, nor would any uses generate conflicts with the CLUP. The site is also located outside of the 55 dB CNEL aircraft noise contour which is used as the threshold for triggering review and evaluation of proposed land use policy actions in proximity to the airport with respect to noise impacts. The proposed project is consistent with the CLUP.

As required, the real estate transfer documents distributed to prospective buyers or lessees at the project site would disclose that the property is located within Area A and B for the AIA for the San Carlos and San Francisco International Airports, and that the site may be subject to aircraft overflight. In addition, the Airport Land Use Commission (ALUC) recommends that the project applicants submit FAA Form 7460-1,

[6] City/County Association of Governments of San Mateo County (C/CAG), 2012, Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport, adopted October 2012.

[7] City/County Association of Governments of San Mateo County (C/CAG), 2012, Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport, adopted October 2012. Exhibit IV-16: 14 CFR Part 77 Airport Imaginary Surfaces – Far Southeast Side.

"Notice of Proposed Construction or Alteration" to the FAA Western-Pacific Regional Office in Southern California. FAA staff would use this form to determine if the proposed structures (up to about 95 feet in height) would affect the Class B airspace for San Francisco International Airport. However, as the highest obstruction permitted within the project site associated with the approach surface is approximately 700 feet, the height of the proposed structures would not impact the airspace.

Due to the project site's location within Area B of the San Francisco Airport AIA, the ALUC is required to review proposed land use policy actions associated with the proposed project. The zoning designation for the project site is C-M/PD. According to the Code, the zoning and development standards of projects within this zone require the adoption of a GDP/Rezoning. The proposed rezoning of the project site from C-M/PD to Planned Development Combining District (PD) constitutes a land use policy action that the ALUC has a statutory requirement to review. As such, the City of Foster City should ensure that the ALUC is notified of the rezoning and given the opportunity to review, and comment on, the action.

TABLE IV-1 APPLICABLE GOALS, POLICIES, AND PROGRAMS FROM THE CURRENT GENERAL PLAN

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
Land Use and Circulation Element		
Goal LUC-B	*Promote Proper Site Planning, Architectural Design and Property Maintenance.* Ensure high quality site planning and architectural design for all new development, renovation or remodeling and require property maintenance to maintain the long-term health, safety and welfare of the community.	The site design and circulation are analyzed in this EIR. The site plan and architectural design have been, and will continue to be, the subject of detailed review by City staff and the Planning Commission to ensure a high quality design. The proposed project would be subject to design review at the time of Specific Development Plan/Use Permit approval.
Goal LUC-C	*Provide for Economic Development.* Provide for economic development which: (1) maintains the City's ability to finance City services and construction and maintenance of public improvements; (2) offers local employment opportunities for Foster City residents so that inter-city commuting can be reduced; (3) assures the availability and diversity of resident-serving goods and services; and (4) allows for specialized commercial uses, such as automobile service stations, water-oriented commercial uses and day care facilities.	The project site is currently vacant. Development of the project site is intended to promote innovation and attract high quality companies to Foster City. Development of the proposed project would provide more than a thousand new jobs at the project site, and help support Foster City's position as a municipality that supports progressive, science-based industry. These new jobs would increase the availability of local employment opportunities and could reduce inter-city commuting.
Goal LUC-D	*Maintain a Variety of Land Uses.* Maintain land designated for a variety of residential, commercial, light industrial, recreational and public institutional purposes which (1) provide a mix of housing types, densities and tenure; (2) ensure that a variety of commercial and industrial goods, services and employment opportunities are available in Foster City; and (3) offer a range of recreational and public facilities to meet the needs of Foster City's residents.	The proposed development would provide office and laboratory uses, and associated amenities, on the project site. The project would encompass a campus-like environment in which office space, outdoor passive and active open space, and lifestyle amenities are combined as functional whole.
Goal LUC-F	*Provide Adequate Services and Facilities.* Ensure that new and existing developments can be adequately served by municipal services and facilities.	Standard Conditions of Approval (SCOAs) in *Section V.J, Public Services, Utilities, and Recreation*, require necessary repairs and/or upgrades to the existing infrastructure serving the project site. With implementation of these SCOAs, the proposed project would be adequately served by existing public service providers and infrastructure.
Goal LUC-I	*Provide for diversified transportation needs.* Develop, improve and maintain a circulation system which provides efficient and safe access for private vehicle, commercial vehicles, public transit, emergency vehicles, bicycles and pedestrians.	The proposed project's circulation system includes an extensive system of internal automobile routes, shuttle routes, and pedestrian pathways. The project will include bicycle and motorcycle parking per Foster City code, and the applicant completed a Transportation Demand Management (TDM) plan that include measures that support alternative

TABLE IV-1 APPLICABLE GOALS, POLICIES, AND PROGRAMS FROM THE CURRENT GENERAL PLAN

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
		commute modes such as carpools, vanpools, and bicycles, as well as 100 percent subsidies to all transit riders and permitting telecommuting and flexible work schedules.
Goal LUC-J	*Maintain Acceptable Operating Conditions on the City's Road Network.* Maintain acceptable operating conditions on the City's road network at or above LOS D and encourage the maximum effective use of public and private vehicles, reduce the growth in peak hour traffic volumes and reduce single passenger trips.	See Policy LUC-50, below.
Goal LUC-K	*Provide Adequate Parking.* Ensure that adequate off-street parking is incorporated into new projects and designed for safe and effective circulation.	The proposed project would provide approximately 1,793 parking spaces, a 15 percent reduction in the amount that would typically be required by parking minimums established in the Municipal Code. This reduction is the result of the parking credit awarded the applicant for completing a TDM plan. These parking spaces would be housed in three open air structures. Bicycle and motorcycle parking would also be included per City requirements.
Policy LUC-6	*Planned Development Zoning.* The Planned Development zoning designation may be applied to any designated multi-family, commercial or industrial site to allow a mixed-use project, subject to the following standards: …(c) advertising or identification signs are limited in size and number, and regulated by a project-specific sign program; (d) any residences located in the development can be protected by landscaping, open spaces, and other design features from the noise and traffic generated by commercial establishments; (e) off-street parking for residents, employees, and customers is provides in accordance with the Municipal Code; and (f) an adequate amount of open space for use by any residents of the project is provided. Such an open space area should be protected to provide a private area for residents.	The project site is within the Commercial Mix/Planned Development District (C-M/PD). Project signage would be subject to design review prior to issuance of a Specific Development Plan/Use Permit. The proposed project has no residential component, but would provide an open space/recreational component that is contained in a central area and provides privacy for employees and visitors of the proposed development.
Policy LUC-25	*Research/Office Park.* Areas with this designation contain office, research and development, and manufacturing establishments whose operations are clean and quiet. Mixed-use projects which include some retail and residential uses in addition to office and research uses may, under certain conditions, be considered compatible with this designation. Such conditions include compatibility of uses and project	The project site is designated as Research/Office Park (ROP) by the Foster City General Plan. A General Plan Amendment would be required to accommodate the developmental intensity of the proposed project, which would have an FAR of 0.68, increased from 0.60. The proposed project, which includes office, laboratory, and indoor amenities space situated around a central outdoor open space, as well as

TABLE IV-1 APPLICABLE GOALS, POLICIES, AND PROGRAMS FROM THE CURRENT GENERAL PLAN

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
	design (land planning, architecture, etc.). A large portion of Vintage Park, the vacant lands north of East Third Avenue and the Lincoln Centre area are all designated for Research/Office Park use. The intensity of development found in Vintage Park and Lincoln Centre are very similar, with Floor Area Ratios (FAR) generally ranging from .20 to .60 FAR in Vintage Park, and .26 to .56 FAR in Lincoln Centre. The intensity of development for the East Third Avenue, Bridge Landing and vacant Vintage Park sites is anticipated to have an FAR of up to 1.0.	lagoon fronting open space, is largely compatible with the ROP designation.
Policy LUC-38	*City Approach to Design (Architectural) Review.* The City will establish a continuing program of civic beautification, tree planting, maintenance of homes and streets, and other measures which will promote an aesthetically desirable environment in order that neighborhood areas appear attractive both within and without. The City will use a design review process (called Architectural Review) whereby the design of most public and private development proposals, including those for individual residences, are subject to review and approval by the City. The primary objective of this review is to preserve the character of the neighborhood and community regarding appropriate and acceptable design for property improvements. Design review shall address, among other things, the following issues: (a) Preservation of the architectural character and scale of neighborhoods; (b) That the development is well designed in and of itself, and in relation to surrounding properties; (c) Preservation of waterfront views; (d) Minimizing impacts on the privacy and access to sunlight of adjacent properties; (e) Minimizing impacts due to excessive noise or undue glare; (f) Screening of unsightly uses including trash, loading docks/areas, roof top equipment, and special ventilating systems; (g) Use of setbacks, open space and landscaping, (h) Exterior colors and materials.	The proposed project would be subject to design review at the time of Specific Development Plan/Use Permit approval. Implementation of the recommended SCOA in *Section V.B, Aesthetics and Shade and Shadow*, would reduce potential impacts associated with light and glare.
Policy LUC-40	*Design Review of Commercial and Industrial Projects.* The City will use a design review process for commercial and industrial projects to ensure that basic land uses, density, access, internal circulation, visual characteristics, noise, odors, fire hazards, vibrations, smoke, discharge of wastes and nighttime lighting do not negatively affect adjacent or nearby residential land	The proposed project would be subject to design review at the time of Specific Development Plan/Use Permit approval.

TABLE IV-1 APPLICABLE GOALS, POLICIES, AND PROGRAMS FROM THE CURRENT GENERAL PLAN

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
	uses. Residential projects to be located near existing commercial or industrial land uses shall be appropriately designed to reduce noise, traffic, visual, and other potential conflicts.	
Policy LUC-44	*Vacant Parcels Adjacent to Waterways.* Vacant Parcels Adjacent to Waterways shall incorporate public open space and water oriented design features into any development on these sites.	The project site is a vacant property that abuts the Foster City lagoon outflow channel to the west. The proposed project takes advantage of this waterfront position, and includes a landscaped open space feature on the northwest corner of the site, bordering the lagoon waterway.
Policy LUC-47	*Permitted Land Uses on Vacant Sites.* Permitted land uses on vacant sites should be compatible with the existing uses of land surrounding the vacant parcel, environmental characteristics of the site, the capacity of public facilities, streets and infrastructure serving the site, and the need to maintain a balance between residential, commercial, and public land uses.	The proposed project, located on a vacant site, is largely similar to the office and light industrial planned developments that surround the site to the south, west and east. The proposed project accounts for these existing land uses, as well as the environmental characteristics of the site. More information is provided in *Section V.E, Geology and Soils*; *Section V.H, Hydrology and Water Quality*; and *Section V.J, Public Services, Utilities, and Recreation*. The proposed project would contain commercial land uses only.
Policy LUC-50	*Traffic Level of Service Standards.* The City shall seek to achieve a traffic service level of "C" or better on City streets and level of "D" or better during peak traffic hour…through the following means: a. Traffic Systems Management (TSM). b. Street Maintenance. c. Capital Improvement Program and coordination with federal, state, county and district funding programs for street and other transportation improvements. d. Developer payment of pro rata fair share of traffic improvement costs for new developments.	The project applicant completed a TDM plan to reduce level of service impacts on City streets. The draft TDM Plan is currently under review by C/CAG. Conformance with the C/CAG requirement will be verified by the City during the Specific Development Plan/Use Permit review process that would be conducted prior to implementation of the project. The TDM plan includes measures to support alternative commute options, such as bicycles, vanpools, shuttle service and carpooling. As discussed in detail in *Section V.C, Traffic and Transportation*, although the proposed project would increase delay during peak traffic hours at signalized intersections, after applying mitigation measures, all but three intersections would operate at or above a LOS D. Two of these intersections are located in Foster City (Foster City Boulevard/Chess Drive and SR 92 Eastbound Ramps/Metro Center Boulevard) and would improve to LOS E or F with mitigation measures. However, improvements for these intersections require Caltrans approval which is not yet

TABLE IV-1 APPLICABLE GOALS, POLICIES, AND PROGRAMS FROM THE CURRENT GENERAL PLAN

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
		confirmed at this time. Therefore, impacts to these intersections would remain significant and unavoidable. The third intersection is located in San Mateo (Norfolk Street/East 3rd Avenue) and would improve to LOS E; however, San Mateo requires maintaining no worse than a mid-range LOS D. Therefore, this proposed project would not meet their criteria. Furthermore, since Foster City cannot guarantee San Mateo would agree to the proposed improvement to reduce vehicle delay, impacts to this intersection would remain significant and unavoidable.
Policy LUC-55	*Access to New Commercial and Industrial Projects.* New commercial and industrial developments shall be designed so that, wherever necessary and possible, entrance to the projects can be gained by way of left- or right-turn only lanes. Only the minimum number of entrance or exit points shall be allowed as are needed to ensure safe and efficient internal traffic flow and to reduce through traffic delays on public roads serving the project.	Primary ingress and egress to and from the proposed development would be provided by Lincoln Centre Drive via East 3rd Avenue. Internal streets and roadways would provide access to project buildings. The proposed project is anticipated to have an efficient and safe internal circulation system, as discussed in *Section V.C, Traffic and Transportation*. Project site access would also be evaluated for safety considerations prior to Specific Development Plan/Use Permit approval.
Policy LUC-58	*Off-Street Parking Requirements.* The City shall maintain off-street parking requirements based on use permits of record, the historical parking patterns of residential and non-residential projects, and related information developed by the Urban Land Institute, Institute of Traffic Engineers, and other reliable sources.	Refer to Goal LUC-K.
Policy LUC-59	*Bicycle Parking.* Secured bicycle parking shall be encouraged for all commercial and industrial buildings. The City will continue to allow required parking to be reduced by one space for every eight bicycle parking spaces provided, per Chapter 17.62 of the Municipal Code.	The proposed project must comply with City plans and policies related to bicycle parking which will be reviewed and enforced during the Specific Development Plan/Use Permit process. In addition, the TDM plan completed by the project applicant includes measures to include bicycle lockers and racks.
Policy LUC-60	*Parking and Internal Circulation in Project Design.* The City shall continue to incorporate parking and internal circulation design into its overall review of project design. The review shall include compliance with City off-street parking design standards and ratios.	The proposed project would be subject to design review at the time of Specific Development Plan/Use Permit approval and prior to issuance of a Use Permit. Also refer to LUC-I and LUC-K.
Parks, Open Space and Conservation Element		

TABLE IV-1 APPLICABLE GOALS, POLICIES, AND PROGRAMS FROM THE CURRENT GENERAL PLAN

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
Goal PC-F	*Provide Adequate Open Space to Serve Existing and New Development.* Assure the provision of adequate open space to serve existing and new development and preserve existing open spaces with public access easements within private commercial developments.	The proposed project achieves a campus-like setting with a large central open space with both active and passive recreational features, as well as a waterfront open space along the bank of the adjacent lagoon.
Policy PC-25	*Scenic Waterfront Vistas.* Protect scenic vistas of and from waterfront property by preventing obstruction of views by new development.	The proposed project includes a lagoon-fronting open space that promotes waterfront activity, open views of the lagoon from within the project. The majority of building facades parallel the adjacent freeway, rather than the waterfront.
Noise Element		
Goal N-A	*Assure that the Noise Impacts of the New Development or Redevelopment of Property is Done in a Manner that is Compatible with Existing Land Uses.* Assure the appropriateness of new development with the noise environment of Foster City and establish mitigation measures for any changes in land use as are reasonably necessary to assure compatibility with the surrounding area.	As detailed in *Section V.I, Noise*, the proposed project would result in no increases in noise that are incompatible with existing neighboring land uses. No noise-related mitigation measures would be necessary.

Source: City of Foster City General Plan, June 1999, September 2009, February 2010; Urban Planning Partners, Inc., 2015.

V. SETTING, IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

This chapter contains an analysis of the environmental topics determined to be potentially significant relevant to the proposed Lincoln Centre Life Sciences Research Campus Project (the project). Sections V.A through V.J of this chapter describe the existing setting, the potential impacts that could result from implementation and buildout of the project, and Standard Conditions of Approval (SCOAs) and/or mitigation measures designed to reduce most significant impacts of the project to a less-than-significant level. Ten impacts in the Traffic and Transportation section remain significant and unavoidable even with mitigation measures.

The following provides an overview of the scope of the analysis included in this chapter, organization of the sections, and the methods for determining what impacts are significant.

ENVIRONMENTAL TOPICS

The following environmental topics are analyzed in this chapter:

A. Land Use
B. Aesthetics and Shade and Shadow
C. Traffic and Transportation
D. Air Quality
E. Geology and Soils
F. Greenhouse Gas Emissions
G. Hazards and Hazardous Materials
H. Hydrology and Water Quality
I. Noise
J. Public Services, Utilities, and Recreation

A brief discussion of the environmental topics for the project that are not found to be significant is included in *Chapter VI, CEQA-Required Assessment Conclusions,* under the sub-heading VI.E, Effects Found Not to Be Significant. These topics include: agriculture and forest resources, biological resources, cultural resources, mineral resources, and population and housing.

FORMAT OF TOPIC SECTIONS

Each environmental topic section generally includes two main subsections: (1) Setting; and (2) Impacts (construction and project), SCOAs, and Mitigation Measures. Identified significant impacts are numbered and shown in bold type, and the corresponding mitigation measures are numbered and indented. Significant impacts and mitigation measures are numbered consecutively within each topic and begin with a shorthand abbreviation for the impact section (e.g., AIR for Air Quality). The following abbreviations are used for individual topics:

LAND: Land Use
AES: Aesthetics and Shade and Shadow
TRANS: Traffic and Transportation
AIR: Air Quality
GEO: Geology and Soils
GHG: Greenhouse Gas Emission
HAZ: Hazards and Hazardous Materials
HYD: Hydrology and Water Quality
NOI: Noise
UTL: Public Services and Utilities

The following notations are provided after each identified significant impact and mitigation measure:

SU = Significant and Unavoidable
S = Significant
LTS = Less than Significant

These notations indicate the significance of the impact with and without mitigation.

DETERMINATION OF SIGNIFICANCE

Under California Environmental Quality Act (CEQA), a significant effect is defined as a substantial, or potentially substantial, adverse change in the environment.[1] Each impact evaluation in this chapter is prefaced by criteria of significance, which are the thresholds for determining whether an impact is significant.

The criteria of significance identified in this EIR are intended to implement and supplement provisions in the CEQA Guidelines for determining the significance of environmental effects, including Sections 15064, 15064.5, 15065, 15382, and Appendix G.

[1] Public Resources Code Section 21068.

A summary of the project's relationship to each significance criteria is provided at the beginning of the impact and mitigation measures subsection for each topic.

CUMULATIVE ANALYSIS CONTEXT

CEQA defines cumulative as "two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts." Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts when the project's incremental effect is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. These impacts can result from a combination of the proposed project together with other projects causing related impacts. "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects."

The methodology used for assessing cumulative impacts typically varies depending on the specific topic being analyzed. For example, the geographic and temporal (time-related) parameters related to a cumulative analysis of air quality impacts are not necessarily the same as those for a cumulative analysis of noise or aesthetic impacts. This is because the geographic area that relates to air quality is much larger and regional in character than the geographic area that could be impacted by potential noise or aesthetic impacts from a proposed project and other cumulative projects/growth. The noise and aesthetic cumulative impacts are more localized than air quality and transportation impacts, which are more regional in nature. Accordingly, the parameters of the respective cumulative analyses in this document are determined by the degree to which impacts from this project are likely to occur in combination with other development projects.

A. LAND USE

This section describes existing land uses within the and in the vicinity of the project site, and evaluates the proposed project's potential land use impacts. General Plan goals, policies and programs related to land use are discussed in *Chapter IV, Public Policy*.

1. Setting

The following section describes existing land uses within the project site and surrounding areas. The section begins by discussing the regional and local setting, and then provides more specific information about the project site and vicinity. Land uses within and adjacent to the project site boundaries are generally identified in the aerial photo provided in Figure V.A-1.

a. Regional Setting

The project site is located on the San Francisco Peninsula within Foster City, as shown in Figure III-1. Foster City is located approximately 15 miles southeast of the City of San Francisco and approximately 30 miles northwest of the City of San Jose. The City is located in San Mateo County and is bordered by the San Francisco Bay to the north and east, the cities of Belmont and Redwood City to the south, and the City of San Mateo to the west. Major transportation corridors in the area include US Highway 101 and California State Route 92 (SR 92).

b. Local Setting

Foster City is a "Planned Community" constructed and implemented on the basis of an organized program of development. The City was originally designed in the 1960s as a suburban community with a clear community center, and an industrial base to support required services. It was constructed on reclaimed marshlands devoted to dairy farming and evaporation ponds. Development of the City has been dictated by the natural, mainly water-oriented constraints of the filled marshlands.

The 20-acre project site is located on the northeastern edge of Foster City, at approximately 200 through 850 Lincoln Centre Drive. The vacant site is located in an area of primarily planned office developments, and was recently cleared of office buildings. It is bounded by East 3rd Avenue and the Foster City Corporation Yard to the north; the San Mateo Bridge approach of SR 92 to the south; the Foster City lagoon outflow channel to the west; and an adjoining office complex and parking lot to the east.

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Source: Urban Planning Partners, Inc. 2015

Figure V.A-1
Lincoln Centre Life Sciences Research Campus Project EIR
Existing Land Use in Project Vicinity

c. Existing Conditions and Land uses on the Project Site

Currently, the project site is undeveloped. It was previously developed with seven office/warehouse and lab buildings, all of which were recently demolished by the current owner/project applicant. The mostly level vacant site now contains remaining building pads, surface parking, and access roadways. Approximately one acre of the project site is occupied by the stub of Lincoln Centre Drive that terminates in the project site. As discussed in *Chapter IV, Planning Policy*, the existing General Plan designation for the project site is Research/Office Park (ROP). Properties designated ROP typically are used for office, research and development (R&D), and manufacturing operations with relatively clean, low-impact operations. Figure IV.A-1 shows existing General Plan land use designations for the project site and vicinity. The project site is zoned Commercial Mix/Planned Development District (C-M/PD). The C-M/PD District is designed to accommodate a strategic, appropriate mix of commercial uses in a single planned development. According to the code, those development standards are to be established on a case-by-case basis by a required General Development Plan (GDP)/Rezoning.

d. Land Uses in the Vicinity of the Project Site

As noted above, the majority of land in the vicinity of the project site is occupied by planned office or light industrial developments. The C-M/PD zoning district in which the project site is located extends in all directions beyond the site, encompassing most of the surrounding land. Surrounding General Plan Land use designations include ROP, Light Industrial, Chess/Hatch Office Research, and Service Commercial.

(1) Land Uses to the North

The Foster City Corporation Yard at 100 Lincoln Centre Drive and a six-story office building built as part of the previously planned Lincoln Centre development, lie immediately north of the project site. Both of these properties are designated ROP, and both are located in the C-M/PD zoning district in which the project site is located.

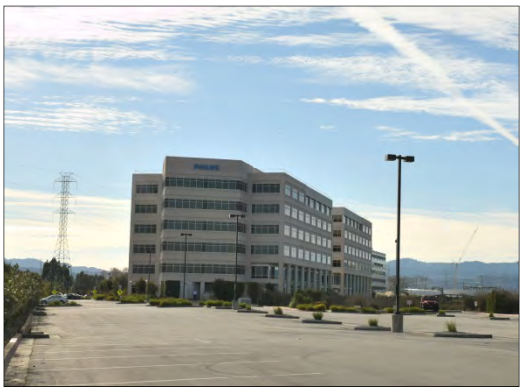
Lincoln Centre office building north of project site

Lincoln Centre and Foster City Corporation Yard north of project site

(2) Land Uses to the East

The adjoining Bayside Towers office buildings and associated parking lot, at 4000/4100 East 3rd Avenue, neighbor the project site to the east. These properties are also designated ROP and zoned C-M/PD. There is a series of educational facilities located east of the Bayside Towers, just across SR 92. These facilities, which are generally east-southeast of the project site, include Lakeview Montessori Daycare, Kids Connection Daycare and Kids Connection Elementary School.

Bayside Towers office buildings east of the project site

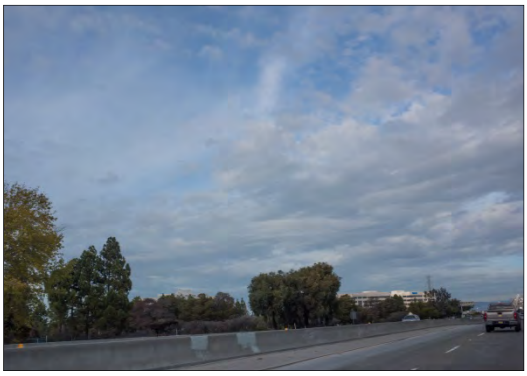


Bayside Towers and associated parking lot east of the project site

(3) Land Uses to the South

As previously noted, SR 92 runs immediately south of the site. A series of office complexes, designated Service Commercial by the Foster City General Plan, is located just beyond SR 92. These complexes are zoned C-M/PD and Commercial-Office (CO). Further to the southeast, just beyond SR 92 and E. Hillsdale Boulevard, is a series of multi-family residential complexes and single family homes.

Westbound SR 92 south of the project site



Eastbound SR 92 south of the project site

(4) Land Uses to the West

The Foster City lagoon outflow channel forms the western boundary of the project site. An area of developed Light Industrial land, as well as a smaller area designated Chess/Hatch Office Research by the Foster City General Plan, is located directly behind that water feature. These areas are zoned either C-M/PD or Light Industrial/Planned Development (M-1/PD). The Chess Hatch office research complex is located in this area.

Lagoon channel west of project site

Chess Hatch complex west of lagoon channel

e. Regulatory Context

General Plan goals, policies and programs related to land use are discussed in *Chapter IV, Public Policy*.

2. Impacts and Standard Conditions of Approval

The following section analyzes environmental impacts related to land use that could result from implementation of the proposed project. The section begins with the criteria of significance, which establish the thresholds for determining whether an impact is significant. The latter part of this section presents the land use impacts associated with the proposed project and any necessary SCOAs that might result. Impacts are divided into separate categories based on their significance according to the following criteria: less-than-significant impacts, which do not require mitigation, and significant impacts, which do require mitigation.

a. Criteria of Significance

The proposed project would have a significant impact if it were to:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific

plan, local coastal program, or zoning ordinance), adopted for the purpose of avoiding or mitigating an environmental effect; or

- Conflict with any applicable habitat conservation plan or natural community conservation plan.

b. Less-Than-Significant Land Use Impacts

Less-than-significant land use impacts of the proposed project are discussed below.

(1) Divide an Established Community

The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and outlying areas.

The project site is located at the northeastern edge of Foster City, nearly adjacent San Francisco Bay, which surrounds the site to the north and east. It is also positioned at the immediate intersection of two existing, linear features that currently act as physical barriers to contiguous development: the lagoon to the west of the site and SR 92 to the south (see Figure III-1).

The project would develop the currently vacant, roughly triangular site with up to 595,000 square feet of office and laboratory space and associated improvements. No physical barriers would be developed on the project site that would impede access to and through the site, and no existing access would be permanently removed. The project would not divide the physical arrangement of an established community. The location of the site at the edge of Foster City, and its position between the lagoon and SR 92, result in project that would conform to existing physical barriers rather than create new divisions. Campus-like features of the project would work to contain activity to the site, and thus reduce conflicts with similar public features elsewhere in the community.

(2) Conflict with Land Use Plans

A full description of other applicable plans, policies and regulations adopted for the purpose of avoiding or mitigating environmental impacts is provided in *Chapter IV, Planning Policy*. A brief summary is provided below.

General Plan Policy

The General Plan land use classification for the project site is Research/Office Park (ROP). As explained in *Chapter III, Project Description*, properties designated ROP are typically used for offices and R&D. The maximum Floor Area Ratio (FAR) of the proposed project, at 0.68, would be greater than the FAR of 0.60 allowed within the ROP designation. A General Plan Amendment is proposed to increase the FAR and

accommodate the proposed intensity of development. Additionally, the applicant has requested all maps and diagrams in the General Plan be updated to reflect vacation and privatization of a portion of Lincoln Centre Drive. Approval of the proposed amendment would ensure that the project is consistent with the General Plan.

As detailed in *Chapter IV, Planning Policy,* Table IV-1, the project is generally consistent with all other General Plan policies related to land use.

Zoning

The zoning of the project site is Commercial Mix/Planned Development District (C-M/PD). As discussed in *Chapter IV, Planning Policy,* new development within this zone will require approval of a Rezoning/GPD. All PD Districts are intended to accommodate zoning and design standards customized to individual developments such as the proposed project. These standards must be determined to be in accordance with "the objectives and spirit of the General Plan (Ord. 289 1 (part), 1984)."[1]

The code establishes that these customized zoning, design and development standards are to be established via the GDP/Rezoning described above. According to the Code, the GDP "shall become a part of the zoning map of the city" only when "approved by the planning commission and city council."[2] This process ensures that the rezoning process and changes to development standards at the project site are reviewed for conformance with the General Plan, including all land use policies aimed at targeting the environment and reducing environmental impacts.

The project applicant has acted in compliance with the GDP process. On August 11, 2014, project applicant BMR-Lincoln Centre LP submitted applications for both GDP/Rezoning and Environmental Assessment related to the project. On September 12, 2014, the applicant submitted an application for a General Plan Amendment. Subsequently, BMR-Lincoln Centre LP submitted revised GDP/Rezoning and Environmental Assessment applications on October 3, 2014. On January 23 and 29 and February 20, 2015, the applicant submitted a revised GDP which included modifications to maximum building heights and gross square footage, building setbacks, and development phasing information. As a result of regulations built into the CM-PD zoning district, and the project applicant's compliance with those regulations, the proposed rezoning and development standard changes do not represent significant impact land use policy impacts.

[1] City of Foster City Municipal Code, Title 17, 17.36.010, Purpose.
[2] City of Foster City Municipal Code, Title 17, 17.36.030, General Development Plan.

(3) Habitat Conservation Plans

There are no Habitat Conservation Plans or Natural Area Community Plans encompassing the site or vicinity; therefore, no conflicts with these types of plans are anticipated.

c. Significant Land Use Impacts and Mitigation Measures

Implementation of the proposed project would not result in any significant land use impacts; all impacts would be less than significant as discussed above.

d. Cumulative Land Use Impacts

The proposed project would redevelop the site with up to 555,000 square feet of interior office and laboratory building space and a 40,000-square-foot amenities building. Although currently vacant, the project site was recently cleared of 280,000 square feet of similar uses. The proposed project would therefore increase the previous intensity of development, but this increase would not be incompatible with the existing surrounding development pattern. In addition, land uses proposed for the project site would also be internally compatible. As such, operation of the proposed project would not result in long-term land use impacts in conjunction with other planned development. Projects included in the cumulative analysis would all be required to conform to General Plan policies (including those for jurisdictions outside Foster City, as applicable) and to applicable design guidelines that are intended to minimize land use conflicts. While the proposed project and cumulative projects would result in land use changes, such the proposed Rezoning/GDP is consistent with the intent of zoning regulations as discussed in more detail in *Chapter IV, Planning Policy*.

B. AESTHETICS AND SHADE AND SHADOW

Potential effects of the proposed project on visual resources in the vicinity of the project site are evaluated in this section. The project's consistency with Foster City General Plan policies relevant to aesthetics are also considered, as well as compliance with relevant requirements and standards set forth in the Foster City Zoning Code. This section is partly based on visual simulations of the project site that depict "before" and "after" conditions. These simulations are *conceptual and intended to illustrate basic building mass.* The simulations do not illustrate architectural and site design details, such as building relief, colors and materials, artistic features, etc. Architectural detail is not considered in this evaluation; the City will consider design details, as well as building and landscaping materials, as part of its required design review process.

The shade and shadow effects of the project are also evaluated in this section.

1. Setting

The following passages describe the existing visual character of the project site, the areas immediately surrounding project site, and that of the general project vicinity.

a. Local Context

As discussed in *Section V.A., Land Use,* of this EIR, Foster City is a "Planned Community" constructed and implemented on the basis of an organized program of development.

(1) Existing Visual Character of the Project Site

As discussed in *Chapter III, Project Description,* the project site was recently cleared of seven buildings constructed as part of the original Lincoln Centre planned development. This demolition process has significantly influenced the current visual character of the site. The immediate visual impression of the site is that of a flat, nearly unobstructed expanse of hardscape that is intermittently broken up by trees and brush located in medians of curb height, as well as access roads and driveways. This is a visual expanse of pale concrete, the result of the building pads leftover from demolition. The majority of the site is bordered by trees and vegetation, which create an effective visual barrier that encloses the space.

Aesthetically, the project site is similar to that of a vacant parking lot. As noted, the site contains areas of dirt and vegetation located in medians between building pads, areas that once defined different areas within the site. Most of these medians contain landscape features common to many parking lots, such as scrub, bushes and small rocks.

Other medians contain trees of various size and maturity. Some trees are deciduous, reaching just a single story in height, and contribute to an aesthetic of vacancy.

Others are mature pine and oak varieties that reach three story heights and that become defining features of the overall visual landscape of the project site. Most of these are located in clumps within the largest medians of the site, medians that also include small boulders and a cover of fallen pines. The visual result of these groups of trees is that of small forests surrounded by hardscape. Most of these are located around the outer boundaries of the site and along Lincoln Centre Drive. These are elements that contribute to a visual character of wooded privacy that contrasts the otherwise homogenous visual expanse of the site.

Finally, the single standout visual feature, or visual landmark, of the project site is the steel utility tower that rises approximately four stories from the parking lot at the northernmost portion of the site.

(2) Views from the Project Site

Views from the project site are typical of the planned built environment that defines this area of Foster City. The prevailing flatness of the area, combined with mature vegetation within and between properties, prevents expansive vistas or perspectives. The large trees that ring the site significantly limit views outward in all directions. The following subsections describe views out of the site in four directions.

(3) Views towards the North

Views to the north from the project site are restricted by the combination of a flat landscape and the mature trees that line most of the northern boundary of the site. However, visible through or above the trees to the north are portions of either the six-story building at 101 Lincoln Centre Drive, or, to the north/northeast, portions of the Bayside Towers office buildings and associated parking lot, at 4000/4100 East 3rd Avenue (see Figure V.B-1). These buildings are of typical office building design, defined by alternating rows of white surface material and black windows. To the northwest, portions of the three large, white water storage tanks just across the lagoon are also visible, with the San Francisco Bay just visible beyond them.

(4) Views towards the South

SR 92 runs immediately south of the site, with a mix of one- and two-story commercial developments, located just beyond SR 92 along Beach Park Boulevard. With the exception of highway signage, these elements cannot be seen from the site, due to trees. To the south and southeast, the upper stories and peaked rooflines of the four-story Miramar Apartment complex located beyond the commercial development on the north side of Beach Park Boulevard are visible above the trees, as shown in Figure V.B-1. The articulation and gabled rooflines of these apartments standout as the predominant architectural form in the area, due to the building height.

FIGURE V.B-1 VIEWS NORTH AND SOUTH FROM THE PROJECT SITE

Views from the project site towards the north

Views from the project site towards the south

(1) Views towards the East

As is the case in other directions, views to the east from the project site are primarily restricted by vegetation surrounding the site. The Bayside Towers office buildings (six stories) at 4000/4100 East 3rd Avenue, neighbor the project site to the east, and are prominent in the eastward view (see Figure V.B-2) given the height of the buildings. From most points within the site, at least a portion of the Bayside Towers parking lot is visible through the trees. From select points, a portion of the SR 92 approach to the San Mateo Bridge is visible as it rises upward. In many views to the east, the front facades of the Bay Side Towers are also visible through gaps in the trees and vegetation.

(2) Views towards the West

The Foster City lagoon outflow channel is located immediately west of the project site. An eclectic mix of one- and two-story buildings that are occupied by office and light industrial uses are located directly behind that water feature. From within the project site, the lagoon, lined by vegetation on both sides and with a low water level, visible only from select points within the project site. Vegetation along its banks also largely inhibits views of neighboring developments from the project site. However, the pedestrian bridge that spans the lagoon to the neighboring office complex is partially visible to the west, as shown in Figure V.B-2. From some points within the project site, the hills that rise up just west of Interstate 280 are also visible.

(3) Views To and Through the Project Site

The flat, undeveloped, tree-lined and currently unremarkable project site is visible from only a few surrounding vantage points. The only defining landmark tall enough to rise above the dense vegetation and penetrate views from the surrounding flat landscape is the steel utility tower located at the northern edge of the site. Views to and through the site exist from the adjacent six-story office building at 101 Lincoln Centre Drive and the Bayside Towers, located at 4000/4100 East 3rd Avenue.

(4) Views from the North

From most of East 3rd Avenue, the site is nearly entirely obstructed with the exception of the utility tower. The tops of the largest trees are visible, although no other individual parts of the site itself can be identified or defined. Only from East 3rd Avenue at Lincoln Centre Drive can internal portions of the site be viewed, as seen in Figure V.B-3.

(5) Views from the South

The aforementioned utility tower is the only element of the project site that is visible from SR 92. Heavy vegetation along the interstate prevents views of the flat site, and while some of the taller trees on the site may be visible, they are indiscernible from vegetation that lines the Interstate. This is evident in Figure V.B-3, which contains a

FIGURE V.B-2 VIEWS EAST AND WEST FROM THE PROJECT SITE

Views from the project site towards the east

Views from the project site towards the west

FIGURE V.B-3 VIEWS FROM THE NORTH AND SOUTH TOWARDS THE PROJECT SITE

Views from the north towards the project site

Views from the south toward the project site

typical view from SR 92. From one point along the Interstate, adjacent the southernmost portion of the site, along the lagoon, a small part of the site is visible. From beyond the Interstate, views of the site are obstructed further by existing development.

(6) Views from the East

The location of SR 92, just south and east of the project site, and its southwest-northeast alignment, results in views from the east that are similarly restricted as views from the south. Vegetation along the freeway inhibits views of the site from across the freeway. From the vantage point of the Bay Trail at New Foster City Park, further to the east, the only feature of the project site that is visible is the utility tower (see Figure V.B-4).

(7) Views from the West

As is the case from all other directions, views of the site from the west are nearly limited to the trees that line its border. Portions of the existing hardscape are visible from the across the lagoon and from the pedestrian bridge that spans the lagoon, although these are views are limited. Heavy vegetation along the banks of the lagoon significantly blocks inward views of the undeveloped site, as is evident in Figure V.B-4. From this vantage point, the Lincoln Centre office building can be seen rising above the trees to the northeast.

b. Regulatory Context

Applicable regulatory provisions are discussed below. Included in this discussion are policies of the Foster City General Plan and regulations of the Foster City Zoning Code.

(1) Foster City General Plan

The Foster City General Plan contains the following goals and policies related to aesthetics and shade and shadow impacts.

- *Goal LUC-B: Promote Proper Site Planning, Architectural Design and Property Maintenance.* Ensure high quality site planning and architectural design for all new development, renovation or remodeling and require property maintenance to maintain the long-term health, safety and welfare of the community.
- *Policy LUC-38: City Approach to Design (Architectural) Review.* The City will establish a continuing program of civic beautification, tree planting, maintenance of homes and streets, and other measures which will promote an aesthetically desirable environment in order that neighborhood areas appear attractive both within and without. The City will use a design review process (called Architectural Review) whereby the design of most public and private development proposals, including those for individual residences, are subject to review and approval by the City. The primary objective of this review is to preserve the character of the neighborhood and community regarding appropriate and acceptable

FIGURE V.B-4 VIEWS FROM THE EAST AND WEST TOWARDS THE PROJECT SITE

Views from the east towards the project site

Views from the west toward the project site

design for property improvements. Design review shall address, among other things, the following issues: (a) preservation of the architectural character and scale of neighborhoods; (b) that the development is well designed in and of itself, and in relation to surrounding properties; (c) preservation of waterfront views; (d) minimizing impacts on the privacy and access to sunlight of adjacent properties; (e) minimizing impacts due to excessive noise or undue glare; (f) screening of unsightly uses including trash, loading docks/areas, roof top equipment, and special ventilating systems; (g) use of setbacks, open space, and landscaping; and (h) exterior colors and materials.

- *Policy LUC-40: Design Review of Commercial and Industrial Projects.* The City will use a design review process for commercial and industrial projects to ensure that basic land uses, density, access ,internal circulation, visual characteristics, noise, odors, fore hazards, vibrations, smoke, discharges of wastes, and nighttime lighting do not negatively affect adjacent or nearby residential land uses.
- *Policy LUC-44: Vacant Parcels Adjacent to Waterways.* Vacant parcels adjacent to waterways shall incorporate public open space and water oriented design features into any development on these sites.
- *Policy H-B-4: Housing Design.* Assure excellence in project design consistent with existing community character (architecture, site planning amenities).
- *Policy PC-10: Improvements in Open Space.* Design any improvements in open space areas to minimize adverse impacts to habitats, including provision of a buffer to minimize human disturbances, views or other open space resources.
- *Policy PC-18: Access to Sunlight.* Consider the impact of new development on sunlight to existing public open spaces.
- *Goal PC-s: Landscape Setbacks.* Review during the City's plan review process for provision of landscape setbacks.
- *Goal PC-n: Architectural Review.* Review all new development or improvement proposals through the City's Architectural Review process for: (1) impacts on access to sunlight on public areas; (2) provision of street furniture and attractive landscaping in public open spaces; and (3) impacts on waterfront views.
- *Goal C-g: Lagoon Views and Recreational Opportunities*. Conserve and protect the Foster City Lagoon System by maintaining accessibility for views and recreational opportunities. Responsibility: Community Development Department.

(2) Foster City Municipal Code

The Foster City Municipal Code contains the following regulations related to aesthetics and visual impacts.

Chapter 17.58.010.B. Architectural Control and Supervision

Projects involving construction of new buildings are subject to architectural review by the City Planning Commission.[1] Chapter 17.58 of the Foster City Municipal Code

[1] City of Foster City Municipal Code, Title 17 Zoning, Chapter 17.58.

establishes procedures and criteria for review of proposed structures, buildings, and improvements to real property and modifications to such which are necessary in order to meet the following objectives:

1. To preserve the architectural character and scale of the neighborhoods and community;
2. To assure that development is well designed, in and of itself and in relation to surrounding properties, including that the height, facade length, roof form, colors, materials, and architectural details of a proposed building should be compatible with the height, facade length, roof form, colors, materials, and architectural details of buildings in the immediate vicinity;
3. To prevent the erection of structures, additions or alterations or other property improvements which significantly impact the privacy of adjacent properties; cause a significant diminution of sunlight to the interior of an adjacent building or to the exterior of adjacent properties; cause undue glare or noise impacts to adjacent properties; and significantly block or limit existing views from the interior and exterior of adjacent properties, and that individual rights are weighed against the needs and requirements of the community;
4. To assure that developments enhance their sites and are harmonious with the highest standards of improvements in the surrounding area;
5. To promote and protect the health, safety and general welfare of the City;
6. To preserve views of and from the lagoons and waterways which provide a visual connecting link for adjacent lots and developments;
7. To enhance the residential and business property values within the City and in neighborhoods surrounding new or modified development;
8. To assure that each new development is designed to best comply with the intent and purpose of the zone in which the property is located and with the general plan of the City;
9. To encourage the maintenance, repair, replacement or improvement of surrounding properties. (Ord. 371 Section 24 (part), 1989)

Chapter 17.68.080. General Performance Standards: Glare

No direct or reflected glare, whether produced by floodlight, high-temperature processes such as combustion or welding, or other processes, so as to be visible from any boundary line of property on which the same is produced, shall be permitted. Sky-reflected glare from buildings or portions thereof shall be so controlled by such reasonable means as are practical to the end that the sky-reflected glare will not inconvenience or annoy persons or interfere with the use and enjoyment of property in and about the area where it occurs. (Ord. 38 1 (part), 1972: prior code 10-406.508)

(3) Foster City Standard Conditions of Approval

Foster City has adopted Standard Conditions of Approval (SCOAs) for large new and redevelopment projects. The following SCOAs related to aesthetics and shade and shadow would apply to the proposed project.

- **SCOA 8.2:** An exterior lighting plan including fixture and standard design, coverage and intensity, to be reviewed and approved by the Community Development Department and the Police Department. In its review of the lighting plan, the City shall ensure that any outdoor night lighting proposed for the project is downward-facing, and shielded so as to minimize nighttime glare and lessen impacts to neighboring properties. The City shall also ensure that all development plans for the proposed project conform to the performance standards provided under Section 17.68.080 of the Foster City Municipal Code.

c. Policy Consistency

The proposed project is generally consistent with Foster City's policies, guidelines and standards, as they pertain to aesthetics and visual resources. The proposed development does have the potential to increase glare from the sun's reflection off exterior building materials, and may contribute to evening lighting in the immediate vicinity of the project through grounds and building illumination during the evening hours. However, SCOAs are provided below to ensure this potential is minimized to a less-than-significant level. A more detailed discussion of the project's relationship to the City's policies is provided in *Chapter IV, Public Policy,* of this report.

The proposed project would result in a commercial campus on an infill site that is currently characterized by paved parking areas, concrete building pads, and intermittent patches of opportunistic weedy vegetation. The project site is a mostly vacant 20-acre lot. Development of the proposed project would bring visual continuity to the diverse land uses and structures surrounding the site, and result in a more visually inviting pedestrian-friendly environment than currently exists on the site.

The proposed project would undergo design review prior to final plan approval and building permit issuance. During this process, the project design could be subject to refinement to ensure compatibility with the architectural and urban design guidelines presented above. Based on preliminary plans, it is anticipated that there would be no major inconsistencies or conflicts between the proposed project's design and the requirements of the City.

2. Impacts and Standard Conditions of Approval

This section analyzes impacts to aesthetic resources that could result from development of the proposed project. The first part of this subsection outlines the criteria of significance, which establish the threshold for determining whether an impact is significant. The second part of this subsection concerns impacts associated with the proposed development. SCOAs are recommended, as appropriate to ensure impacts are less than significant.

a. Criteria of Significance

Implementation of the proposed project would have a significant impact on aesthetic resources or related shade and shadow if it would:

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway.
- Substantially degrade the existing visual character or quality of the site and its surroundings.
- Cast a shadow that substantially impairs the beneficial use of any public or quasi-public park, lawn, garden, or open space.
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the areas.

The shadow impact threshold (bullet #4) reflects the intent of General Plan policies that seek to preserve access to sunlight on public open spaces, as described in the Regulatory Context section above. This criterion was developed based on similar thresholds used in comparable jurisdictions. The other four thresholds of significance are drawn from Appendix G of the CEQA Guidelines.

b. Less-Than-Significant Aesthetics and Shade and Shadow Impacts

Discussed below are the less-than-significant visual resource and shadow impacts that could result from development of the proposed project.

As described in the Regulatory Context section above, the General Plan identifies several policies related to preserving views and sunlight access to public open space and the waterfront. Architectural standards further support the preservation of lagoons and waterways. Potential impacts to these views are analyzed below. Potential impacts on other views, such as views of the San Bruno hills, are also described for informational purposes.

(1) Scenic Vistas

Foster City is generally flat with limited scenic vistas from public vantage points. The City's topography, combined with the freeway, vegetation, and development patterns surrounding the project site, limit visual access to the site from all but a few public viewpoints. To assist with analysis of potential visual impact of the proposed development, four public viewpoint locations were chosen in consultation with City staff. Visual simulations of the proposed project were prepared for each of these

viewpoints.[2] Figure V.B-5 shows the viewpoint locations. Figures V.B-6a through V.B-9b show existing views towards the project site and simulations of the proposed project from the same four perspectives. These perspectives were selected because they: 1) include key public view corridors in the vicinity of the project site; 2) provide the most representative views of the project site; and 3) show the proposed project in the context of existing development in the immediate vicinity of the project site. These simulations were prepared using computer software, and are based solely upon site layout and building height; the design, materials, colors, and landscaping schematics for the project are subject to the City's design review process. Each viewpoint depicted in these images is described and evaluated below. As noted at the beginning of this section, the simulations depict "before" and "after" conditions.

These simulations are *conceptual and intended to illustrate basic building* mass. The simulations do not illustrate architectural and site design details, such as building relief, colors and materials, artistic features, etc. Architectural detail is not considered in this evaluation; the City will consider design details, as well as building and landscaping materials, as part of its required design review process.

- **Viewpoint 1**. Figure V.B-6a depicts the project site as viewed from westbound SR 92, just west of the San Mateo Bridge approach into Foster City. The existing view from this location is dominated by a vacant expanse just northwest of SR 92, with a boxy, low-slung industrial building just beyond it. The front facades of the Bayside Towers are also visible from here, and further to the west, the existing six-story Lincoln Centre building is visible. The view also contains a series of steel utility towers running southeast-northwest, including the tower located within the project site. The San Mateo hills are partially visible in silhouette farther west. The visual simulation of the proposed project, shown in Figure V.B-6b, shows six-story Building A, and the freeway-visible frontages of Parking Structure two- and four-story Building B. As evident from the visual simulation, the proposed structures do not obstruct the existing view of the San Mateo Hills from this point on SR 92.
- **Viewpoint 2.** Figure V.B-7a depicts the exiting view of the project site from eastbound SR 92, immediately southeast of the project site. This view is dominated by the mature trees and vegetation that line freeway along the southeastern boundary of the site, and that restrict visibility into and beyond the site. Further to the east, the existing Bayside Towers are partially visible behind vegetation, and even further down the highway corridor, the hills of the East Bay

[2] The visual simulations assumed a maximum building height of 116 feet (without roof screens) based on the General Development Plan (GDP) submitted October 3, 2014. The revised GDP submitted February 20, 2015 now specifies a maximum building height of 112 feet (without roof screens). Since the maximum building height without roof screens has decreased, additional analysis would not be necessary.

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Source: Andrew McNichol, 2015; Urban Planning Partners, 2015

Figure V.B-5
Lincoln Centre Life Sciences Research Campus Project EIR
Viewpoint Locations Map

Figure V.B-6a: Existing View of Project Site

Figure V.B-6b: Simulated View of Project Site

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Source: Andrew McNichol, 2014

Figure V.B-6
Lincoln Centre Life Sciences Research Campus Project EIR
Viewpoint from Westbound State Route 92

Figure V.B-7a: Existing View of Project Site

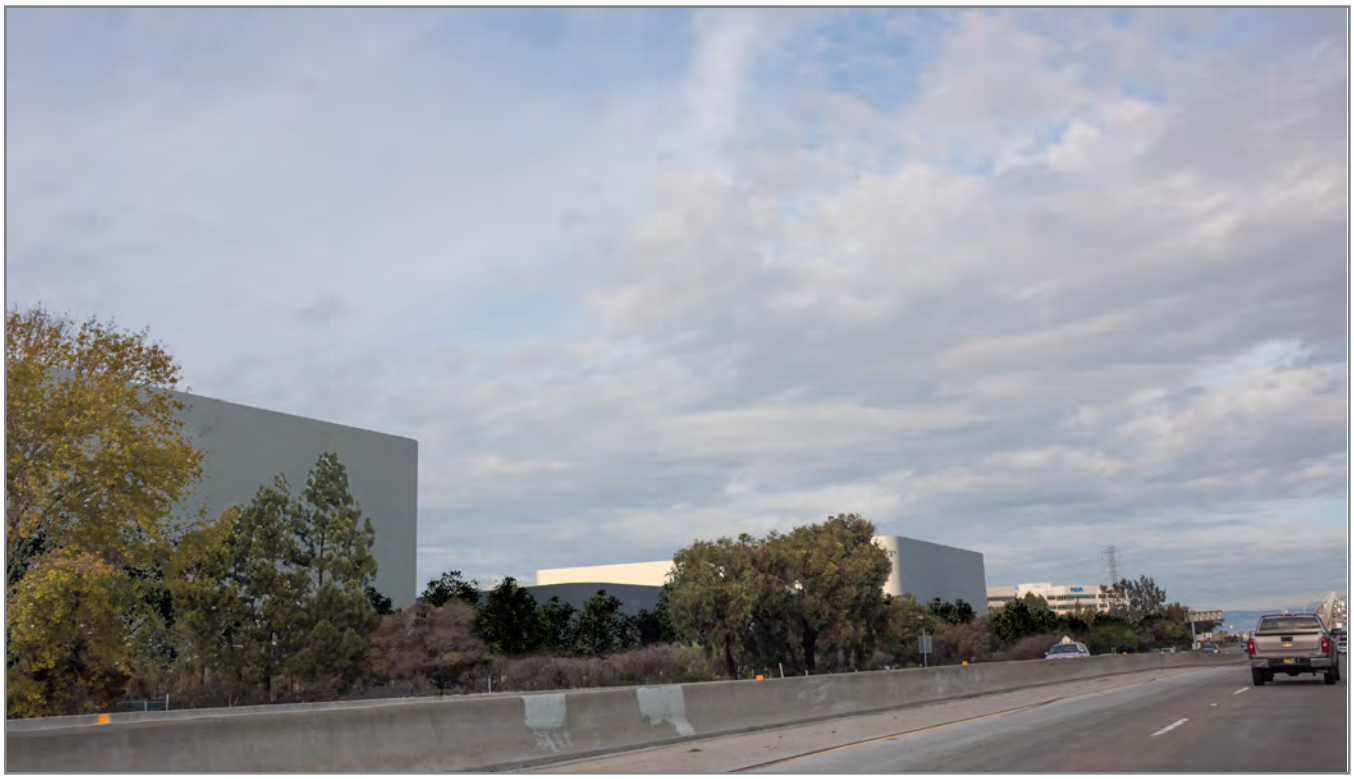

Figure V.B-7b: Simulated View of Project Site

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Source: Andrew McNichol, 2014

Figure V.B-7
Lincoln Centre Life Sciences Research Campus Project EIR
Viewpoint from Eastbound State Route 92

are visible. The visual simulation from this viewpoint, shown in Figure V.B-7b, depicts the proposed four-story Building B in the foreground, and parking Structure 2 and Building A, further back. The size of the proposed buildings is similar to existing Bayside Towers, and their presence would be fairly significant along the SR 92 frontage also similar to Bayside Towers. The new building would not obstruct the existing partial vista toward the East Bay Hills. Their impact is somewhat diminished by the freeway-fronting vegetation, which provides visual consistency through the viewpoint.

- **Viewpoint 3**. Figure V.B-8a depicts the exiting view of the project site from the publicly accessible Bay Trail, just north of the project site along the San Francisco Bay waterfront. The view from this viewpoint extends directly down Lincoln Centre Drive. It includes the existing six-story Lincoln Centre building in the foreground to the left, as well as the two-story office building that is part of the Foster City Corporation Yard, to the right. The trees within and beyond the project site are visible between those existing buildings. There is no significant or scenic vista from this location. The visual simulation from this viewpoint, shown in Figure V.B-8b, depicts the edge and side of Building A and as well as the corner of Parking Structure 2, on the opposite side of the site. As the figure shows, the proposed buildings are similar in height and massing with other buildings in the area. Neither of the proposed buildings dominates the view in either height or visual scale. Figure V.B-8b is evidence that the proposed project would not impact a scenic vista from the Bay Trail.
- **Viewpoint 4.** Figure V.B-9a depicts the project site as viewed from publicly accessible Little Coyote Point, an open space east of the project site. Little Coyote Point is located on the shore of San Francisco Bay, just north of SR 92. Currently, the view from this vantage point is dominated by the existing Bayside Towers property, including the parking lot in the foreground and the six-story buildings behind it. The northern edge of the existing Lincoln Centre building is visible just behind the Bayside Towers, and the ten-story building at 303 Velocity Drive in Foster City can be seen further northwest. A lengthy expanse of the San Mateo Hills is also visible from this location, to the far west. As shown in Figure VB-9b, the view from this public vantage point is largely unchanged by the proposed project. Little Coyote Point visitors' views of the San Mateo Hills are not unaffected. Visible elements of the proposed project include the northern corner of four-story Parking Structure 1, and the eastern edge of Building A. These are visible just beyond and immediately east of the Bayside Towers, which continue to dominate the vista.

The flat, generally uniform topography, dense development and tree cover of Foster City limit scenic vistas to all but a few public viewpoints. The discussion and simulations presented are intended to demonstrate the effect of the proposed development from a representative range of viewpoints throughout the City. Similarly,

Figure V.B-8a: Existing View of Project Site

Figure V.B-8b: Simulated View of Project Site

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Source: Andrew McNichol, 2014

Figure V.B-8
Lincoln Centre Life Sciences Research Campus Project EIR
Viewpoint from the Bay Trail

Figure V.B-9a: Existing View of Project Site

Figure V.B-9b: Simulated View of Project Site

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Source: Andrew McNichol, 2014

Figure V.B-9
Lincoln Centre Life Sciences Research Campus Project EIR
Viewpoint from Little Coyote Point

these viewpoints capture the existing character and scale of the City and illustrate the effect of the proposed development. As the discussion reveals, scenic vistas are not visible from most vantage points in the vicinity of the project site. As the simulations reveal, where the existing buildings are visible, the project's scale is compatible with the scale of existing structures. For these reasons, development of the proposed project would have a less-than-significant impact on scenic vistas.

(2) Scenic Resources within a State Scenic Highway

SR 92 is the only State highway in the vicinity of the project site. No part of SR 92 is an Officially Designated State Scenic Highway. One sections of SR 92 is an Eligible State Scenic Highway, although this portion—from SR 1 near Half Moon Bay to Interstate 280[3]—does not apply to portions of SR 92 within the vicinity of the project site. The proposed project would not result in the damage of trees, rock outcroppings, or historic buildings, nor would it substantially damage resources within a State scenic highway. As such, construction of the proposed project would have no impact on scenic resources viewed from a State scenic highway.

(3) Visual Character

Development of the proposed project would change the visual character of the project site and its surroundings. However, these changes would not be incompatible with the character of the surrounding area, nor would they degrade the visual quality of the site. The current 20-acre project site is of low visual quality, the result of a rapid demolition process rather than a coordinated development plan. The site is vacant, characterized only by expanses of asphalt, concrete building pads, few trees and sparse vegetation.

Under the proposed project, the existing remnants of demolition that define the current visual character would be replaced by a campus-like development of office and laboratory buildings. These structures would be visually coordinated around a landscaped central open space and landscaped lagoon frontage, both designed as attractive recreational amenities. The four proposed buildings range in height from 41 to 112 feet (not including roof screening and equipment), or two to seven stories. This scale would be compatible with those of nearby properties, such as the existing six-story Lincoln Centre building to the north, the Bayside Towers to the east and the Chess/Hatch development across the lagoon to the west. All of these buildings are in the range of three to six stories. In addition, the proposed project represents a planned development that is visually consistent with the Lincoln Centre planned development previously located on the site.

[3] California Department of Transportation, 2014. California Scenic Highway Program. http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm, accessed December 16, 2014

The site design of the proposed project responds to the existing natural features and built barriers that physically and visually define the site. This is achieved through a variety of ways, including the location of the largest line of building frontages at the rear of the site, adjacent and parallel to SR 92, where its visual impact would be decreased. Similarly, the landscaped open space along the lagoon would promote visual harmony with that water feature, and create an effective visual transition into the proposed campus and buildings. Finally, the north side of the proposed project contains elements that would ensure that overall visual quality of this gateway point is maintained. First, Lincoln Centre Drive would continue to serve as the main access road into site. Second, the existing parking area on the north side of the site would be maintained. Third, the shortest proposed building (Building A) would be located at this entrance point. Together, these features would result in an attractive visual gateway that leads viewers into the project and promotes a transitional visual presence that is in sync with the surrounding visual character.

The proposed project is also compatible with adjacent land uses. The site is surrounded by similar types of buildings and development to the north, east and west. As a result, the visual environment in three directions is defined by similar pockets of development, characterized by a mix of one- and two-story office and light industrial buildings and three- to six-story office buildings interspersed by parking areas and shaded landscaped areas, and surrounded by vegetation of varying maturity. The proposed project would be consistent with this visual pattern.

Finally, the proposed project would be subject to the Foster City Design Review process, which ensures that proposed projects meet all guidelines, standards and objectives related to building design and aesthetics, prior to final approval. Also evaluated in this process is a proposed design's compatibility or appropriateness for its surroundings. Design review also includes assessment of the compatibility of the development project with surrounding properties, in terms of colors, materials, architectural details, façade lengths, and roof forms. The process helps ensure that the project would not "substantially degrade the existing visual character or quality of the site or surroundings."

For these reasons, the proposed project would have a less-than-significant impact on the visual character of the project site.

(4) Shade and Shadow

Development of the proposed project would result in seven new structures on the project site, including four office buildings ranging from 41 to 112 feet (not including roof screening and equipment), and three parking structures. While this construction would shift the daily pattern of shade and shadow cast from within the currently vacant project site, the land uses immediately surrounding the site would prevent these patterns from impacting any public or quasi-public open spaces.

As discussed in *Chapter IV, Public Policy,* the existing General Plan designation for the project site is Research/Office Park (ROP), a designation typically used for office, research and manufacturing uses. As detailed in *Section V.A, Land Use*, the project site is surrounded by similar private land uses. A Foster City Public Works maintenance facility and a six-story office building, both designated ROP, are immediately north of the project site. The Bayside Towers office buildings and associated parking lot, also designated ROP, neighbor the project site to the east. To the west, just beyond the lagoon that borders the project site, is an area of light industrial development that includes the Chess/Hatch Office Research complex. Finally, the highway (SR 92) runs immediately south of the site.

The limited building heights of the proposed project, combined with its immersion in an area of planned commercial development, would result in less-than-significant shade- and shadow-related impacts.

(5) Light and Glare

The proposed project would create additional sources of glare in the vicinity of the project site. The project site currently contains no light-emitting or reflective surfaces. The proposed project consists of four new buildings, including one building of up to 112 feet in height (not including the roof screens). As discussed above, these buildings will be at least partially visible from various points throughout the City, including SR 92. As a result, the public could experience some degree of glare due to sunlight reflecting off the façades of these structures. In the evening hours, the lights used to illuminate the campus and structures would add new sources of light to the vicinity of the project site and to the nighttime skyline. However, implementation of SCOA 8.2 would require an exterior Lighting Plan and building materials to be reviewed and approved by the City to ensure that light and glare impacts would be reduced to a less-than-significant level.

b. Significant Aesthetic Impacts and Mitigation Measures

Implementation of the proposed project would not result in any aesthetic or shade or shadow impacts; all impacts would be less than significant with implementation of the City's SCOAs as discussed above.

c. Cumulative Aesthetics and Shade and Shadow Impacts

The project would not substantially alter existing views of scenic vistas within the vicinity of the project site, including views of the distant hills or mountain ranges. Therefore, the proposed project would not make a significant cumulative contribution to the obstruction of scenic vistas in Foster City. The project site is surrounded by developed, urban properties of similar land use and development patterns, and the therefore construction the proposed project would not adversely alter the visual character of the area. Although the proposed project and future projects in the vicinity of the site could increase light and glare in the area, the City's General Plan includes

goals and policies related to design review, which govern the use of reflective materials and outdoor lighting. With implementation of SCOA 8.2, the proposed project would not make a substantial contribution to cumulative light and glare.

C. TRAFFIC AND TRANSPORTATION

This chapter describes the existing transportation and circulation system in the vicinity of the Lincoln Centre Life Sciences Research Campus Project (project), including roadway, bicycle, pedestrian, and transit facilities, and provides an analysis of the potential impacts of the project on this transportation system.

1. Setting

This section describes the methods used to conduct the transportation analysis, the existing transportation system in the vicinity of the project site, and applicable transportation-related policies. Existing roadway operations are also summarized.

a. Study Locations

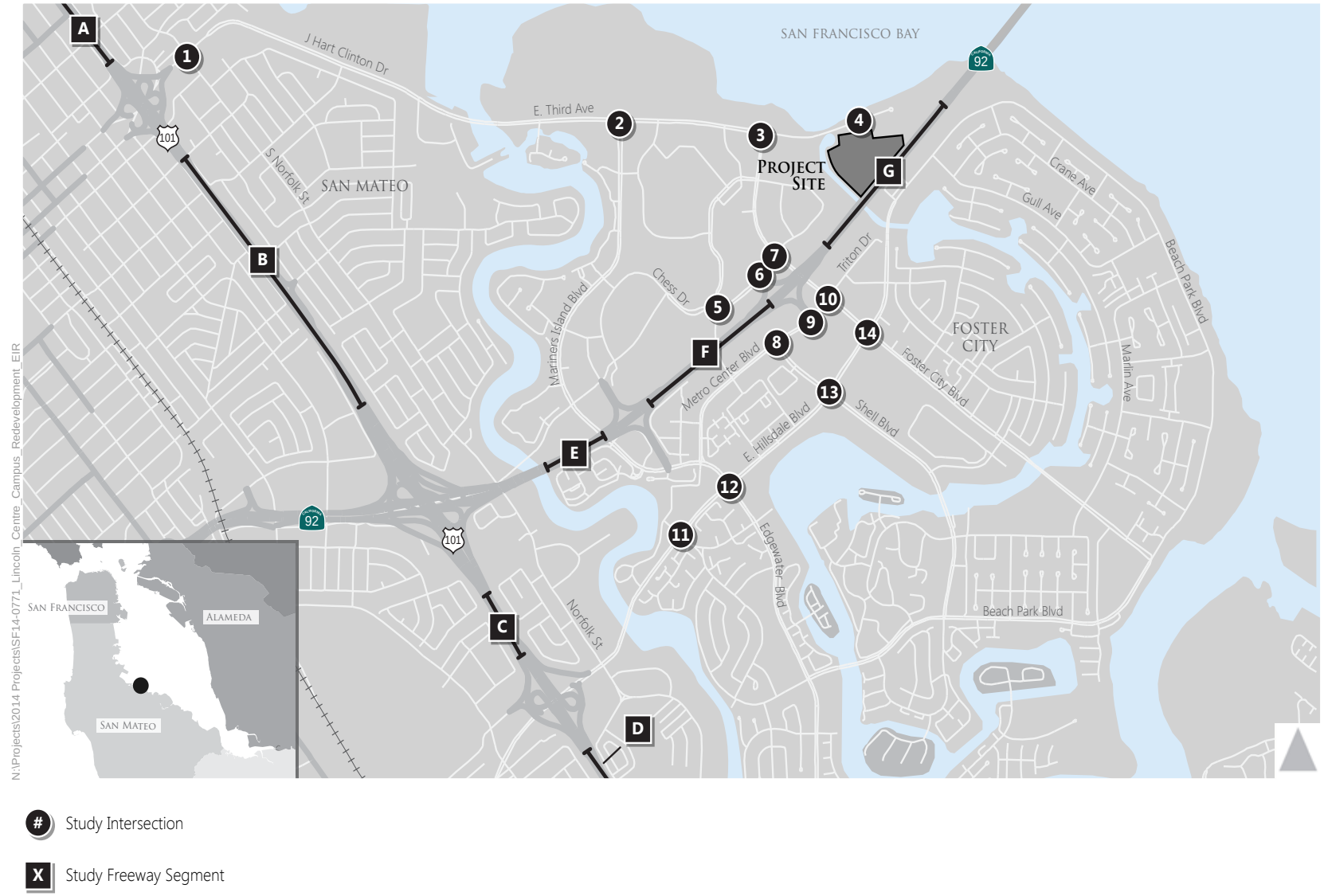
This study evaluates impacts of the project on roadway facilities within a 2-mile radius of the project site, including 14 intersections and seven freeway segments. The study area was selected based on local traffic patterns and engineering judgment and is consistent with other similarly-sized projects in Foster City. The study area is comprehensive; the impacts of the project are well-contained within it and no measurable impacts are anticipated beyond these borders. The study locations are listed below and shown on Figure V.C-1. All study intersections are signal controlled, with the exception of the side-street, stop sign-controlled project driveway located at Lincoln Centre Drive and East 3rd Avenue.

Study Intersections

- East 3rd Avenue/Norfolk Street
- East 3rd Avenue/Mariners Island Boulevard
- East 3rd Avenue/Foster City Boulevard
- East 3rd Avenue/Lincoln Center Driveway
- Chess Drive/Vintage Park Drive
- Chess Drive/State Route (SR) 92 Westbound Ramps
- Chess Drive/Foster City Boulevard
- Metro Center Boulevard/Shell Boulevard
- Metro Center Boulevard/SR 92 Eastbound Ramps
- Metro Center Boulevard/Triton Drive/Foster City Boulevard
- East Hillsdale Boulevard/Altair Avenue
- East Hillsdale Boulevard/Edgewater Boulevard
- East Hillsdale Boulevard/Shell Boulevard
- East Hillsdale Boulevard/Foster City Boulevard

Freeway Segments

- US 101, north of East 3rd Avenue
- US 101, between East 3rd Avenue and SR 92



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Source: Fehr & Peers, 2015

Figure V.C-1
Lincoln Centre Life Sciences Research Campus Project EIR
Study Intersections and Freeway Segments

- US 101, between SR 92 and East Hillsdale Boulevard
- US 101, south of East Hillsdale Boulevard
- SR 92, between US 101 and Mariners Island Boulevard/Edgewater Boulevard
- SR 92, Mariners Island Boulevard/Edgewater Boulevard and Foster City Boulevard
- SR 92, east of Foster City Boulevard

b. Analysis Scenarios

The operations of the intersections and the freeway segments were evaluated during the time periods when traffic volumes are highest, during the morning and evening commute periods (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.). The operations of these facilities were evaluated for the following scenarios:

- **Existing Conditions** – Existing traffic volumes obtained from vehicle turning movement counts collected in May, September, and October 2014 and existing roadway/intersection configurations. At the time of the Notice of Preparation (NOP) of this study, the site was vacant.
- **Existing Plus Project Conditions** – Existing traffic volumes plus new traffic generated by the project.
- **Background (Existing plus Approved) Conditions** – Existing traffic volumes plus traffic projections for approved, but not yet constructed, developments in the area. Background Conditions include selected roadway system improvements associated with the approved developments. The project site is assumed to remain vacant under Background Conditions.
- **Background Plus Project Conditions** – Background volumes plus new traffic generated by the project.
- **Cumulative No Project Conditions** – Projected conditions in 2040 including traffic estimates for approved and probable future development projects. The project site is assumed to remain vacant under Cumulative No Project Conditions.
- **Cumulative Plus Project Conditions** – Cumulative volumes plus new traffic generated by the project.

c. Analysis Methods

Evaluation of traffic conditions on local streets involves analysis of intersection operations, as intersections represent the locations where the roadway capacity is most constrained. Intersection and freeway mainline segment operations were evaluated with level of service calculations. Level of service (LOS) is a qualitative description of operations ranging from Level A, when the roadway facility has excess capacity and vehicles experience little or no delay, to LOS F, where the volume of vehicles exceeds the capacity resulting in long queues and excessive delays. Typically, LOS E represents “at-capacity” conditions and LOS F represents “over-capacity”

conditions. At signalized intersections operating at LOS F, for example, drivers may have to wait through multiple signal cycles.

Ten of the 14 study intersections were evaluated using the Traffix software package, which incorporates the methods from Chapter 16, Signalized Intersections, and Chapter 17, Unsignalized Intersections, of the 2000 *Highway Capacity Manual*. This method evaluates the operations of intersections that function independently. The intersections in the SR 92/Foster City Boulevard interchange complex, namely the intersections on Chess Drive and on Metro Center Boulevard with Foster City Boulevard and the SR 92 eastbound and westbound ramps, interact with each other as vehicle queues often extend between intersections and affect operations at adjacent intersections. These four intersections were evaluated using a VISSIM micro-simulation software package to account for those interactions. Freeway analysis was conducted according to the methodology adopted by the San Mateo City/County Association of Governments (C/CAG).

Each method is briefly described below.

(1) Signalized Intersections – 2000 Highway Capacity Manual

The method from Chapter 16 of the Transportation Research Board's 2000 *Highway Capacity Manual* (HCM) bases signalized intersection operations on the average control delay experienced by motorists traveling through it. Control delay incorporates the vehicle 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 V.C-1 summarizes the relationship between average delay per vehicle and LOS for signalized intersections according to the 2000 HCM method.

(2) Signalized Intersections – Simulation

The Chapter 16 HCM method is appropriate only when intersection operations are not influenced by upstream or downstream intersections. When intersections are congested or when their operations are otherwise influenced by adjacent intersections, the analysis tool recommended by the HCM is simulation. With simulation, detailed models are prepared to evaluate the effects of individual vehicles moving on the roadway system. Average delay values are obtained from the model output and correlated to LOS based on the thresholds presented in Table V.C-1. A VISSIM simulation model was used for the following four study intersections located within the Foster City Boulevard and SR 92 interchange area:

- SR 92 Westbound Ramps and Chess Drive
- Foster City Boulevard and Chess Drive
- SR 92 Eastbound Ramps and Metro Center Boulevard
- Foster City Boulevard and Metro Center Boulevard/Triton Drive

TABLE V.C-1 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 to 20
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20 to 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 to 55
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55 to 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, 2000. *Highway Capacity Manual – Special Report 209.*

(3) Unsignalized Intersections

Traffic conditions at the unsignalized study intersection (stop sign-controlled intersections) were evaluated using the method from Chapter 17 of the 2000 HCM. With this method, operations are defined by the average control delay per vehicle (measured in seconds) for each stop-controlled movement or movement that must yield the right-of-way. At two-way stop sign-controlled intersections, the turning movement with the highest delay and corresponding LOS are reported. Table V.C-2 summarizes the relationship between delay and LOS for unsignalized intersections. Generally, the delay ranges for each LOS are lower than for signalized intersections because drivers expect less delay at unsignalized intersections.

(4) Freeway Mainline Operations

Freeway mainline operations were evaluated using the 1994 HCM volume-to-capacity ratio method, per C/CAG guidelines and presented in Table B-1 of the appendices of the 2013 Congestion Management Plan (CMP) for San Mateo County. The level of service descriptions and the maximum Volume to Capacity Ration (V/C) for each LOS designation are presented in Table V.C-3.

TABLE V.C-2 UNSIGNALIZED INTERSECTION LOS CRITERIA

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Little or no traffic delays	≤ 10
B	Short traffic delays	> 10 to 15
C	Average traffic delays	> 15 to 25
D	Long traffic delays	> 25 to 35
E	Very long traffic delays	> 35 to 50
F	Extreme traffic delays with intersection capacity exceeded	> 50

Source: Transportation Research Board, 2000. *Highway Capacity Manual – Special Report 209*.

TABLE V.C-3 FREEWAY SEGMENT LOS CRITERIA

Level of Service[a]	Description	Maximum Volume-to-Capacity Ratio
A	Free flow operations with average operating speeds at, or above, the speed limit. Vehicles are unimpeded in their ability to maneuver.	0.28
B	Free flow operations with average operating speeds at the speed limit. Ability to maneuver is slightly restricted. Minor incidents cause some local deterioration in operations.	0.46
C	Stable operations with average operating speeds near the speed limit. Freedom to maneuver is noticeably restricted. Minor incidents cause substantial local deterioration in service.	0.67
D	Speeds begin to decline slightly with increasing flows. Freedom to maneuver is more noticeably restricted. Minor incidents create queuing.	0.85
E	Operations at capacity. Vehicle spacing causes little room to maneuver but speeds exceed 50 miles per hour (mph). Any disruption to the traffic stream can cause a wave of delay that propagates throughout the upstream traffic flow. Minor incidents cause serious breakdown of service with extensive queuing. Maneuverability is extremely limited.	1.00
F	Operations with breakdowns in vehicle flow. Volumes exceed capacity causing bottlenecks and queue formation.	N/A

[a] Freeway mainline LOS is based on a 65 mph free-flow speed per Table B-1 of the 2013 CMP.
Source: Transportation Research Board, 2000. *Highway Capacity Manual*.

d. Existing Conditions

(1) Transit System

Transit service within Foster City is provided by several agencies. San Mateo County Transit District (SamTrans) and Alameda-Contra Costa Transit District (AC Transit) provide bus service, while the Peninsula Traffic Congestion Relief Alliance operates shuttle routes connecting to Bay Area Rapid Transit (BART) and Caltrain stations. Figure V.C-2 illustrates the transit routes in the vicinity of the project site. Descriptions of these routes, the hours of operation, and their service headways (time between arrivals) are described below and summarized in Table V.C-4.

TABLE V.C-4 EXISTING TRANSIT SERVICE

Service Provider	Name/Description	Hours of Operation/Headway
SamTrans	251 – Caltrain Connection	11:30 a.m. – 8:16 p.m. Weekdays (60 minutes) 8:30 a.m. – 7:19 p.m. Saturdays (120 minutes)
	256 –Caltrain Connection	6:25 a.m. – 5:27 p.m. Weekdays (60 minutes) 7:30 a.m. – 8:22 p.m. Saturdays (120 minutes)
AC Transit	M – Transbay Service	5:57 a.m. – 6:53 p.m. Weekdays (30 minutes)
BART/Caltrain Shuttle	Foster City - North	6:35 a.m. – 9:55 a.m. Weekday (30 minutes) 4:12 p.m. – 7:17 p.m. Weekday (30 minutes)
Caltrain Shuttle	Foster City – Lincoln Centre	6:56 a.m. – 9:34 a.m. Weekday (40 minutes) 3:15 p.m. – 7:03 p.m. Weekday (40 minutes)
	San Mateo – Mariners' Island	6:56 a.m. – 10:20 a.m. Weekday (45 minutes) 3:09 p.m. – 6:37 p.m. Weekday (45 minutes)

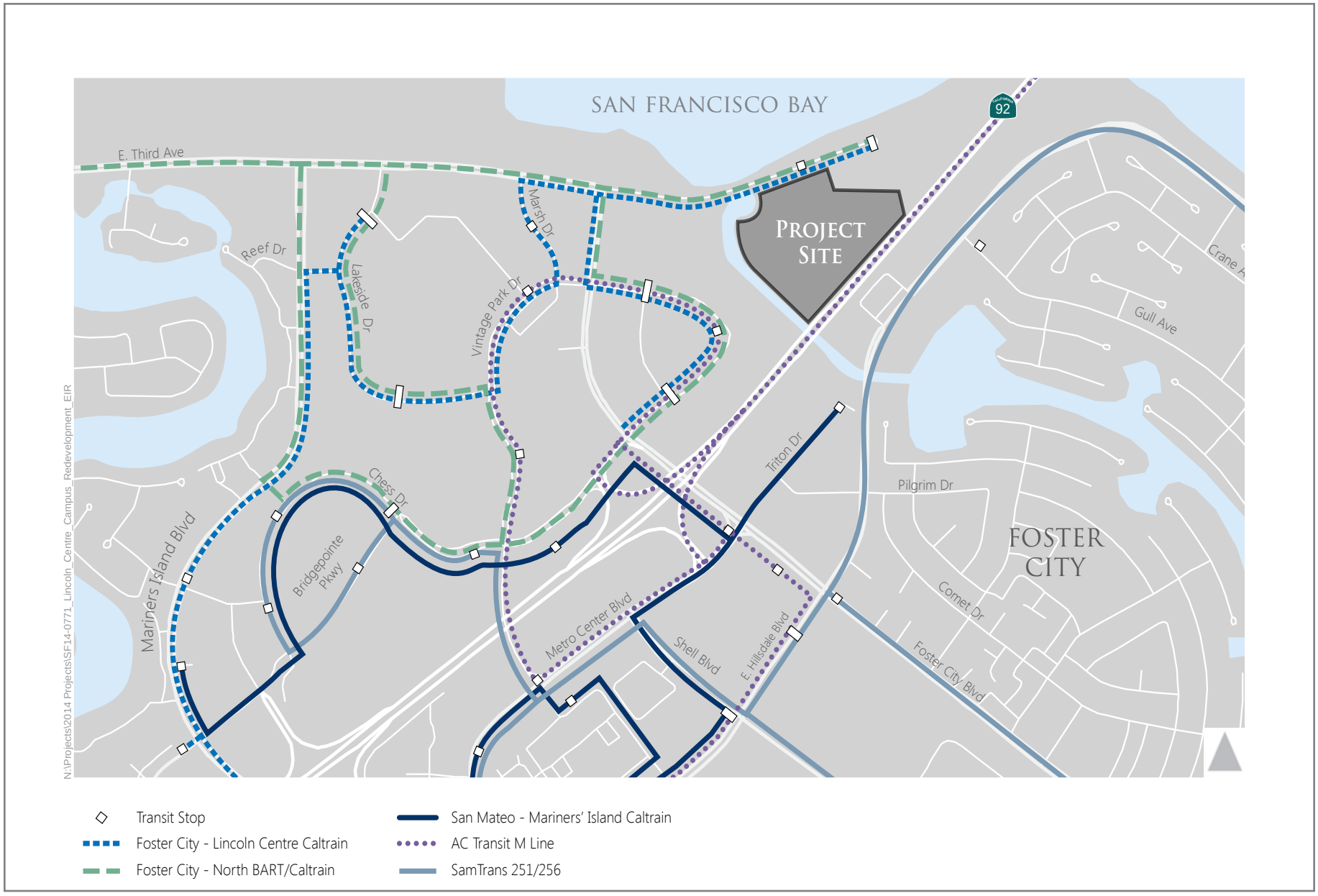
Source: SamTrans, AC Transit, 2014, Peninsula Traffic Congestion Relief Alliance. Accessed December 5, 2014, http://www.commute.org/.

SamTrans

SamTrans operates Routes 251 and 256 near the project site. Route 251 provides a connection between the Hillsdale Shopping Center and Hillsdale Caltrain station in San Mateo to Foster City and the Bridgepointe Shopping Center. The nearest Route 251 stop to the project site is located on Chess Drive at Vintage Park Drive, approximately ½-mile southwest of the site via the Lincoln Centre Drive, East 3rd Avenue, and Foster City Boulevard. Route 256 operates along the same route as Route 251 but in the opposite direction for the loop within Foster City.

AC Transit

AC Transit provides Transbay service between Hayward and San Mateo. Line M operates across the San Mateo Bridge (SR 92) and travels on Foster City Boulevard, Chess Drive, Vintage Park Drive, Metro Center Boulevard, and E. Hillsdale Boulevard in Foster City. Line M stops closest to the project site at 1135 Chess Drive, which is a



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Source: Fehr & Peers, 2015

Figure V.C-2
Lincoln Centre Life Sciences Research Campus Project EIR
Existing Transit Routes

0.7-mile walk from the center of the Lincoln Centre campus (approximately a 10- to 15-minute walk).

BART/Caltrain Shuttle

The Foster City – North BART/Caltrain Shuttle provides service operated by the Peninsula Traffic Congestion Alliance between the Millbrae Intermodal Station and businesses and office buildings in the North Foster City Area during commute hours, Monday through Friday. The North Foster City Shuttle stops adjacent to the project site at East 3rd Avenue and Lincoln Centre Drive.

Caltrain Shuttles

The Peninsula Traffic Congestion Relief Alliance operates two other shuttle buses during weekday commute hours: Foster City – Lincoln Centre Shuttle and San Mateo – Mariners' Island Shuttle. The Lincoln Centre Shuttle runs between the Hillsdale Caltrain Station and businesses in the Lincoln Centre Area in North Foster City, whereas the Mariners' Island Shuttle provides service between the Hillsdale Caltrain Station and businesses in the San Mateo and Foster City border areas. The Lincoln Centre Shuttle stops at 4000 East 3rd Avenue adjacent to the project site. The Mariners Island Area Shuttle stops along Chess Drive near Vintage Park Drive, approximately ½-mile from the project site.

(2) Bicycle System

Bicycle facilities include Class I multi-use paths, Class II bike lanes, and Class III bike routes. Class I multi-use paths are paved pathways that are separated from roadways by space or a physical barrier. Class II bike lanes are lanes on the outside edge of roadways that are intended for the exclusive use of bicycles and are designated with special signing and pavement markings. Class III bike routes are roadways designated for bicycle use with only a bike route sign.

The bicycle facilities in Foster City are shown on Figure V.C-3. Class III bicycle routes are located on Foster City Boulevard, Vintage Park Drive, East 3rd Avenue, Lakeside Drive, Metro Center Boulevard, Shell Boulevard, and East Hillsdale Boulevard near the project site. Class I bicycle paths are provided near and along the Bay shoreline, north of the project site and along Metro Center Boulevard, Shell Boulevard, and East Hillsdale Boulevard. Class II bike lanes run along Mariners Island Boulevard, Norfolk Street, Bridgepointe Circle, and Bridgepointe Parkway. Bicycle access to the project site from the San Mateo Caltrain station is provided via the Class I multi-use pathway on East 3rd Avenue across US 101 and the segment of the Bay Trail which includes a Class I multi-use pathway along the San Francisco Bay shoreline.

(3) Pedestrian Facilities

Pedestrian facilities comprise sidewalks, off-street pathways, marked and enhanced crosswalks (at midblock and intersections), curb ramps, median refuges, and

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Source: Fehr & Peers, 2015

Figure V.C-3
Lincoln Centre Life Sciences Research Campus Project EIR
Existing Bicycle Routes

pedestrian-scale lighting. Curb ramps are provided along Lincoln Centre Drive within the project site and a striped crosswalk across Lincoln Centre Drive is provided at the intersection with East 3rd Avenue. Sidewalks are provided along both sides of all streets within the immediate vicinity of the project site, except for East 3rd Avenue which only has sidewalks on the south side of the street. A segment of the Bay Trail, which includes a Class I multi-use pathway, provides pedestrian access along the bay shoreline just north of East 3rd Avenue. Curb ramps are also provided at all crosswalks within the immediate vicinity of the project site. The nearest access points to the Bay Trail from Lincoln Centre Drive are located approximately ¼-mile to the east at the Bayside Towers and ¾-mile to the west at Lakeside Drive.

Signalized pedestrian crossings are provided along East 3rd Avenue to the west of the site at Foster City Boulevard, Mariners Island Boulevard, and Lakeside Drive. Marked crosswalks are provided on the east and south legs at Mariners Island Boulevard and Lakeside Drive and on the south leg only at Foster City Boulevard. Medians are present but due to the narrow width, are not intended for pedestrian refuge. Signalized pedestrian crossings are also provided along Foster City Boulevard to the south of the site at Vintage Park Drive and Chess Drive. Marked crosswalks are provided on all four legs at Vintage Park Drive, while crosswalks are only provided on the north and east legs at Chess Drive. Marked crosswalks are provided only on the south leg of the unsignalized intersections at East 3rd Avenue/Lincoln Centre Drive and East 3rd Avenue/Marsh Drive and only the east and south legs at Vintage Park Drive/ Lakeside Drive.

(4) Roadway Network

Regional access to the project site is provided by State Route (SR) 92 and U.S. Highway (US) 101. Access to SR 92 is provided via the interchange at Chess Drive/Foster City Boulevard/Metro Center Boulevard, approximately 1 mile to the southwest. Access to US 101 is provided via the interchange at East 3rd Avenue, approximately 3 miles to the west. Local access to the project site is provided through city streets including Lincoln Centre Drive, East 3rd Avenue, Foster City Boulevard, Vintage Park Drive, Chess Drive, Metro Center Boulevard, and East Hillsdale Boulevard. Speed limits on study roadways in the study area range from 25 miles per hour (mph) on local streets to 35 to 45 mph on arterials. The speed limit is 55 mph on SR 92 and 65 mph on US 101. On-street parking is not allowed on the local roadways within the study area except where noted in the roadway descriptions below.

Regional Highways

SR 92 is a freeway that runs in an east-west direction from Half Moon Bay, near the coast, to Hayward on the east side of San Francisco Bay via the San Mateo Bridge. SR 92 has a full interchange with Chess Drive/Foster City Boulevard/Metro Center Boulevard within the study area. It is generally three travel lanes in each direction east of US 101 and two travel lanes in each direction west of US 101, with auxiliary lanes

between interchanges. Average daily volumes on SR 92 through the study area range from 139,000 vehicles between US 101 and Mariners Island Boulevard to 95,000 vehicles at the San Mateo Bridge.

US 101 is a freeway that provides regional north-south access along the Peninsula. In the vicinity of Foster City, US 101 typically has four travel lanes in each direction with an auxiliary lane between interchanges. Although US 101 does not run directly through Foster City, it provides the primary north-south regional access to the study area via interchanges at SR 92, East Hillsdale Boulevard, and East 3rd Avenue in the City of San Mateo. Average daily traffic volumes on US 101 through Foster City range from 229,000 vehicles at East Hillsdale Avenue to 260,000 vehicles north of SR 92.

Local Roadways

Lincoln Centre Drive is a two-lane local roadway that provides direct access into the project site from East 3rd Avenue.

East 3rd Avenue is a four-lane divided roadway that runs in an east-west direction along the San Francisco Bay shoreline north of SR 92. It has a full access interchange with US 101 in the City of San Mateo.

Foster City Boulevard is a 4- to 6-lane arterial that extends from East 3rd Avenue, across SR 92, to Beach Park Boulevard. It is a major north-south arterial in Foster City. On-street parking is allowed along northbound Foster City Boulevard between Bounty Drive and approximately 450 feet south of East Hillsdale Boulevard.

Vintage Park Drive extends from Foster City Boulevard in the north over SR 92 to Metro Center Boulevard in the south. It is a four-lane divided roadway.

Chess Drive extends eastward from Bridgepointe Parkway past Foster City Boulevard and then curves around to the north and west to intersect with Foster City Boulevard at Vintage Park Drive. Access to westbound SR 92 is provided via hook ramps just west of Foster City Boulevard. Chess Drive is four lanes wide west of Foster City Boulevard and two lanes wide to the east. On-street parking is allowed along Chess Drive to the east of Hatch Drive.

Metro Center Boulevard is a four-lane, east-west roadway that runs parallel to SR 92 to the south and extends between Edgewater Boulevard and Foster City Boulevard where it becomes Triton Drive. Access to eastbound SR 92 is provided by hook ramps just west of Foster City Boulevard.

East Hillsdale Boulevard is a 4- to 6-lane divided arterial that runs in an east-west direction to the south of SR 92. It has a full access interchange with US 101 in the City of San Mateo.

(5) Intersection Traffic Volumes and Operations

Intersection turning movement counts were conducted at the study intersections during the morning and evening peak periods (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.) in May, September, and October 2014. The counts were conducted on non-holiday weekdays, when local area schools were in normal session. Intersection lane configurations and traffic control devices (traffic signals or stop signs) were observed during field visits. The existing AM and PM peak-hour traffic demand volumes, lane geometries, and intersection controls for the study intersections are shown in Figures V.C-4A and V.C-4B**.** The raw traffic count data is presented in Appendix C-1.

For analysis purposes, some minor adjustments were made at the Foster City Boulevard SR 92 interchange volumes such that peak hour volumes balance between study intersections. Most adjustments resulted in turning movement volumes that were either the same as the counts or slightly higher. However, some minor volume reductions (less than 10 vehicles) were necessary at a few turning movements.

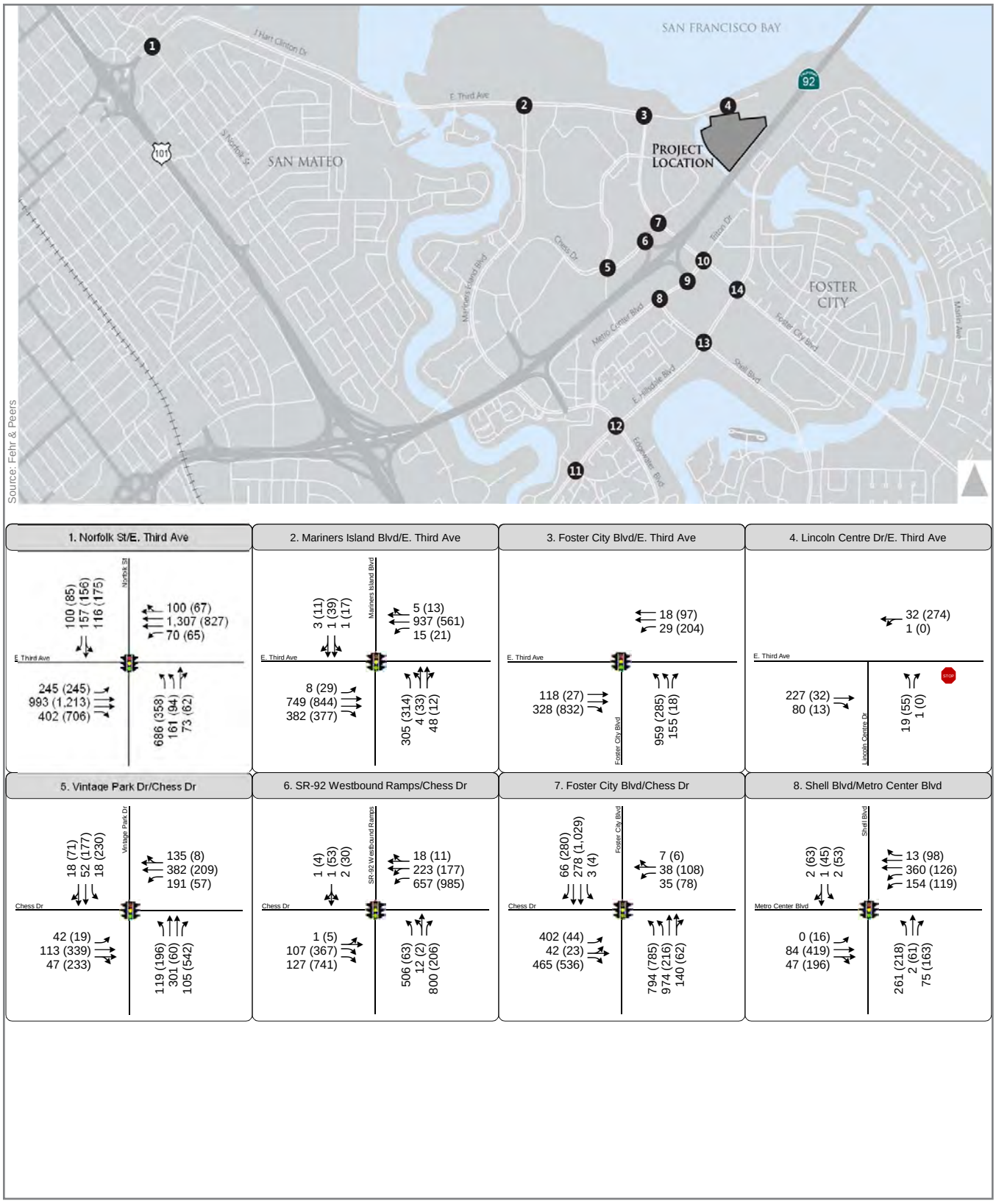
Traffic Volume Comparison

The traffic counts collected for this study were compared to the traffic counts conducted for the Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR ("Gilead Sciences SEIR") in March 2012. Traffic volumes have increased substantially along East 3rd Avenue, Foster City Boulevard, and the SR 92/Metro Center Boulevard interchange during the PM peak hour. Traffic volumes on eastbound East 3rd Avenue between Norfolk Street and Foster City Boulevard and on southbound Foster City Boulevard at Chess Drive have increased by approximately 500 to 800 vehicles (90 to 200 percent) since 2012. During the AM peak hour, traffic has increased along East 3rd Avenue between 20 to 40 percent. Although some development has occurred since 2012, much of this increase in traffic is due to traffic bypassing congestion at the US 101/SR 92 interchange to reach the San Mateo Bridge or destinations within Foster City. The changes in PM peak hour volumes along these roadways are shown in Figure V.C-5.

Intersection Operations

The intersection LOS analysis results are presented in Table V.C-5. The LOS analysis results for the four intersections near the SR 92/Foster City Boulevard interchange are based on simulation results from the VISSIM micro-simulation model (Intersections 6, 7, 9, and 10). The remaining study intersections were analyzed as isolated intersections based on the HCM method using the Traffix analysis software.

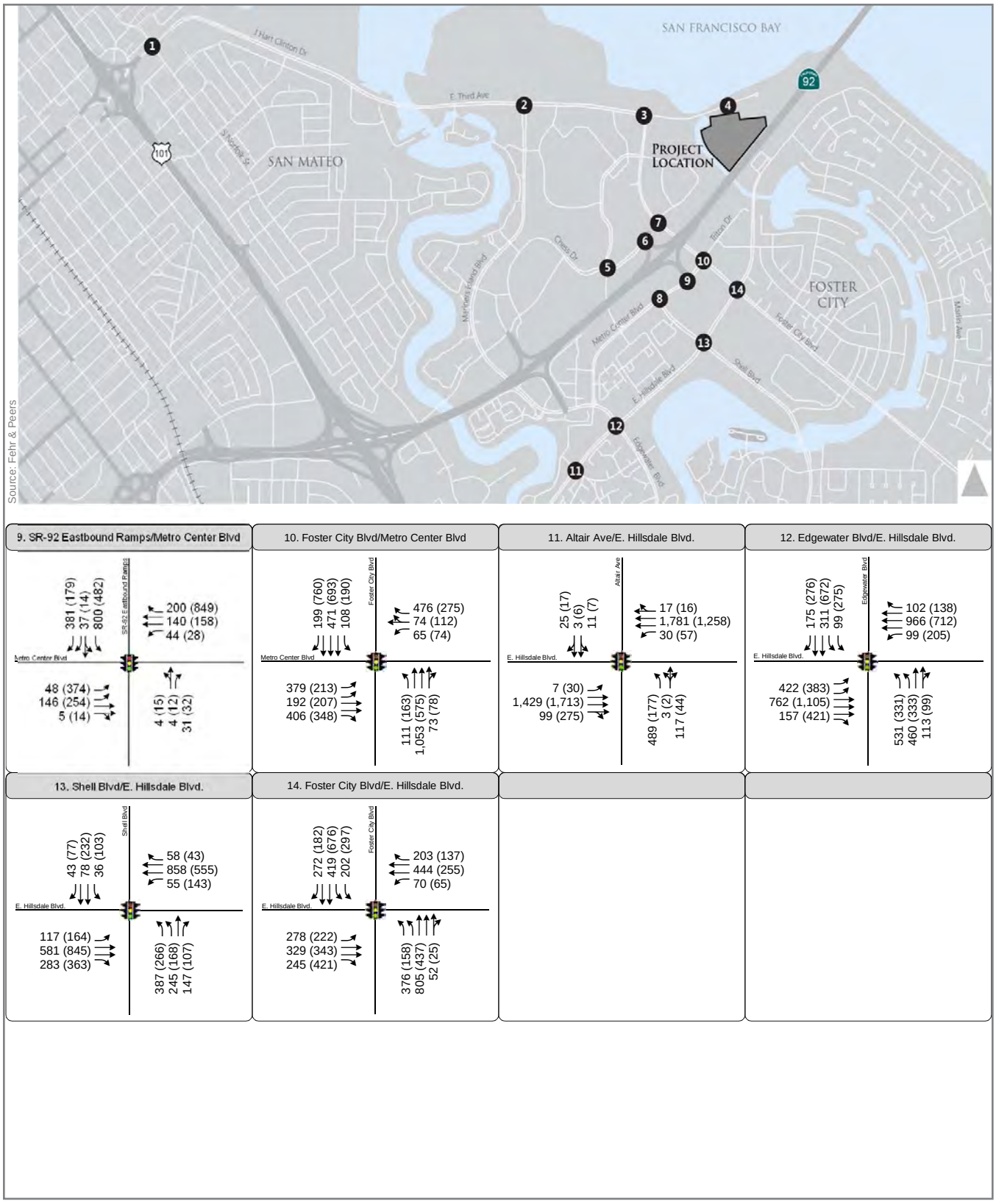
The LOS results presented in Table V.C-5 show that all of the intersections currently operate at an acceptable LOS D or better (based on the locally accepted significance criteria, as shown in Table V.C-6) except for Norfolk Street/East 3rd Avenue in the AM peak hour and Foster City Boulevard/Chess Drive in the PM peak hour, both of which



25.01.2015 P:\14-010 FCBMR\PRODUCTS\Graphics

Source: Fehr & Peers, 2015

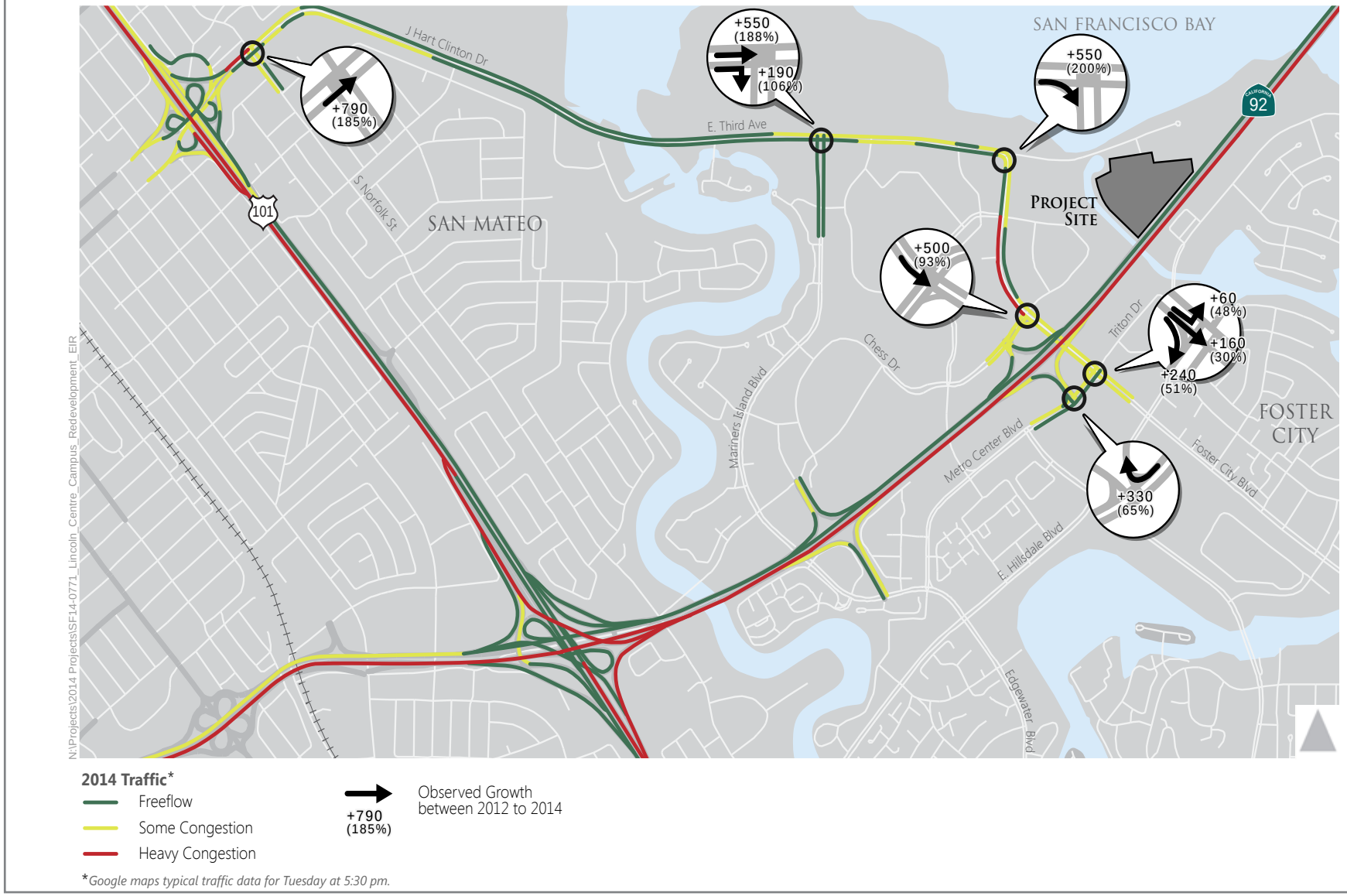
Figure V.C-4A
Lincoln Centre Life Sciences Research Campus Project EIR
Existing Intersection Peak-Hour Volumes,
Lane Configurations, and Traffic Control Devices



25.01.2015 P:\14-010 FCBMR\PRODUCTS\Graphics

Source: Fehr & Peers, 2015

Figure V.C-4B
Lincoln Centre Life Sciences Research Campus Project EIR
Existing Intersection Peak-Hour Volumes,
Lane Configurations, and Traffic Control Devices



25.01.2015 P:\14-010 FCBMR\PRODUCTS\Graphics

Source: Google Maps, 2014; Fehr & Peers, 2012, 2014

Figure V.C-5
Lincoln Centre Life Sciences Research Campus Project EIR
Growth in Traffic on East 3rd Avenue
2012 to 2014, PM Peak Hour

TABLE V.C-5 INTERSECTION OPERATIONS EXISTING CONDITIONS: 2012 AND 2014

	AM				PM			
	2014		2012		2014		2012	
Intersection	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS
1. Norfolk Street/ East 3rd Avenue	**56**	**E**	30	C	43	D	27	C
2. Mariners Island Boulevard/ East 3rd Avenue	18	B	10	B	20	C	13	B
3. Foster City Boulevard/ East 3rd Avenue	<10	A	<10	A	11	B	<10	A
4. Lincoln Centre Drive/ East 3rd Avenue[b]	11	B	<10	A	12	B	<10	A
5. Vintage Park Drive/ Chess Drive	29	C	25	C	44	D	38	D
6. SR 92 Westbound Ramps/ Chess Drive[c]	21	C	11	B	23	C	21	C
7. Foster City Boulevard/ Chess Drive[c]	26	C	17	B	**75**	**E**	18	B
8. Shell Boulevard/ Metro Center Boulevard	32	C	17	B	35	C	23	C
9. SR 92 Eastbound Ramps/ Metro Center Boulevard[c]	17	B	15	B	29	C	19	B
10. Foster City Boulevard/ Metro Center Boulevard/ Triton Drive[c]	29	C	22	C	34	C	18	B
11. Altair Avenue/ East Hillsdale Boulevard	<10	A	17	B	<10	A	<10	A
12. Edgewater Boulevard/ East Hillsdale Boulevard	32	C	26	C	36	D	31	C
13. Shell Boulevard/ East Hillsdale Boulevard	19	B	20	C	24	C	22	C
14. Foster City Boulevard/ East Hillsdale Boulevard	30	C	26	C	25	C	22	C

Note: **Bold** = Unacceptable operations.
[a] For signalized intersections, the delay shown is the weighted average for all movements in seconds per vehicle. For unsignalized intersections, the delay shown is the delay for the worst performing approach.
[b] Side-street stop controlled (unsignalized) Intersection.
[c] Intersection analyzed using the VISSIM micro-simulation platform.
Source: Fehr & Peers, 2015; Gilead Sciences SEIR, 2012.

operate at LOS E. The LOS results for intersections along East 3rd Avenue and Foster City Boulevard are worse than those presented in the 2012 Gilead Campus Master Plan Supplemental EIR (Gilead SEIR) due to the recent changes in traffic volumes discussed previously. Traffic operations at other study intersections have not changed significantly since 2012, with minor fluctuations in average vehicle delay caused by shifting travel patterns and new traffic signal timings along East Hillsdale Boulevard. The LOS calculations for the isolated intersection analysis are included in Appendix C-2. The LOS calculations for the VISSIM simulation model are included in Appendix C-3.

TABLE V.C-6 LOCALLY-ACCEPTABLE LOS CRITERIA

Jurisdiction	Facility Type	Worst Acceptable LOS	Maximum Acceptable Average Vehicular Delay or V/C Ratio
City of Foster City	Signalized Intersections	LOS D[a]	55 seconds/vehicle[b]
City of Foster City	Unsignalized Intersections	LOS D	35 seconds/vehicle[b]
City of San Mateo	Signalized Intersections	Mid-range LOS D	45 seconds/vehicle[b]
San Mateo C/CAG	Freeway Segments	LOS E[c]	V/C = 1.00

[a] The Foster City General Plan Land Use and Circulation Policy LUC-50 states that it will be necessary to accept LOS E or F at the following intersections: Chess Drive/SR 92 Ramps, Foster City Boulevard/Triton Boulevard/Metro Center Boulevard, and East Hillsdale Boulevard/Edgewater Boulevard.
[b] Based on 2000 Highway Capacity Manual (HCM).
[c] LOS F is considered acceptable on US 101 north of SR 92 to Peninsula Avenue due to existing congestion levels.
Source: City of Foster City General Plan, City of San Mateo General Plan.

(6) Freeway Traffic Volumes and Operations

Traffic demand volumes were developed for seven freeway segments (Segments A, B, C, D, E, F, and G as shown in Figure V.C-1) during the morning and evening peak periods. These demand volumes were developed based on Caltrans' PeMS mainline and ramp count database, where available, and demand volumes that were developed as part of the US 101-Holly Interchange Project Approval/Environmental Document (PA/ED).[1] Volumes for other segments were developed by adding the on-ramp volumes and subtracting the off-ramp volumes. The resulting volumes were converted to Passenger Car Equivalents, based on Caltrans data showing that 3.5 percent of the traffic on US 101 and 2.0 percent of the traffic on SR 92 consist of trucks and other heavy vehicles. The resulting traffic volumes and freeway analysis results are presented in that "Caltrans endeavors to maintain a target LOS at the transition between LOS 'C' and LOS 'D' on State highway facilities;" however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. In addition, Caltrans states that for existing State highway facilities operating at less than the target LOS, the existing LOS should be maintained. As shown in Table V.C-7, the freeway operations vary depending on the peak hour, direction, and segment, ranging from LOS B to LOS F.

[1] Fehr & Peers, 2014. *Final Traffic Forecasting Report for the US 101-Holly Street Interchange PA/ED.*

TABLE V.C-7 EXISTING FREEWAY SEGMENT LOS RESULTS

Segment	CMP LOS Standard	Peak Hour	Direction	Volume[a]	LOS
A. US 101, north of East 3rd Avenue	F	AM	Northbound	10,669	F
			Southbound	9,417	E
		PM	Northbound	10,041	E
			Southbound	11,271	F
B. US 101, between East 3rd Avenue and SR 92	F	AM	Northbound	11,760	F
			Southbound	9,560	E
		PM	Northbound	10,712	F
			Southbound	11,507	F
C. US 101, between SR 92 and East Hillsdale Boulevard	E	AM	Northbound	7,747	D
			Southbound	9,568	E
		PM	Northbound	10,053	E
			Southbound	**10,661**	**F**
D. US 101, south of East Hillsdale Boulevard	E	AM	Northbound	7,380	D
			Southbound	**10,712**	**F**
		PM	Northbound	**10,608**	**F**
			Southbound	**10,712**	**F**
E. SR 92, between US 101 and Mariners Island Boulevard/Edgewater Boulevard	E	AM	Eastbound	4,688	D
			Westbound	4,936	C
		PM	Eastbound	6,742	E
			Westbound	5,829	D
F. SR 92, Mariners Island Boulevard/Edgewater Boulevard and Foster City Boulevard	E	AM	Eastbound	3,287	B
			Westbound	4,655	C
		PM	Eastbound	6,484	D
			Westbound	4,675	C
G. SR 92, east of Foster City Boulevard	E	AM	Eastbound	2,301	B
			Westbound	5,209	D
		PM	Eastbound	**7,038**	**F**
			Westbound	3,108	B

Note: **Bold** = Exceeds C/CAG threshold for acceptable operations.
[a] Volumes presented are passenger-car equivalents.
Source: Fehr & Peers, March 2015.

The following segments on SR 92 or US 101 currently exceed their CMP LOS threshold:

- Southbound US 101, north of East Hillsdale Boulevard – LOS F during the PM peak hour
- Northbound US 101, south of East Hillsdale Boulevard – LOS F during the PM peak hour
- Southbound US 101, south of East Hillsdale Boulevard – LOS F during the AM and PM peak hours
- Eastbound SR 92, east of Foster City Boulevard – LOS F during the PM peak hour

These congested operations are primarily caused by bottlenecks on northbound US 101 north of SR 92, southbound US 101 south of East Hillsdale Boulevard, and eastbound SR 92 east of Foster City Boulevard. Similar to the traffic volume comparison presented for East 3rd Avenue and Foster City Boulevard, traffic volumes and congestion have increased on SR 92 in recent years. Based on the most recent available data from 2013 through Caltrans traffic census[2], traffic volumes increased on SR 92 by approximately 10 percent between 2008 and 2013, and by five percent between 2012 and 2013 alone. This increase in traffic over the San Mateo Bridge, in combination with the large increase regional cut through traffic merging onto SR 92 from Foster City Boulevard, has created a bottleneck on SR 92 during the PM peak hour and worsened operations at this location to LOS F conditions.

In addition to the above segments exceeding C/CAG's threshold for acceptable operations, several segments on northbound or southbound US 101 north of SR 92 operate at LOS F during the AM or PM peak hours. However, these operations are consistent with the CMP LOS standard of F for this segment. The remaining freeway segments operate at LOS E or better under Existing Conditions.

Existing average annual daily traffic (AADT) volumes for the study freeway segments were also obtained from the 2013 Traffic Volumes on the California State Highway System[3] and are included in Appendix C-4.

e. Regulatory Framework

State and local laws, regulations, and orders that pertain to transportation and traffic resources in the project area are presented below.

(1) Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating, and financing agency for the nine-county San Francisco Bay Area (Bay

[2] Caltrans, 2013. 2013 Traffic Volumes on California State Highways. Available at: http://traffic-counts.dot.ca.gov/docs/2013_aadt_volumes.pdf.

[3] Ibid.

Area). It is responsible for developing the regional transportation plan and prioritizing regional transportation projects for State and federal funding.

(2) City/County Association of Governments of San Mateo County

The City/County Association of Governments (C/CAG) of San Mateo County is the County's Congestion Management Agency (CMA). It prepares a Congestion Management Plan (CMP), which identifies improvements and strategies to relieve congestion on regional transportation facilities, and sets funding priorities. The CMP is required to be consistent with the MTC planning process and projects for the Regional Transportation Improvement Program (RTIP). C/CAG also provides guidelines for the analysis of land use projects and their impacts to the designated CMP roadway system.

The San Mateo County CMP roadway system comprises 53 roadway segments and 16 intersections. The CMP facilities in Foster City include US 101 and SR 92. The LOS Standards for these facilities vary by roadway segment:

- SR 92 from US 101 to Alameda County Line, LOS E
- US 101 from Peninsula Avenue to SR 92, LOS F
- US 101 from SR 92 to Whipple Road, LOS E

(3) California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for the maintenance and operation of State routes and highways. In Foster City, Caltrans' facilities include SR 92 and US 101. Caltrans maintains a volume monitoring program and reviews local agencies' planning documents (such as this EIR) to assist in its forecasting of future volumes and congestion points. The *Guide for the Preparation of Traffic Impacts Studies* (December 2002) published by Caltrans is intended to provide a consistent basis for evaluating traffic impacts to State facilities. The City recognizes that "Caltrans endeavors to maintain a target LOS at the transition between LOS 'C' and LOS 'D' on State highway facilities;" however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS.

In addition, Caltrans states that for existing State highway facilities operating at less than the target LOS, the existing LOS should be maintained.

(4) San Mateo County Transportation Authority

The San Mateo County Transportation Authority (TA) was formed in 1988. The TA administers the proceeds from Measure A, the voter approved half-cent sales tax, to fund a variety of transportation-related projects and programs. TA projects in the vicinity of Foster City include auxiliary lanes on US 101.

(5) Foster City

All cities in California are required to prepare and adopt a General Plan. The General Plan presents the community's long-range view regarding its physical development. Specifically it contains goals, policies, and programs addressing the development and redevelopment of land, preservation of parks and open spaces, provision of housing, conservation of natural resources, improvement of the transportation system, control of noise, and protection from hazards.

The Foster City General Plan currently in place was completed in 1993. The applicable circulation goals, policies, and programs related to transportation impacts are:

- *Goal LUC-F: Provide Adequate Services and Facilities.* Ensure that new and existing developments can be adequately served by municipal services and facilities.
- *Goal LUC-1: Provide for Diversified Transportation Needs.* Develop, improve, and maintain a circulation system which provides efficient and safe access for private vehicles, commercial vehicles, public transit, emergency vehicles, bicycles, and pedestrians.
- *Goal LUC-J: Maintain Acceptable Operating Conditions on the City's Road Network.* Maintain acceptable operating conditions on the City's road network at or above LOS D and encourage the maximum effective use of public and private vehicles, reduce the growth in peak hour traffic volumes, and reduce single passenger trips.
- *Goal LUC-K: Provide Adequate Parking.* Ensure that adequate off-street parking is incorporated into modified projects and designed for safe and effective circulation.
- *Policy LUC-50: Traffic Level of Service Standards.* The City shall seek to achieve a traffic service level of "C" or better on City streets and level of "D" or better during peak traffic hours, although it will be necessary to accept level of service "E" or "F" at the Chess Drive/SR 92 Ramps, the Foster City Boulevard/Metro Center Boulevard/Triton Drive, and the East Hillsdale Boulevard/Edgewater Boulevard intersections, through the following means:
  a. Traffic Systems Management (TSM).
  b. Street maintenance.
  c. Capital Improvement Program and coordination with federal, state, county, and district funding programs for street and other transportation improvements.
  d. Developer payment of pro rata fair share of traffic improvement costs for new developments.
- *Policy LUC-51: Improvements to Existing Streets.* The City will maintain and improve the existing system of major and collector streets, including:
  a. East Hillsdale Boulevard, Edgewater Boulevard, Foster City Boulevard, Beach Park Boulevard, East 3rd Avenue (within the City limits), Metro Center Boulevard, Shell Boulevard, Chess Drive (between Hanson Way and Foster City Boulevard) and Vintage Park shall be maintained as arterial (major) streets.

  b. Collector streets, currently shown on Map GP-5, Street Network Map, shall be maintained as such.
- *Policy LUC-52: Traffic Systems Management (TSM).* The City will participate in an ongoing joint effort with several neighboring cities to adopt and enforce a Traffic Systems

Management (TSM) program. The program shall require the participation of all future and existing commercial and industrial employers.

- *Policy LUC-53: Bicycle Routes and Pedestrian Paths.* Maintain a system of bicycle routes and pedestrian paths, which will include separate bicycle lanes and posted bicycle routes. Pedestrian pathways and easements shall be maintained, either by the City, or, in the case of private ownership, according to a maintenance agreement or landscaping district agreement applicable to the pathway/easement.
- *Policy LUC-54: Coordination with SamTrans.* The City shall work with SamTrans in defining new routes and improving the public transit and transportation system.
- *Policy LUC-55. Access to New Commercial and Industrial Projects.* New commercial and industrial developments shall be designed so that, wherever necessary and possible, entrance to the projects can be gained by way of left-or right-turn only lanes. Only the minimum number of entrance or exit points shall be allowed as are needed to ensure safe and efficient internal traffic flow and to reduce through traffic delays on public roads serving the project.
- *Policy LUC 56: Private Streets and Public Loop or Cul-de-Sac Streets.* The City will enforce design standards for private streets and public loop or cul-de-sac streets to ensure that they meet minimum requirements for two-way traffic, parking, and emergency access. Private streets and public loop or cul-de-sac streets may be approved with narrower than standard widths, provided that emergency access and parking can be safely accommodated. They are not intended to provide curb-side parking, and the roads are designed to serve only those residences on that street or within that development.
- *Policy LUC-58: Off-Street Parking Requirements.* The City shall maintain off-street parking requirements based on use permits of record, the historical parking patterns of residential and non-residential projects, and related information developed by the Urban Land Institute, Institute of Transportation Engineers, or other reliable sources.
- *Policy LUC-59: Bicycle Parking.* Secured bicycle parking shall be encouraged for all commercial and industrial buildings. The City will continue to allow required parking to be reduced with bicycle parking spaces provided, per Chapter 17.62 of the Municipal Code.
- *Policy LUC-60: Parking and Internal Circulation in Project Design.* The City shall continue to incorporate parking and internal circulation design into its overall review of project design. The review shall include compliance with City off-street parking design standards and ratios.
- *Policy LUC-61: Capital Improvement Program (CIP).* The City will continue to maintain a five-year Capital Improvement Program (CIP), which supports policies in the General Plan to maintain, improve, or expand City-wide facilities and infrastructure.
- *Policy LUC-65: Adequacy of Public Infrastructure and Services.* New projects that require construction or expansion of public improvements shall pay their pro rata fair share of the costs necessary to improve or expand infrastructure necessary to serve them, including streets and street improvements, parks, water storage tanks, sewer and water service, and other public services. The City has established several assessment districts to pay for needed municipal improvements. Facilities benefiting a specific development must be provided by the developer of that project.

- *Program LUC-n: Implementation of Traffic Management Programs.* The City has recently adopted a Traffic Systems Management (TSM) Ordinance. The purpose of the ordinance is to assure that all existing and future employers participate in mitigating traffic problems. The objective of the ordinance is to achieve, within 4 years, a minimum TSM objective of 25% employee participation rate in alternatives to single occupant vehicles commuting during peak traffic hours. The ordinance requires participation at several different levels, depending on the number of employees:
  a. Every employer must submit annually to the TSM Administrator an Annual Transportation Survey providing employee commute information.
  b. Employers with 25 or more employees are required to prepare and implement a TSM information program describing commuting options available to their employees.
  c. Every employer with 100 or more employees must prepare and implement a TSM Program which designates a workplace TSM Coordinator and includes strategies to increase employee participation in commute alternatives.
- *Program LUC-o: Periodically Monitor Traffic Conditions.* The City will periodically monitor traffic conditions on arterial and selected collector streets to determine levels of service and safety conditions. Traffic counts will be updated regularly at all major street intersections to determine levels of service, safety conditions, and if additional traffic control measures are warranted or if changes in the sequence of traffic signal cycles are necessary.
- *Program LUC-p: Bicycle Route and Pedestrian Path Master Plan and Improvement Program.* The City shall implement the Foster City Bikeway System Report and improve pedestrian circulation. Major streets with sufficient width that are part of the system will have separate bicycle lanes. Streets that are part of the system but are not wide enough for separate bicycle lanes will have posted "bicycle route" signs at regular intervals. The purpose of the bicycle route system is to connect major work, shopping, school, civic, and recreational destinations throughout the City, while avoiding as many of the most heavily used street segments as possible.
- *Program LUC-q: Designation of New Bus Routes.* The City will designate new bus routes in consultation with SamTrans, provide curbside space for bus stops, and require major commercial/industrial developments along bus routes to accommodate buses in their circulation plans. Bus turnouts or shelters will also be required with new development.
- *Program LUC-t: Updating of the Capital Improvement Program (CIP).* The City will update the five-year CIP at least every year in conjunction with the Annual Report on the General Plan to identify street improvements and maintenance that will be necessary to achieve goals for traffic levels of service and other needs. The plan shall identify funding sources, including property taxes, special taxes, City share of gasoline and sales taxes, state funds, federal funds, developer fees, assessment districts, and private maintenance agreements. Additionally, the five-year CIP will budget for traffic improvements identified in the General Plan.

(6) City of San Mateo 2030 General Plan

The City of San Mateo completed the 2030 General Plan Update in 2010. The applicable circulation goals, policies, and programs related to transportation impacts are:

- *Goal 2:* Maintain a street and highway system which accommodates future growth while maintaining acceptable levels of service.
- *Policy C2.1: Acceptable Levels of Service.* Maintain a Level of Service no worse than mid LOS D, average delay of 45.0 seconds, as the acceptable Level of Service for all intersections within the City.
- *Policy C 2.7: Exceeding the Acceptable Level of Service.* In addition to paying the transportation impact fee, a development project may be required to fund off-site circulation improvements which are needed as a result of project generated traffic, if:
  a. *The Level of Service at the intersection drops below mid-level LOS D (average delay of more than 45 seconds) when the project traffic is added, and*
  b. *An intersection that operates below its level of service standard under the base year conditions experiences an increase in delay of four or more seconds, and*
  c. *The needed improvement of the intersection(s) is not funded in the applicable 5-year City Capital Improvement Program from the date of application approval.*

(7) Applicable LOS Criteria

Based on the state and local laws, regulations, and ordinances presented above, acceptable LOS thresholds were determined for the purpose of this study. As shown in Table V.C-6, the City of Foster City seeks to achieve traffic service of level "D" or better at all study intersections during peak traffic hours;[4] the City of San Mateo seeks to achieve a mid-range LOS "D" or better (defined as an average of 45 seconds of delay per vehicle).[5] Therefore, an increase in vehicular traffic delay at each of the study intersections will be considered significant if it causes the peak hour level of service to drop to LOS E or F, or if the intersection is already operating at LOS E or F, causes an increase of 4 or more seconds of average delay. C/CAG developed thresholds for acceptable freeway operations as part of their Congestion Management Program (CMP). The CMP threshold for most of the freeway segments in the study area is LOS E. The threshold for US 101 north of SR 92 to Peninsula Avenue is LOS F due to pre-existing congestion levels.

2. Impacts and Mitigation Measures

This section evaluates the transportation-related impacts of the project. Traffic impacts are evaluated under existing, background, and cumulative conditions.

a. Thresholds of Significance

The criteria for evaluating the significance of a project's environmental impacts are based on the CEQA Guidelines and applicable standards recognized by Foster City, San Mateo, and C/CAG, including the applicable LOS criteria imposed by C/CAG

[4] City of Foster City, 1993. *General Plan,* Land Use and Circulation Element, Policy LUC-50. Amended June 1999.

[5] City of San Mateo General Plan, 2010.

described on page 121. For this analysis, transportation impacts are considered significant if the project would:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;
- Conflict with an applicable congestion management program, including, but not limited to, LOS standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

To evaluate project-level and cumulative impacts at study intersections and freeway segments, the following specific thresholds were used. The project would create a significant traffic impact if, as a result of the addition of project traffic, the project would:

- Cause an intersection operating acceptably without the project to exceed the applicable LOS threshold;
- Increase the average intersection delay by 4 seconds per vehicle or more at an intersection exceeding its LOS threshold without the project (similar to C/CAG requirements);
- Cause a freeway segment to exceed its CMP LOS standard; or
- Increase the volume of a freeway segment that exceeds the CMP LOS standard without the project by 1 percent or more of the freeway segment's capacity.

Transit impacts would be considered significant if the project would:

- Disrupt existing transit services or facilities. This includes disruptions caused by proposed driveways on streets used by transit, impacts to transit stops/shelters,

and impacts to transit operations from traffic improvements proposed or resulting from the project;

- Interfere with planned transit services or facilities;
- Create demand for public transit services above the level provided or planned; or
- Conflict or create inconsistencies with adopted transit system plans, guidelines, policies, or standards.

Bicycle and pedestrian impacts would be considered significant if the project would:

- Disrupt existing or planned bicycle or pedestrian facilities; or
- Create inconsistencies with adopted bicycle or pedestrian system plans, guidelines, or policy standards.

b. Project Characteristics

This section describes the project being analyzed in this study and the process used to develop the traffic projections, including trip generation, trip distribution, and trip assignment.

(1) Project Description

The project includes construction of new biomedical research buildings in a campus setting and replacement of existing buildings resulting in up to 555,000 square feet of laboratory and office space and up to 40,000 square feet of amenity space for employees and visitors, such as a café and childcare facility. For the purpose of the traffic analysis for this EIR, a 70/30 split of office and laboratory space was assumed for these land uses, resulting in 388,500 square feet of office space and 166,500 square of laboratory space.

(2) Trip Generation Estimates

Trip estimates for the project were developed by applying biomedical research campus trip generation rates developed for the Gilead Sciences EIR, as calculated by Kimley-Horn and Associates, Inc.[6] Fehr & Peers reviewed these rates and found them to be appropriate for use for the project due to the similar land use types and campus location. These rates are likely more reflective of the development than conventional trip generation resources, as the Institute of Transportation Engineers' (ITE) *Trip Generation Manual* does not have rates for a directly comparable use. Table V.C-8 compares the trip rates presented in *Trip Generation Manual* to the rates for the

[6] Kimley-Horn, 2008. *Analysis of Gilead Sciences General Development Plan Traffic Impacts*.

TABLE V.C-8 COMPARISON OF SITE-SPECIFIC AND ITE TRIP GENERATION RATES

Land Use	ITE Code	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
ITE Rates							
General Office	710	1.37	0.19	1.56	0.25	1.24	1.49
R&D Center[a]	760	1.01	0.21	1.22	0.16	0.91	1.07
Gilead Sciences Biomedical Research Campus Rates[b]							
General Office	--	1.13	0.16	1.28	0.18	1.11	1.29
Laboratory	--	0.24	0.09	0.33	0.13	0.34	0.47

Note: R&D = Research and Development.
[a] There is no laboratory land use in the ITE *Trip Generation Manual*
[b] Trip rates include count amenities as a part of the total office and laboratory square footage of the campus.
Sources: Fehr & Peers, 2014. Institute of Transportation Engineers, *Trip Generation Manual*, 9th Edition.

closest ITE Category, Land Use 760 – Research and Development Center and for Land Use 710 – General Office to those used in this analysis.

The biomedical research campus trip rates do account for the available transit services in place at the time they were developed at Gilead Sciences in 2008. Similar transit service is currently available at the project as described in existing Transit System section.

Vehicle trip generation estimate summaries for the project are shown in Table V.C-9. The project at buildout is anticipated to generate 6,068 daily trips, 608 AM peak hour trips, and 631 PM peak hour trips. The detailed calculation of these trip estimates for the project is presented in Appendix C-5.

The previous buildings on the project site were demolished prior to the Notice of Preparation (NOP) and therefore the site was not generating any traffic. The trip generation estimates for the project are the same for all study scenarios and do not include any trip credits for the existing buildings. The existing traffic counts were conducted after the release of the NOP and do not capture any trips generated by the previous use. The trip generation of the previous use (280,000 square feet of industrial park space) is presented in Table V.C-10 for informational purposes only.

(3) Trip Distribution and Assignment

Trip distribution refers to the directions the trips generated by the project would use to approach and depart the site and the percentage of traffic using each direction.

TABLE V.C-9 TRIP GENERATION SUMMARY – PROJECT

				AM Peak Hour Trips			PM Peak Hour Trips		
Land Use	**Size**	**Unit[a]**	**Daily Trips**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
General Office	388.5	ksf	4,278	439	62	501	70	431	501
Laboratory	166.5	ksf	1,350	40	15	55	22	57	79
Amenities[b]	40.0	ksf	440	46	6	52	7	44	51
Total	**595.0**	**ksf**	**6,068**	**525**	**83**	**608**	**99**	**532**	**631**

[a] ksf = 1,000 square feet.
[b] Similar to the Gilead Sciences SEIR, amenities space is assumed to be included in the total campus traffic generating land uses. The amenities in the Gilead Sciences SEIR are not separated between office and laboratory space, therefore they were included in the General Office trip generation calculations in this study for conservative measure.
Source: Fehr & Peers, 2014.

TABLE V.C-10 TRIP GENERATION SUMMARY – PREVIOUS LAND USE

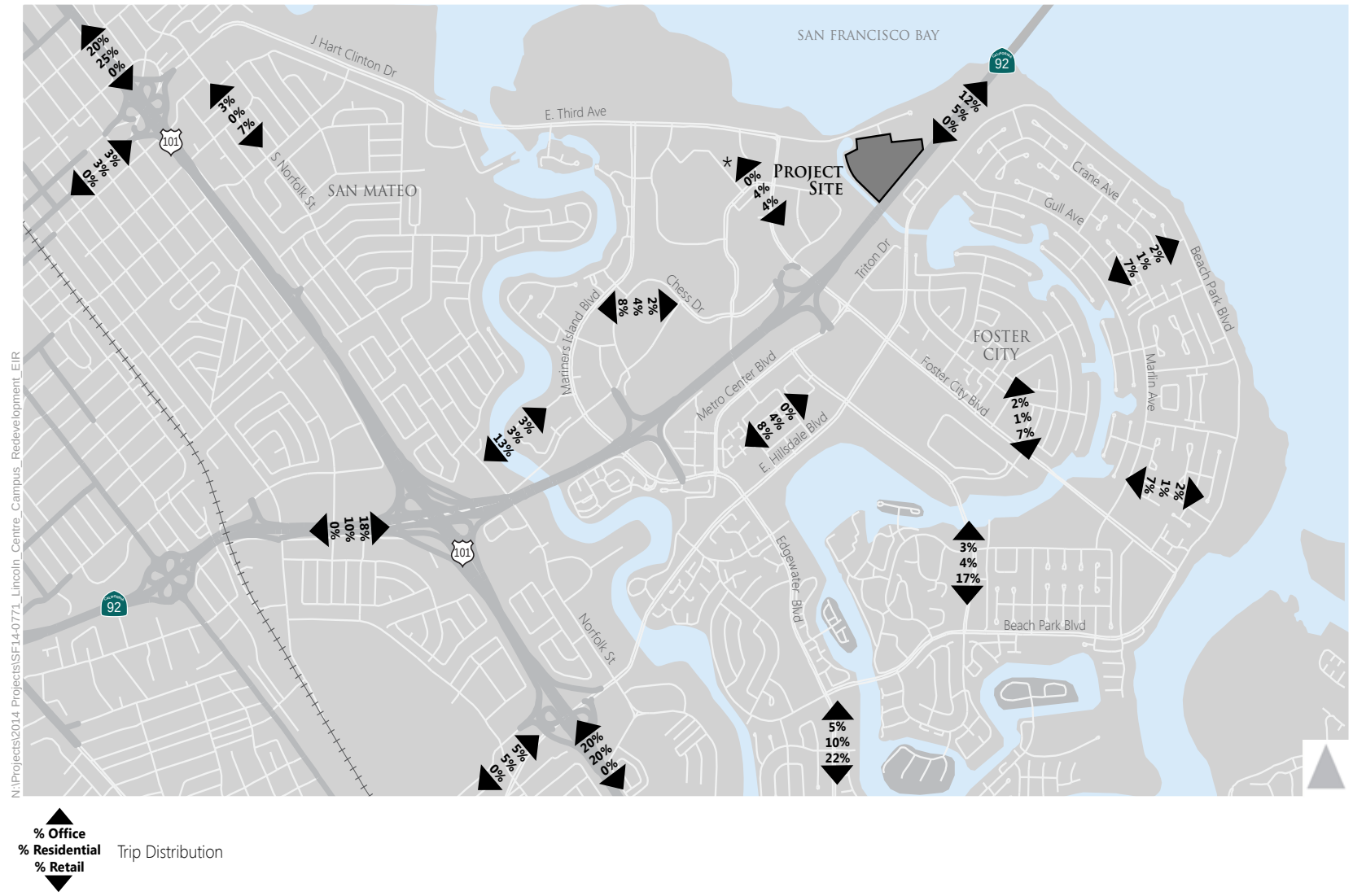
				AM Peak Hour Trips			PM Peak Hour Trips		
Land Use	**Size**	**Unit[a]**	**Daily Trips**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Industrial Park[b]	280	ksf	1,912	188	42	230	50	188	238

[a] ksf = 1,000 square feet.
[b] ITE Land Use Code 130.
Source: Fehr & Peers, 2014.

The project trips were distributed and assigned through the study intersections based on the trip distribution percentages presented for office land uses in the Foster City Multi-Project Traffic Analysis.[7] The trip distribution methodology used for the Foster City Multi-Project Traffic Analysis was developed in 2008 and was based on C/CAG travel forecast data and Census 2000 information. The percentages used in the Foster City Multi-Project Traffic Analysis were compared to more recent information presented in the Census Longitudinal Employer-Household Dynamics Survey and 2008–2012 American Community Survey. The percentages of work trips originating from the north via US 101, the west via SR 92, and within Foster City were adjusted to account for changing demographic information and household location.

The project trips were then assigned to the roadway system and study intersections based on the directions of approach and departure discussed above. AM and PM peak-hour trip distribution and project trip assignments are shown in Figure V.C-6 and Figures V.C-7A and V.C-7B, respectively.

[7] Fehr & Peers, 2008. *Foster City Multi-Project Traffic Analysis.*



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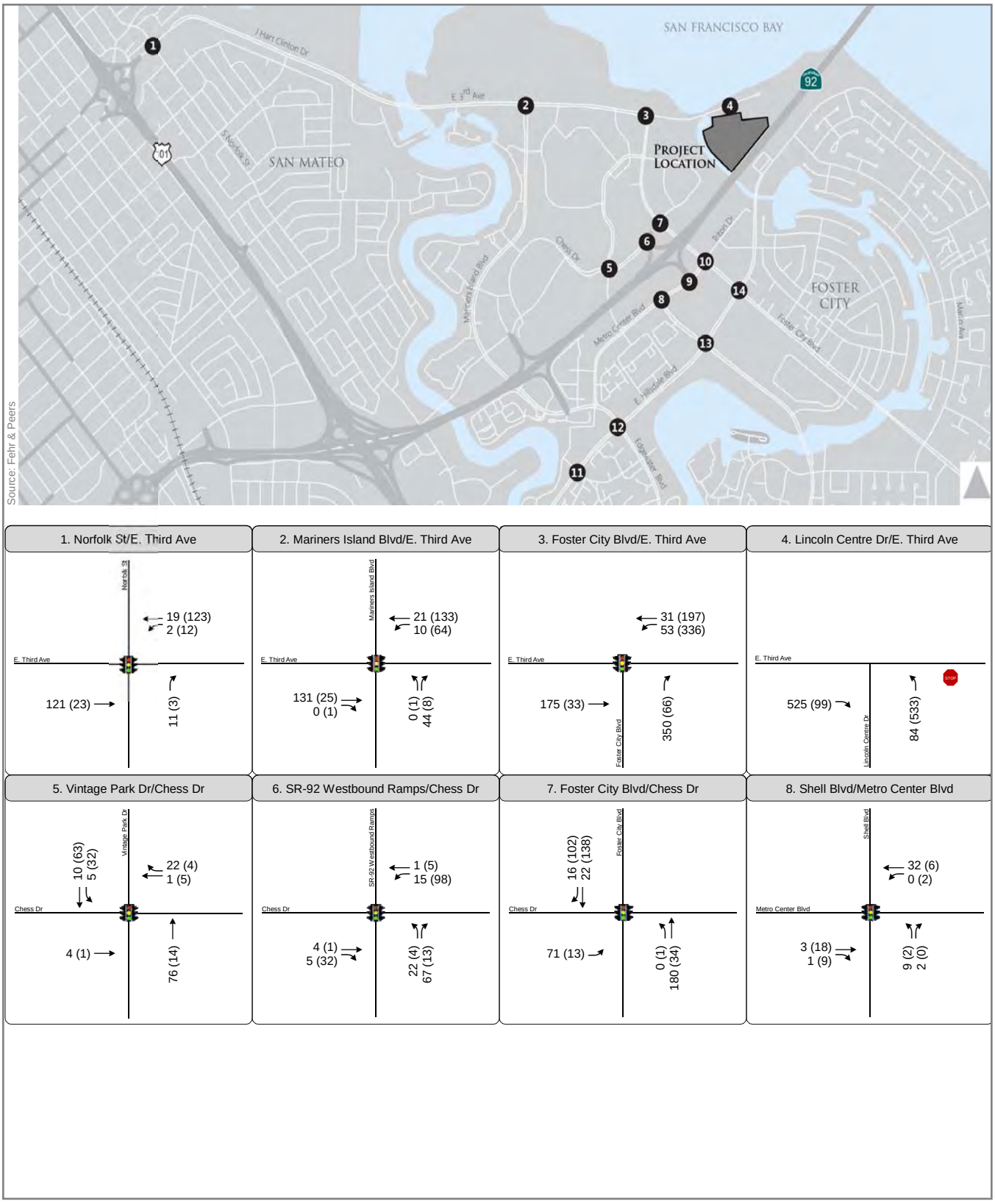
Note:*Represents trips traveling to/from Vintage Park office complex from the rest of Foster City.
Source: Fehr & Peers, 2015

Figure V.C-6
Lincoln Centre Life Sciences Research Campus Project EIR
Trip Distribution



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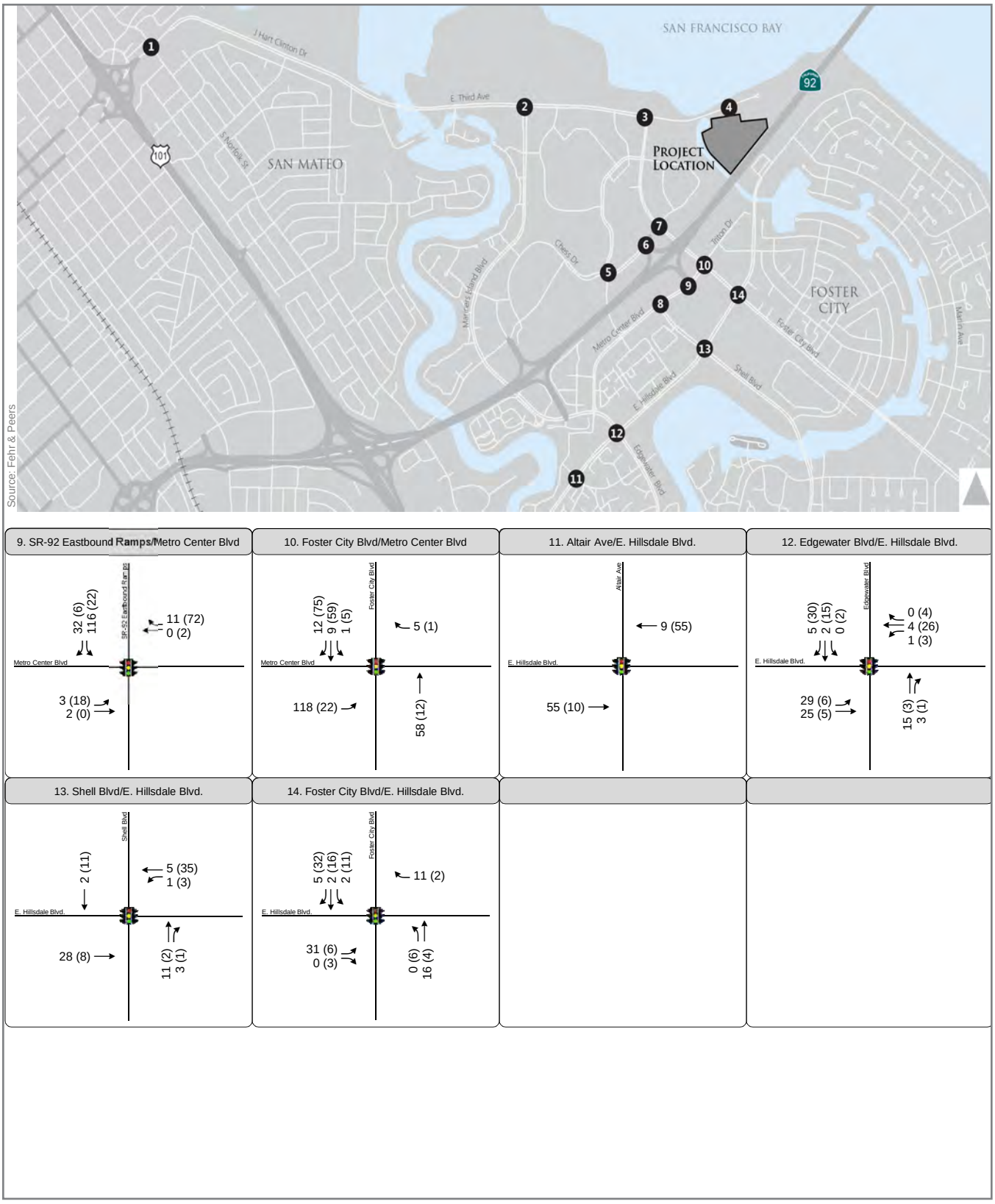
Source: Fehr & Peers 2015

Figure V.C-7A
Lincoln Centre Life Sciences Research Campus Project EIR
Project Trip Assignment



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Source: Fehr & Peers 2015

Figure V.C-7B
Lincoln Centre Life Sciences Research Campus Project EIR
Project Trip Assignment

c. Existing Plus Project Conditions

This section presents the results of the intersection and freeway Level of Service analysis for Existing Plus Project Conditions. Existing Conditions form the baseline against which project-related impacts are evaluated.

(1) Intersection Operations

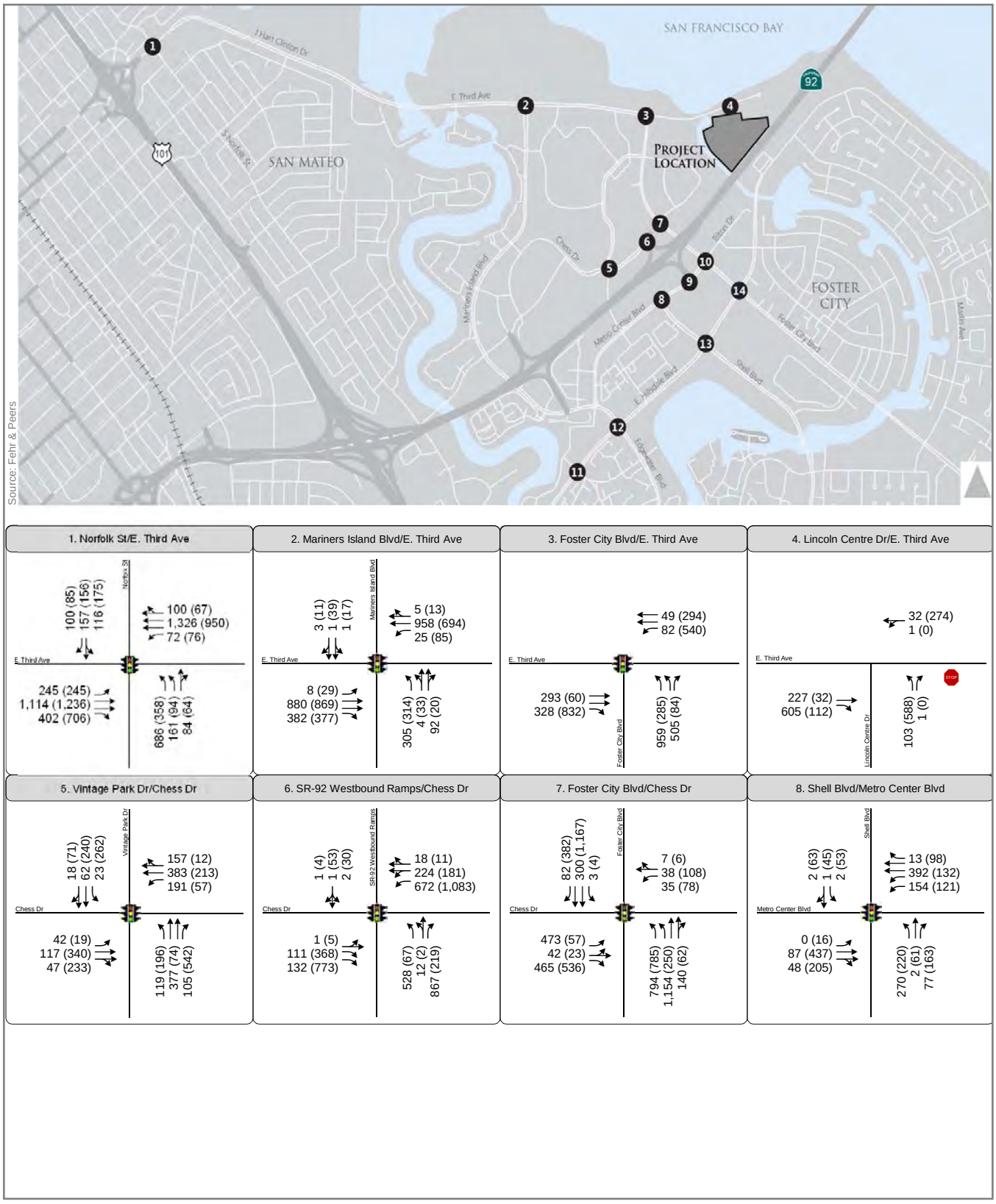
Existing intersection volumes plus new vehicle trips due to the project are shown on Figures V.C-8A and V.C-8B. The LOS results presented in Table V.C-11 show that with project, 13 of the 14 study intersections would operate at an acceptable LOS D or better during the AM peak hour and 12 would operate at LOS D or better in the PM peak hour. The addition of new vehicle trips due to the project is expected to increase vehicle delay at study intersections directly adjacent to the project site and on roadways such as East 3rd Avenue and Foster City Boulevard that serve as key connections to US 101 and SR 92.

Under Existing Conditions, the intersection of Norfolk Street/East 3rd Avenue operates at unacceptable LOS E conditions in the AM peak hour. The addition of project traffic would increase vehicle delay at this intersection by 1 second in the AM peak hour. This increase is less than 4 seconds and therefore the impact at this intersection is considered less than significant.

In the PM peak hour, the addition of project traffic would cause traffic operations to worsen to LOS F at the two intersections of Lincoln Centre Drive/East 3rd Avenue and Foster City Boulevard/Chess Drive. At Lincoln Centre Drive/East 3rd Avenue, vehicles exiting the project site in the evening would exceed the capacity of existing stop-controlled intersection and cause the average vehicle delay to exceed 50 seconds. At Foster City Boulevard/Chess Drive, average vehicle delay would increase from 75 seconds per vehicle to greater than 80 seconds per vehicle, and the LOS would worsen from E to F. Therefore, the project would cause a significant impact to intersection operations.

<u>Impact TRANS-1</u>: The addition of project traffic would worsen operations at the side-street stop sign-controlled intersection of Lincoln Centre Drive/East 3rd Avenue from acceptable LOS B to unacceptable LOS F in the PM peak hour under Existing Plus Project Conditions. Traffic volumes during the PM peak hour would meet the peak hour volume traffic signal warrant criteria contained in the *Manual on Uniform Traffic Control Devices*, 2003 Edition. (S)

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.



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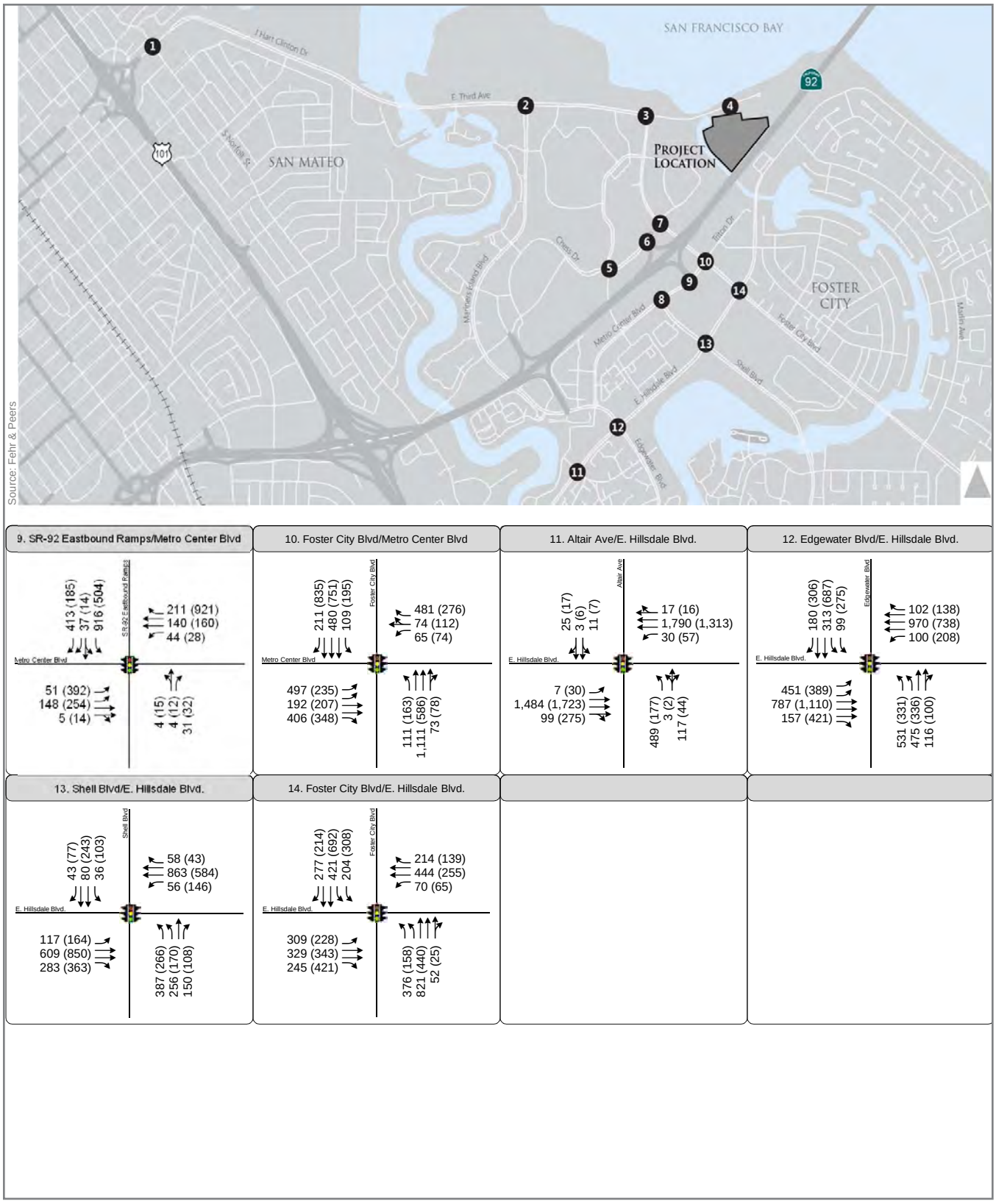
Source: Fehr & Peers 2015

Figure V.C-8A
Lincoln Centre Life Sciences Research Campus Project EIR
Existing Plus Project
Intersection Peak Hour Traffic Volumes



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Source: Fehr & Peers 2015

Figure V.C-8B
Lincoln Centre Life Sciences Research Campus Project EIR
Existing Plus Project
Intersection Peak Hour Traffic Volumes

TABLE V.C-11 EXISTING PLUS PROJECT INTERSECTION LOS RESULTS

	Existing				Existing Plus Project			
	AM		PM		AM		PM	
Intersection	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS
1. Norfolk Street/ East 3rd Avenue	**56**	**E**	43	D	**57**	**E**	44	D
2. Mariners Island Boulevard/ East 3rd Avenue	18	B	20	C	19	B	22	C
3. Foster City Boulevard/ East 3rd Avenue	<10	A	11	B	14	B	<10	A
4. Lincoln Centre Drive/ East 3rd Avenue[b]	11	B	12	B	12	B	**>50**	**F**
5. Vintage Park Drive/ Chess Drive	29	C	44	D	30	C	45	D
6. SR 92 Westbound Ramps/ Chess Drive[c]	21	C	23	C	24	C	24	C
7. Foster City Boulevard/ Chess Drive[c]	26	C	**75**	**E**	27	C	**>80**	**F**
8. Shell Boulevard/ Metro Center Boulevard	32	C	35	C	31	C	35	C
9. SR 92 Eastbound Ramps/ Metro Center Boulevard[c]	17	B	29	C	18	B	31	C
10. Foster City Boulevard/ Metro Center Boulevard/ Triton Drive[c]	29	C	34	C	31	C	38	D
11. Altair Avenue/ East Hillsdale Boulevard	<10	A	<10	A	<10	A	<10	A
12. Edgewater Boulevard/ East Hillsdale Boulevard	32	C	36	D	32	C	37	D
13. Shell Boulevard/ East Hillsdale Boulevard	19	B	24	C	19	B	24	C
14. Foster City Boulevard/ East Hillsdale Boulevard	30	C	25	C	31	C	25	C

Note: **Bold** = Unacceptable operations. **Shaded** = Significant impact.
[a] For signalized intersections, the delay shown is the weighted average for all movements in seconds per vehicle. For unsignalized intersections, the delay shown is the delay for the worst performing approach. As shown in Tables V.C-1 and V.C-2, the delay for LOS F conditions is greater than 80 seconds for signalized intersections and greater than 50 seconds unsignalized intersections.
[b] Unsignalized Intersection.
[c] Intersection analyzed using the VISSIM micro-simulation modeling program.
Source: Fehr & Peers, 2015.

Mitigation Measure TRANS-1: The project sponsor shall be responsible for the installation of a traffic signal at Lincoln Centre Drive/East 3rd Avenue. The signalization of this intersection would improve traffic operations to acceptable LOS B in the PM peak hour, and this impact would be reduced to a less-than-significant level. The traffic signal shall include marked crosswalks with pedestrian signal heads and curb ramps on all approaches. The timing of the signal installation would be based on the completion of traffic engineering studies,

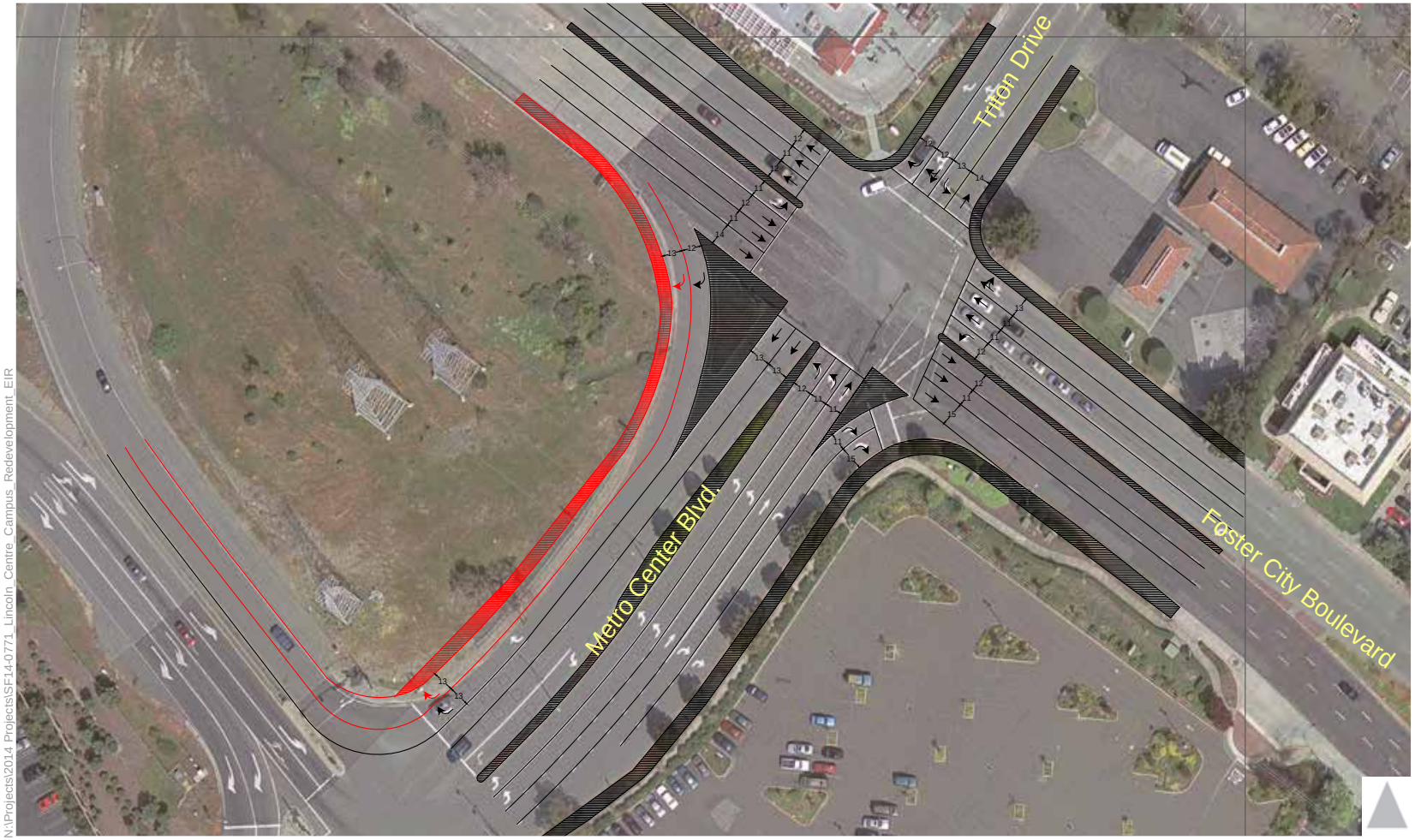
including an analysis of all applicable traffic signal warrants, to be approved by the City of Foster City Public Works Department. (LTS)

Impact TRANS-2: The addition of project traffic would worsen operations at the signalized intersection of Foster City Boulevard/Chess Drive from LOS E to LOS F in the PM peak hour under Existing Plus Project Conditions. (S)

Implementation of the following mitigation measure would reduce vehicle delay to an acceptable level, but a portion of the mitigation measure may not be feasible, which would result in the impact being significant and unavoidable as explained below.

Mitigation Measure TRANS-2: The project sponsor shall be responsible for the following mitigation measures, which are shown on Figure V.C-9:

- The project sponsor shall contribute their fair share for the addition of a second right-turn lane on southbound Foster City Boulevard at Metro Center Drive. The additional southbound right-turn lane is currently under consideration for implementation by the City of Foster City to reduce queuing from the SR 92 eastbound on-ramp to southbound Foster City. However, a portion of the land needed to add the right-turn lane may be owned by Caltrans and subsequently require Caltrans approval. As a result, implementation of this measure may not be feasible (see more discussion below).
- Retiming of the traffic signal in the PM peak hour at Foster City Boulevard/Chess Drive to provide additional green time to the southbound approach. Retiming the traffic signal by shifting approximately 10 seconds of green time from the eastbound through movement to the southbound through movement would increase the capacity of the southbound approach without significantly worsening traffic conditions for the eastbound through movement.
- Implementing the Transportation Demand Management (TDM) Plan described in Section V.C.2.f.(6) and shown in Appendix C in accordance with the C/CAG TDM Requirements. Existing trip estimates for the project assumed a 6.5 percent reduction in vehicle trips. The TDM Plan would further reduce project vehicle trips, by approximately -14.5 percent and together with the initial 6.5 percent, would result in an approximate 21 percent reduction. As a result the project would only generate 520 AM peak hour and 540 PM peak hour trips. The project applicant shall monitor the effectiveness of the TDM Plan and submit annual monitoring reports to the City as described in Section V.C.2.f.(6). The Community Development Department shall review each annual TDM report and verify that the trip counts meet the established targets or that the appropriate corrective measures are undertaken and/or fines are paid. The



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Source: Fehr & Peers 2015

Figure V.C-9
Lincoln Centre Life Sciences Research Campus Project EIR
Roadway Improvements Proposed in Mitigation Measure TRANS-2

City shall require the implementation of an appropriate TDM Plan for the life of the project to also reduce cumulative project impacts on area roadways.

The implementation of this mitigation measure would increase capacity on southbound Foster City Boulevard and improve traffic operations to LOS E in the PM peak hour, reducing the project impact at this intersection to a less-than-significant level. The timing of the additional southbound right-turn lane and signal timing would be based on the completion of traffic engineering studies and approval by the City of Foster City Public Works Department. Approval by Caltrans may also be required as some of the property may be owned by Caltrans. If Caltrans approves and permits the City to implement these improvements (or if it is determined that Caltrans approval is not required) and the City implements the improvements, this impact would be mitigated to a less-than-significant level. If Caltrans approval is determined necessary and Caltrans does not approve, and the City is unable to implement these improvements, then this impact would be significant and unavoidable. At this time, without assured approval by Caltrans, this impact is deemed to be significant and unavoidable. (SU)

This mitigation measure would increase vehicle delay at SR 92 Eastbound Ramps/ Metro Center Boulevard from LOS C to LOS D due to the increased vehicle queues on the westbound approach of Metro Center Drive. However, this intersection would continue to operate acceptable levels. Therefore, the secondary impact would be less than significant.

(2) Freeway Operations

Existing freeway volumes plus new vehicle trips due to the project are shown in Table V.C-12. Existing daily traffic volumes plus new vehicle trips due to the project on the study freeway segments are shown in Table C-2 of Appendix C.

The following segments on SR 92 or US 101 would exceed their CMP LOS threshold under Existing Conditions:

- Southbound US 101, north of East Hillsdale Boulevard – LOS F during the PM peak hour
- Northbound US 101, south of East Hillsdale Boulevard – LOS F during the PM peak hour
- Southbound US 101, south of East Hillsdale Boulevard – LOS F during the AM and PM peak hours
- Eastbound SR 92, east of Foster City Boulevard – LOS F during the PM peak hour

In addition, several of the freeway segments on northbound or southbound US 101 north of SR 92 operate at LOS F during the AM or PM peak hours. However, these operations are consistent with the CMP LOS standard of F for this segment. Therefore,

TABLE V.C-12 EXISTING PLUS PROJECT FREEWAY SEGMENT LOS RESULTS

Segment	Peak Hour	Direction	Existing		Existing Plus Project[a]	
			Volume[a]	LOS	Volume[a]	LOS
A. US 101, north of East 3rd Avenue	AM	NB	10,669	F	10,686	F
		SB	9,417	E	9,526	E
	PM	NB	10,041	E	10,151	E
		SB	11,271	F	11,292	F
B. US 101, between East 3rd Avenue and SR 92	AM	NB	11,760	F	11,760	F
		SB	9,560	E	9,560	E
	PM	NB	10,712	F	10,712	F
		SB	11,507	F	11,507	F
C. US 101, between SR 92 and East Hillsdale Boulevard	AM	NB	7,747	D	7,820	D
		SB	9,568	E	9,579	E
	PM	NB	10,053	E	10,066	E
		SB	**10,661**	**F**	**10,735**	**F**
D. US 101, south of East Hillsdale Boulevard	AM	NB	7,380	D	7,488	D
		SB	**10,712**	**F**	**10,730**	**F**
	PM	NB	**10,608**	**F**	**10,628**	**F**
		SB	**10,712**	**F**	**10,823**	**F**
E. SR 92, between US 101 and Mariners Island Boulevard/ Edgewater Boulevard	AM	EB	4,688	D	4,857	D
		WB	4,936	C	4,963	C
	PM	EB	6,742	E	6,774	E
		WB	5,829	D	6,001	D
F. SR 92, Mariners Island Boulevard/Edgewater Boulevard and Foster City Boulevard	AM	EB	3,287	B	3,437	B
		WB	4,655	C	4,676	C
	PM	EB	6,484	D	6,513	D
		WB	4,675	C	4,807	C
G. SR 92, east of Foster City Boulevard	AM	EB	2,301	B	2,315	B
		WB	5,209	D	5,300	D
	PM	EB	**7,038**	**F**	**7,131**	**F**
		WB	3,108	B	3,125	B

Bold = Exceeds C/CAG threshold for acceptable operations. **Shaded** = Significant impact.
[a] Project trip contribution are shown in Appendix C.
[b] Volumes presented are passenger-car equivalents.
Source: Fehr & Peers, 2014.

the impact at these freeway segments due to the proposed project would be less-than-significant.

The project would add traffic to freeway segments currently operating at unacceptable levels or cause freeway segments to degrade from acceptable levels under Existing Conditions to unacceptable levels under Existing Plus Project Conditions at the following study segments. This is considered a significant impact. The project would add traffic that represents less than 1 percent of the mainline capacity to the following freeway segments:

- Southbound US 101, north of East Hillsdale Boulevard – LOS F during the PM peak hour
- Northbound US 101, south of East Hillsdale Boulevard – LOS F during the PM peak hour
- Southbound US 101, south of East Hillsdale Boulevard – LOS F during the AM peak hour

Therefore, the impact at these freeway segments due to the proposed project would be less than significant. The project would contribute a considerable amount of traffic to the remaining two freeway segments as described below.

Impact TRANS-3: The freeway segment of Southbound US 101, south of East Hillsdale Boulevard currently exceeds the CMP LOS standard during the PM peak hour under Existing Plus Project Conditions. The addition of project traffic would increase the traffic volume on this freeway segment by greater than one percent of the segment's capacity. (S)

Implementation of the following mitigation measure would reduce this project impact to a less-than-significant level.

> Mitigation Measure TRANS-3: The project sponsor shall be responsible for implementing the TDM Plan described in Mitigation Measure TRANS-2. Implementation of this measure would reduce the traffic contributed by the project from 1.03 percent to 0.89 percent of the freeway segment's capacity. This level of traffic represents less than one percent of the freeway's capacity. Therefore, this mitigation measure would reduce this project impact to a less-than-significant level. (LTS)

Impact TRANS-4: The freeway segment of Eastbound SR 92, east of Foster City Boulevard currently exceeds the CMP LOS standard during the PM peak hour under Existing Plus Project Conditions. The addition of project traffic would increase the traffic volume on this freeway segment by greater than one percent of the segment's capacity. (S)

Implementation of the following mitigation measure could reduce traffic volumes to an acceptable level, but a portion of the mitigation measure may not be feasible, which would result in the impact being significant and unavoidable as explained below.

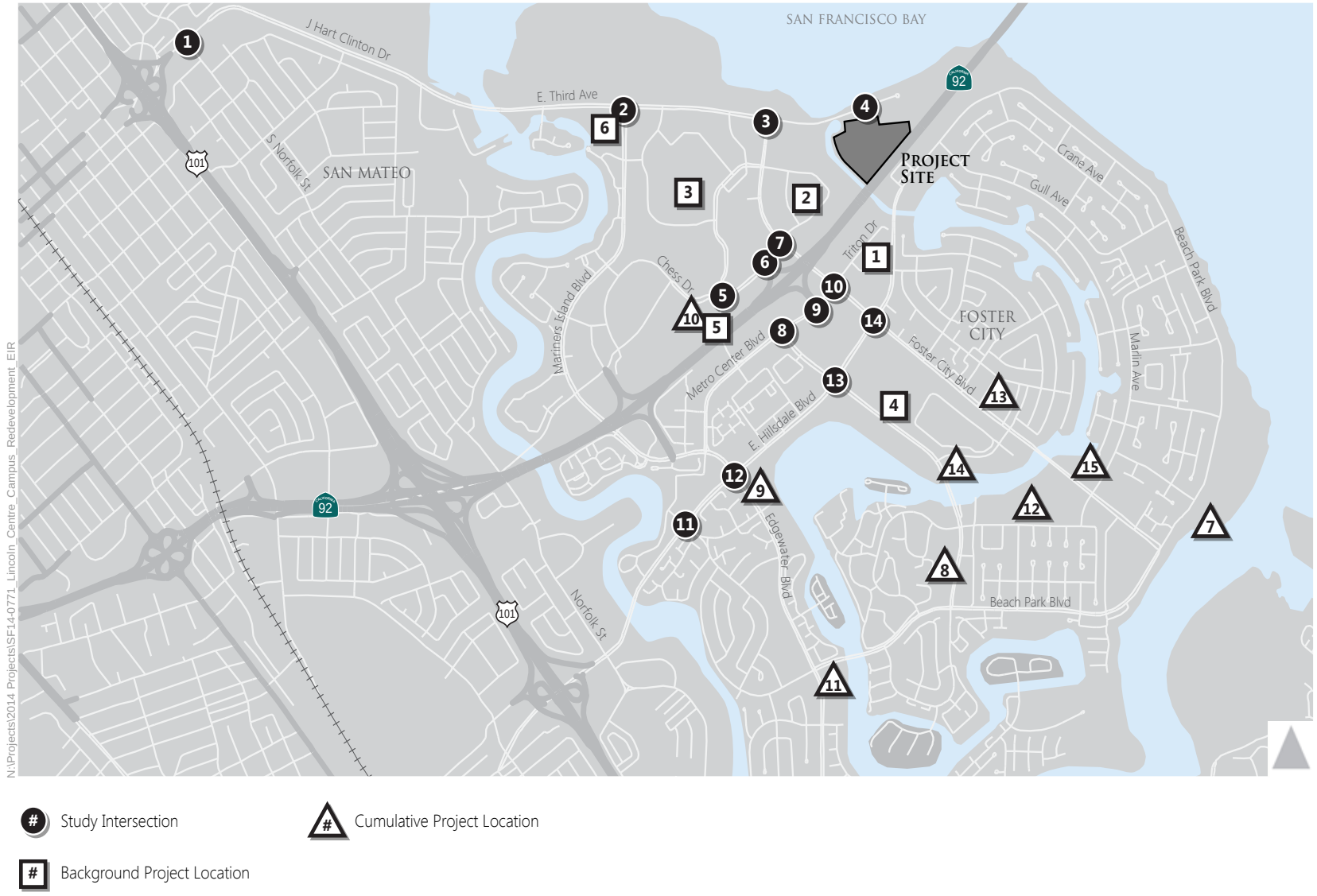
> Mitigation Measure TRANS-4: The project sponsor shall be responsible for implementing the TDM Plan described in Mitigation Measure TRANS-2 to reduce the amount of project traffic added to this segment and therefore the severity of the impact. The associated reduction in vehicle trips would not, however, be sufficient to reduce the project's traffic contribution below the threshold of less than one percent of the freeway's capacity. Therefore the impact would remain significant.
>
> The impact is the result of regional traffic increases to which Foster City contributes only a small part. Accommodating additional traffic on this freeway segment would require the addition of capacity by constructing additional lanes, requiring Caltrans approval. At this time, without assured approval by Caltrans nor identified funding, this impact is deemed to be significant and unavoidable. (SU)

d. Background Conditions

Background Conditions include existing traffic plus traffic generated by occupancy of vacant buildings, approved, and under-construction developments. The developments included under Background Conditions are shown in Table V.C-13. The locations of these developments are shown on Figure V.C-10.

(1) Background Traffic Volumes

Fehr & Peers developed trip generation estimates by applying trip generation rates and equations presented in the Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition) to the developments shown in Table V.C-13. The biomedical research campus trip generation rates were used for the land uses proposed under the Gilead Sciences Master Plan. Where appropriate, trip reductions were applied to mixed-use developments to account for trips that would occur among the uses (internalization), and pass-by reductions were applied to retail uses to account for trips that are already on the roadway network and would stop at the site and therefore not be new trips. The reduction amounts were derived from ITE's Trip *Generation Handbook*, 2nd Edition, 2004. Because the pass-by reduction rates indicated by the *Trip Generation Handbook* are relatively high for similarly-sized retail establishments, to be conservative, a maximum PM pass-by percentage of 40 percent was used. Pass-by reduction rates of 20 percent and 10 percent were used for daily and AM peak hour trips, respectively. Trips generated by existing uses were subtracted from trips generated by proposed uses to determine the net number of trips added to the surrounding roadway system, where appropriate. Table V.C-14



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Source: Fehr & Peers 2015

Figure V.C-10
Lincoln Centre Life Sciences Research Campus Project EIR
Background and Cumulative Development Locations

TABLE V.C-13 DEVELOPMENTS INCLUDED IN BACKGROUND CONDITIONS

Project No.	Project Name	Existing Land Uses[a]	Proposed Land Uses (Replaces Existing Land Uses)
1	Pilgrim-Triton Master Plan[b]	75,200 s.f. general office/warehouse	253,900 s.f. office 32,000 s.f. retail 386 apartment units 20 townhouses
2	Chess Hatch Master Plan	190,000 s.f. office park	800,000 s.f. office
3	Gilead Integrated Master Plan[3]	459,000 s.f. office 550,000 s.f. lab.	1,524,000 s.f. general office 953,000 s.f. laboratory 24,000 s.f. warehouse
4	Foster Square	--	266 units senior housing 24 bed assisted living facility 131 units assisted/ independent living senior housing
5	Chess Hotel	--	121 room hotel
6	400 Mariners Island Boulevard[d]	--	76 residential units

Note: s.f. = square feet.
[a] Existing trip credit is applied for land uses that are currently occupied and would be replaced by the proposed land uses in the future. These land uses are currently generating traffic at the study locations and this traffic would be removed by the Proposed Land Uses.
[b] Includes under-construction development at Triton Pointe (Parcel H) and Waverly (Parcel A) and the approved but not yet constructed development proposed at Pilgrim-Triton Phase C, Triton Pointe (Parcel I), Triton Point (Parcel I) and the remainder of Waverly.
[c] Land uses that were currently under-construction buildings (such as New Buildings 355 and 309) or not fully occupied at the time of the NOP were not counted in the Existing Land Uses column.
[d] This development is located in the City of San Mateo.
Source: Fehr & Peers, 2014.

TABLE V.C-14 SUMMARY OF NET TRIPS GENERATED BY BACKGROUND PROJECTS

Project No.	Project Name	Daily	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
1	Pilgrim-Triton Master Plan	7,416	283	215	498	327	375	702
2	Chess Hatch Master Plan	3,830	646	76	722	103	600	703
3	Gilead Integrated Master Plan	15,192	1,345	191	1,536	195	1,395	1,590
4	Foster Square	3,571	68	61	129	138	136	274
5	Chess Hotel	989	38	26	64	37	36	73
6	400 Mariners Island Blvd[1]	584	8	33	41	39	21	60
Total		**31,582**			**2,990**			**3,402**

Source: Fehr & Peers, 2014.

summarizes the trip generation estimates. The detailed calculations are presented in Appendix C. Overall, the developments associated with Background Conditions are projected to add 31,582 daily trips, 2,990 AM peak hour trips, and 3,402 PM peak hour trips to existing traffic volumes.

These AM and PM peak hour trips were assigned to the freeway segments, roadway segments, and intersection turning movements based on the directions of approach and departure depicted on Figure V.C-6. Trip distribution patterns for each broad category of land use (residential, office/business park/R&D, and retail/community services) were obtained from the Foster City Multi-Project Traffic Analysis and compared to more recent information described previously. The traffic projections at study intersections for the developments projects included in Background Conditions are presented in Appendix C. Intersection turning movement volumes for Background Conditions were developed by adding the Background project trips to the existing counts and are shown on Figures V.C-11A and V.C-11B.

(2) Background Roadway Improvements

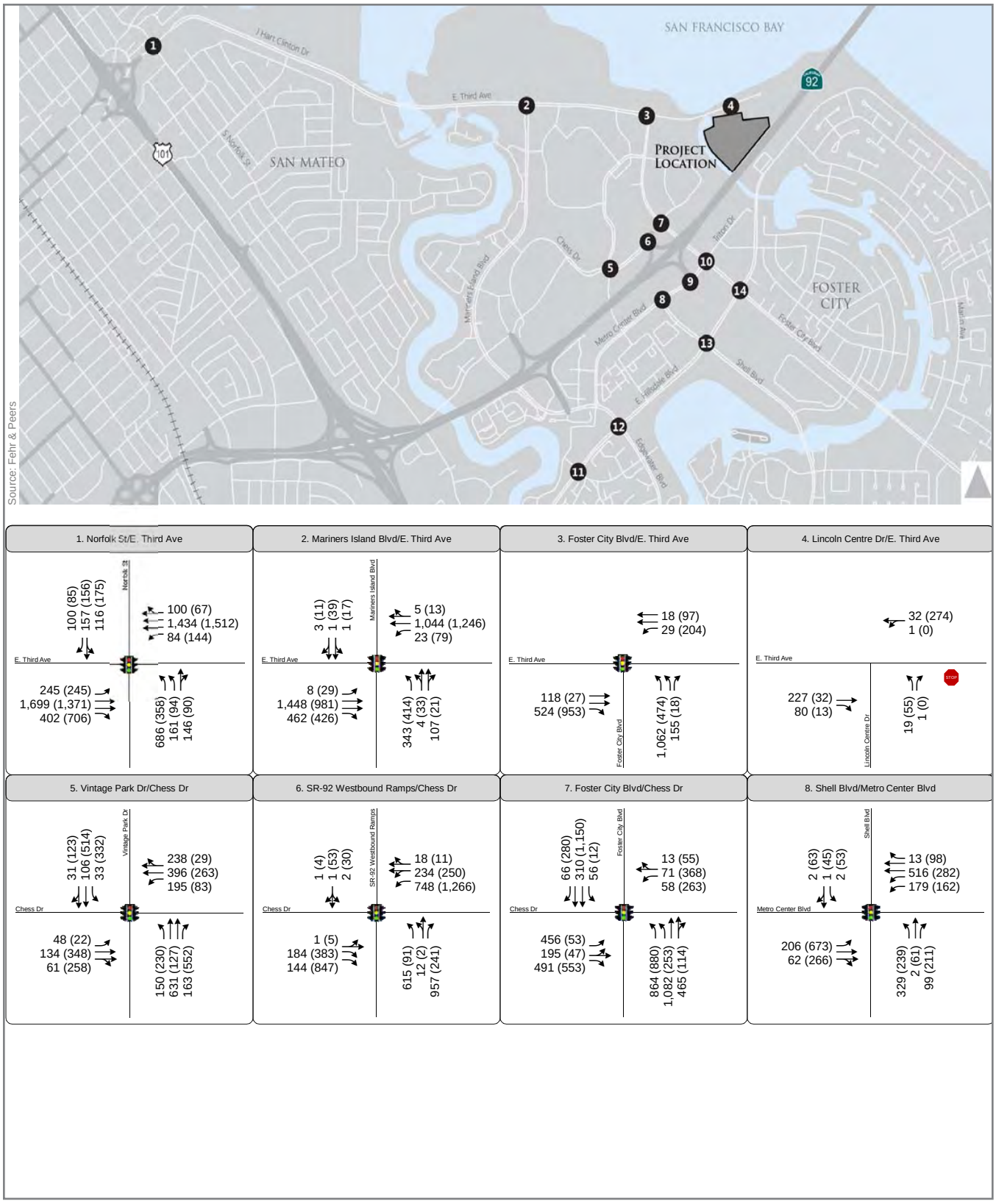
The Foster City Multi-Project Traffic Analysis recommended a series of roadway improvements to accommodate future proposed development at Gilead Sciences (South Campus), Chess Drive Offices, Foster Square (current 15-acre site adjacent to City Hall), and Pilgrim/Triton. Each development was assigned funding responsibility based on the number of added trips. Funding for the roadway improvements has been collected from the Pilgrim-Triton and Gilead Sciences projects based on the terms of their Development Agreements. Additional funding will be provided by the developers of the Chess Drive Offices and Foster Square site in conjunction with their approvals, based on the contribution of their projects to traffic impacts, as identified in the Multi-Project Traffic Analysis. The Triton Drive widening project funded by the developer of Phase A of the Pilgrim-Triton development was completed in 2014. The schedule for the other roadway improvements is dependent on the progress of the developments.

The relevant improvements presented in the Foster City Multi-Project Traffic Analysis are shown in Table V.C-15 and Figure V.C-12.

(3) Intersection Operations

The intersection LOS analysis results under Background Conditions are presented in Table V.C-16. Traffic generated by the background projects would worsen intersection operations from Existing (see Table V.C-5) to Background Conditions at the following study intersections:

- Norfolk Street/East 3rd Avenue – LOS E to LOS F in the AM peak hour, acceptable LOS D to unacceptable LOS D in the PM peak hour
- SR 92 Westbound Ramps/Chess Drive – LOS C to LOS F in the PM peak hour



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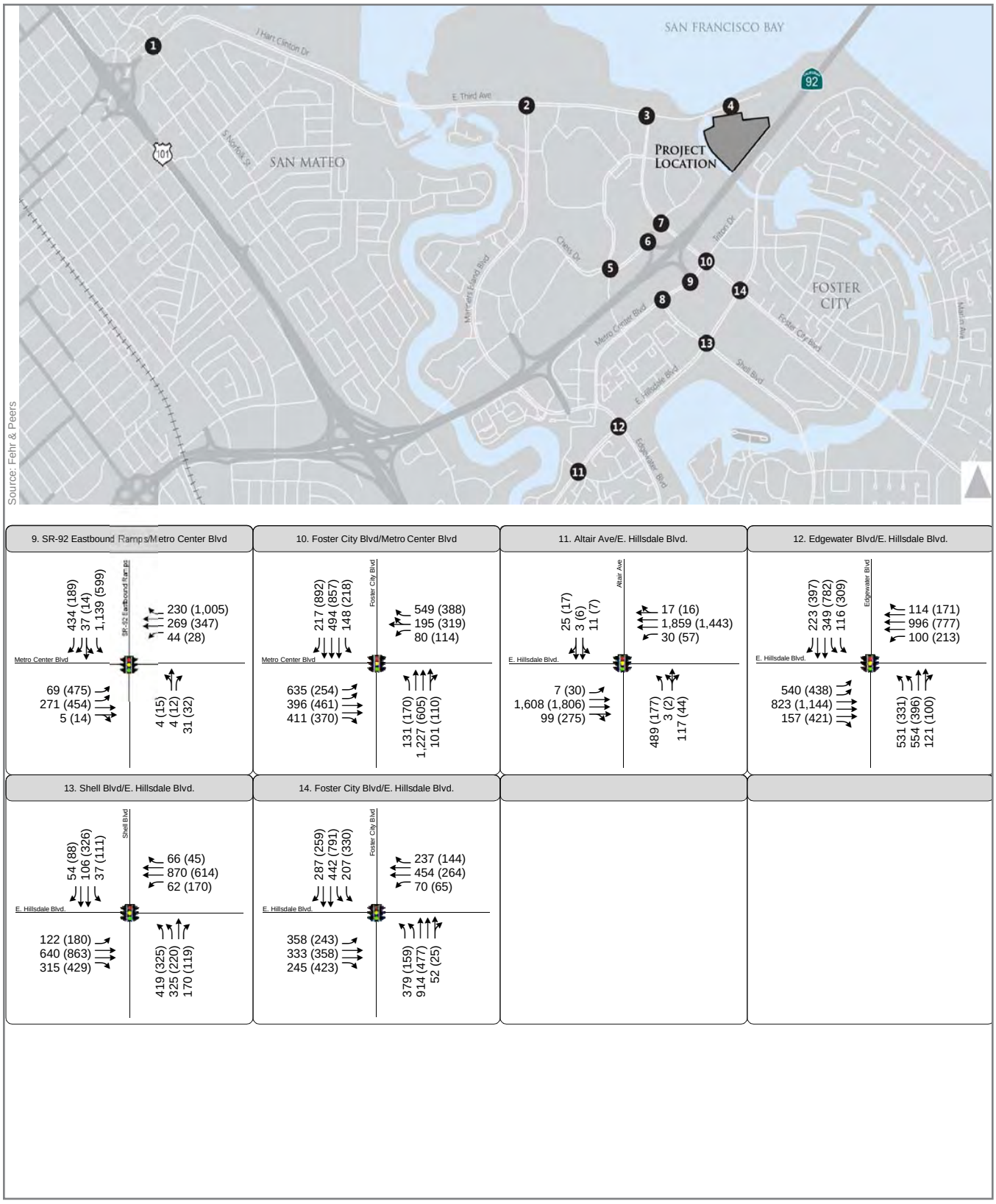
Source: Fehr & Peers 2015

Figure V.C-11A
Lincoln Centre Life Sciences Research Campus Project EIR
Peak Hour Traffic Volumes and Lane Configurations
Background No Project



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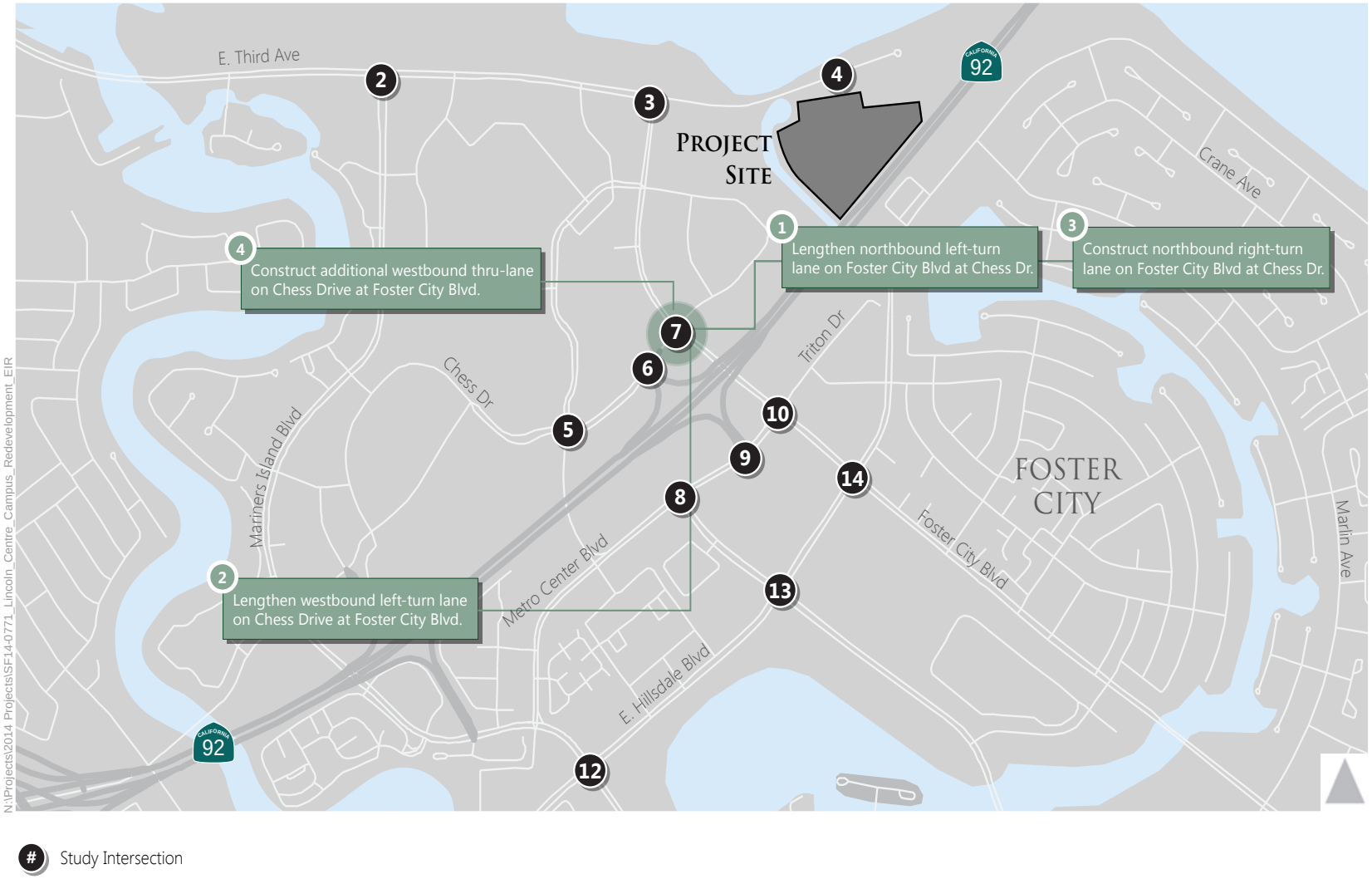
Source: Fehr & Peers 2015

Figure V.C-11B
Lincoln Centre Life Sciences Research Campus Project EIR
Peak Hour Traffic Volumes and Lane Configurations
Background No Project



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Source: Fehr & Peers 2015

Figure V.C-12
Lincoln Centre Life Sciences Research Campus Project EIR
Background and Cumulative Roadway Improvements

TABLE V.C-15 BACKGROUND AND CUMULATIVE ROADWAY SYSTEM IMPROVEMENTS

Improvement	Assigned Responsibility
1. Lengthen northbound left-turn lane on Foster City Boulevard at Chess Drive to 650 feet	All[a]
2. Lengthen westbound left-turn lane on Chess Drive at Foster City Boulevard to 300 feet	Chess Offices
3. Construct northbound right-turn lane from Foster City Boulevard at Chess Drive	Chess Offices
4. Construct 2nd westbound thru-lane on Chess Drive at Foster City Boulevard	Chess Offices

[a] "All" refers to the following projects included in the Foster City Multi-Project Traffic Analysis: Chess Drive Offices, Gilead Sciences, Pilgrim-Triton, and Foster Square.
Source: Fehr & Peers, 2014.

- Foster City Boulevard/Metro Center Boulevard/Triton Drive – LOS C to LOS F in the PM peak hour

The remaining study intersections would continue to operate acceptably during the AM and PM peak hours under Background Conditions. The LOS results presented in Table V.C-16 show that with the project, the addition of new vehicle trips is expected to increase vehicle delay and worsen traffic operations at five intersections during the AM or PM peak hours as described below. The project would add traffic to the intersections of SR 92 Westbound Ramps/Chess Drive and Foster City Boulevard/Metro Center Boulevard/Triton Drive, which operate at LOS E or F without the project in the PM peak hour. This is primarily due to congestion at the SR 92 Eastbound On-ramp that spills back to block southbound Foster City Boulevard and eastbound Chess Drive. Foster City General Plan Land Use and Circulation Policy LUC-50 states that it will be necessary to accept LOS E or F at these intersections. Therefore, the impact at these intersections due to the project would be less than significant. The project would contribute a considerable amount to the remaining three study intersections as described below.

In the AM peak hour, the project would add traffic to the intersection of Norfolk Street/East 3rd Avenue, which would operate at LOS F under Background Conditions. Traffic added by the project would increase the average vehicle delay by 11 seconds. This increase is considered a significant impact to intersection operations.

In the PM peak hour, the project would add traffic to the intersections of Lincoln Centre Drive/East 3rd Avenue and Foster City Boulevard/Chess Drive, which operate unacceptably under Background Conditions. At Lincoln Centre Drive/East 3rd Avenue, vehicles exiting the project site in the evening would exceed the capacity of existing stop sign-controlled intersection and cause the average vehicle delay to exceed 50

TABLE V.C-16 BACKGROUND AND BACKGROUND PLUS PROJECT INTERSECTION LOS RESULTS

	Background				Background Plus Project			
	AM		PM		AM		PM	
Intersection	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS
1. Norfolk Street/ East 3rd Avenue[b]	**>80**	**F**	**51**	**D**	**>80**	**F**	**53**	**D**
2. Mariners Island Boulevard/ East 3rd Avenue	20	B	22	C	22	C	24	C
3. Foster City Boulevard/ East 3rd Avenue	<10	A	12	B	15	B	12	B
4. Lincoln Centre Drive/ East 3rd Avenue[c]	11	B	12	B	12	B	**>50**	**F**
5. Vintage Park Drive/ Chess Drive	31	C	50	D	32	C	51	D
6. SR 92 Westbound Ramps/ Chess Drive[d,e]	49	D	>80	F	54	D	>80	F
7. Foster City Boulevard/ Chess Drive[d,f]	34	C	**>80**	**F**	38	D	**>80**	**F**
8. Shell Boulevard/ Metro Center Boulevard	33	C	35	C	33	C	35	C
9. SR 92 Eastbound Ramps/ Metro Center Boulevard[d]	23	C	36	D	32	C	38	D
10. Foster City Boulevard/ Metro Center Boulevard/ Triton Drive[d,g]	43	D	77	E	48	D	79	E
11. Altair Avenue/ East Hillsdale Boulevard	<10	A	<10	A	<10	A	<10	A
12. Edgewater Boulevard/ East Hillsdale Boulevard	35	C	41	D	35	C	42	D
13. Shell Boulevard/ East Hillsdale Boulevard	21	C	28	C	21	C	28	C
14. Foster City Boulevard/ East Hillsdale Boulevard	34	C	26	C	36	D	26	C

Note: **Bold** = Unacceptable operations. **Shaded** = Significant impact.
[a] For signalized intersections, the delay shown is the weighted average for all movements in seconds per vehicle. For unsignalized intersections, the delay shown is the delay for the worst performing approach. As shown in Tables V.C-1 and V.C-2, the delay for LOS F conditions is greater than 80 seconds for signalized intersections and greater than 50 seconds unsignalized intersections.
[b] Traffic generated by the project increases delay at this intersection by 10 seconds in the AM peak hour.
[c] Unsignalized Intersection.
[d] Intersection analyzed using the VISSIM microsimulation modeling program.
[e] Traffic generated by the project increases delay at this intersection by 11 seconds in the PM peak hour. However, Foster City General Plan Land Use and Circulation Policy LUC-50 states that it will be necessary to accept LOS E or F at this intersection.
[f] Traffic generated by the project increases delay at this intersection by 7 seconds in the PM peak hour.
[g] Foster City General Plan Land Use and Circulation Policy LUC-50 states that it will be necessary to accept LOS E or F at this intersection.
Source: Fehr & Peers, 2015.

seconds. At Foster City Boulevard/Chess Drive, average vehicle delay would increase from 174 seconds per vehicle to greater than 181 seconds per vehicle, more than a 4-second increase. Therefore, the project would cause a significant impact to intersection operations.

All other study intersections would operate acceptably under Background Plus Project Conditions. Therefore, the impact at these intersections due to the project would be less than significant.

Impact TRANS-5: The addition of project traffic would increase vehicle delay by more than 4 seconds at the signalized intersection of Norfolk Street/East 3rd Avenue, which operates at LOS F in the AM peak hour under Background Conditions. (S)

Implementation of the following mitigation measure would reduce vehicle delay, but this impact would remain significant and unavoidable as explained below.

> Mitigation Measure TRANS-5: Convert the eastbound right-turn lane of East 3rd Avenue to a shared through/right-turn lane and widen the east leg of East 3rd Avenue to accommodate three receiving lanes. The added eastbound through lane shall continue to Church Road. Implementation of the mitigation measure may require removal of on-street parking. This would improve LOS in the AM peak hour from LOS F to LOS E (better than conditions without the project). The mitigation measure shall be implemented prior to certificate of occupancy.
>
> The City of San Mateo has jurisdiction to approve of this proposed improvement, but the City of San Mateo has previously stated that this improvement is not acceptable. The project sponsor shall offer the City of San Mateo a pro rata share of the cost of this improvement prior to issuance of a building permit. If the City of San Mateo does not accept the offer to construct the improvement within 5 years of receipt, the offer will become void and compliance with this mitigation measure will be considered fulfilled. Because the impacted location is in an adjacent jurisdiction and the identified improvement is not acceptable to that jurisdiction, the City of Foster City cannot guarantee that it will be implemented. Therefore this impact would remain significant and unavoidable. (SU)

Removal of on-street parking may have an adverse effect on parking availability but for CEQA purposes, this is not considered a significant impact.

Impact TRANS-6: The addition of project traffic would worsen operations at the side-street stop sign-controlled intersection of Lincoln Centre Drive/East 3rd Avenue from acceptable LOS B to unacceptable LOS F in the PM peak hour under Background Plus Project Conditions. Traffic volumes during the PM peak

hour would meet the peak hour volume traffic signal warrant criteria contained in the *Manual on Uniform Traffic Control Devices*, 2003 Edition. (S)

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

> Mitigation Measure TRANS-6: Implementation of Mitigation Measure TRANS-1 would improve operations to LOS B in the PM peak hour and reduce this impact to a less-than-significant level. (LTS)

Impact TRANS-7: The addition of project traffic would increase vehicle delay by more than 4 seconds at the signalized intersection of Foster City Boulevard/Chess Drive, which operates at LOS F in the PM peak hour under Background Conditions. (S)

Implementation of the following mitigation measure would reduce vehicle delay but this impact would remain significant and unavoidable as explained below.

> Mitigation Measure TRANS-7: Implementation of Mitigation Measure TRANS-2 would reduce the average vehicle delay to below the condition without the project, but a portion of the mitigation measure may not be feasible, which would result in the impact being significant and unavoidable. (SU)

However, Mitigation Measure TRANS-7 would create a secondary impact by worsening traffic operations at the intersection of SR 92 Eastbound Ramps/Metro Center Boulevard from LOS D under Background Conditions to LOS F under Background Plus Project Conditions. The degradation of traffic operations would be due to the removal of the bottleneck on southbound Foster City Boulevard and the increased peak hour traffic volumes at the on-ramp to eastbound SR 92 from Metro Center Drive. Therefore, the project would cause a significant impact to intersection operations.

Impact TRANS-8: Mitigation Measure TRANS-7 would worsen operations at the signalized intersection of SR 92 Eastbound Ramps/Metro Center Boulevard from acceptable LOS D to unacceptable LOS F in the PM peak hour under Background Plus Project Conditions. (S)

Implementation of the following mitigation measure would reduce vehicle delay to an acceptable level, but a portion of the mitigation measure may not be feasible, which would result in the impact being significant and unavoidable as explained below.

> Mitigation Measure TRANS-8: Reducing vehicle delay at the intersection of SR 92 Eastbound Ramps/Metro Center Boulevard would require the addition of capacity to the eastbound SR 92 on-ramp, requiring Caltrans approval. Currently, there are no planned capacity improvements for this on-ramp. SR 92 to the east of the on-

ramp reduces to three lanes approaching the San Mateo Bridge, which limits the capacity of the mainline and causes the existing vehicle queues to extend back to City streets. Extending the merge lane on the SR 92 on-ramp by approximately 400 feet would increase the storage of the on-ramp and reduce vehicle queues so that they do not extend back as frequently onto City streets. If Caltrans approves and permits the City to implement these improvements, the project sponsor shall contribute their fair share to this improvement and this impact could be mitigated to a less-than-significant level, although operations could continue to operate at LOS E or F. If Caltrans does not approve, and the City is unable to implement these improvements, then this impact would be significant and unavoidable. At this time, without assured approval by Caltrans, this impact is deemed to be significant and unavoidable. (SU)

(4) Freeway Operations

Background Plus Project Conditions freeway volumes are presented in Table V.C-17. Background daily traffic volumes plus new vehicle trips due to the project on the study freeway segments are shown in Table C-3 of Appendix C. The following segments on SR 92 or US 101 would exceed their CMP LOS threshold with the addition of traffic due to background development:

- Southbound US 101, north of East Hillsdale Boulevard – LOS F during the PM peak hour
- Northbound US 101, south of East Hillsdale Boulevard – LOS F during the PM peak hour
- Southbound US 101, south of East Hillsdale Boulevard – LOS F during the AM and PM peak hours
- Eastbound SR 92, between US 101 and Mariners Island Boulevard/Edgewater Boulevard – LOS F during the PM peak hour

Eastbound SR 92, east of Foster City Boulevard – LOS F during the PM peak hour In addition, most of the freeway segments on northbound or southbound US 101 north of SR 92 operate at LOS F during the AM or PM peak hours. However, these operations are consistent with the CMP LOS standard of F for this segment. Therefore, the impact at these freeway segments due to the proposed project would be less-than-significant.

The project, in combination with other approved and pending development, would add traffic to freeway segments currently operating at unacceptable levels or cause freeway segments to degrade from acceptable levels under Existing Conditions to unacceptable levels under Background Conditions at these study segments. This is considered a significant impact.

The project would add traffic that represents less than one percent of the mainline capacity to the following freeway segments:

TABLE V.C-17 BACKGROUND AND BACKGROUND PLUS PROJECT FREEWAY SEGMENT LOS RESULTS

Segment	Peak Hour	Direction	Existing Vol.[b]	Existing LOS	Background Vol.[b]	Background LOS	Background Plus Project[a] Vol.[b]	Background Plus Project[a] LOS
A. US 101, north of East 3rd Avenue	AM	NB	10,669	F	10,805	F	10,823	F
		SB	9,417	E	9,916	E	10,025	E
	PM	NB	10,041	E	10,503	F	10,614	F
		SB	11,271	F	11,425	F	11,446	F
B. US 101, between East 3rd Avenue and SR 92	AM	NB	11,760	F	12,087	F	12,087	F
		SB	9,560	E	9,657	E	9,657	E
	PM	NB	10,712	F	10,825	F	10,825	F
		SB	11,507	F	11,810	F	11,810	F
C. US 101, between SR 92 and East Hillsdale Boulevard	AM	NB	7,747	D	8,191	D	8,264	D
		SB	9,568	E	9,652	E	9,664	E
	PM	NB	10,053	E	10,149	E	10,163	E
		SB	**10,661**	**F**	**11,062**	**F**	**11,137**	**F**
D. US 101, south of East Hillsdale Boulevard	AM	NB	7,380	D	7,880	D	7,989	D
		SB	**10,712**	**F**	**10,837**	**F**	**10,855**	**F**
	PM	NB	**10,608**	**F**	**10,751**	**F**	**10,771**	**F**
		SB	**10,712**	**F**	**11,174**	**F**	**11,285**	**F**
E. SR 92, between US 101 and Mariners Island Boulevard/Edgewater Boulevard	AM	EB	4,688	D	5,342	D	5,511	D
		WB	4,936	C	5,111	C	5,139	C
	PM	EB	6,742	E	**6,939**	**F**	**6,971**	**F**
		WB	5,829	D	6,436	D	6,608	D
F. SR 92, Mariners Island Boulevard/Edgewater Boulevard and Foster City Boulevard	AM	EB	3,287	B	3,691	B	3,841	C
		WB	4,655	C	4,765	C	4,786	C
	PM	EB	6,484	D	6,614	D	6,642	D
		WB	4,675	C	5,073	C	5,206	C
G. SR 92, east of Foster City Boulevard	AM	EB	2,301	B	2,361	B	2,376	B
		WB	5,209	D	5,501	D	5,592	D
	PM	EB	**7,038**	**F**	**7,302**	**F**	**7,395**	**F**
		WB	3,108	B	3,176	C	3,194	C

Bold = Exceeds C/CAG threshold for acceptable operations. **Shaded** = Significant impact.
[a] Project trip contribution are shown in Appendix C.
[b] Vol. = Volumes presented are passenger-car equivalents.
Source: Fehr & Peers, 2015.

- Southbound US 101, north of East Hillsdale Boulevard – LOS F during the PM peak hour
- Northbound US 101, south of East Hillsdale Boulevard – LOS F during the PM peak hour
- Southbound US 101, south of East Hillsdale Boulevard – LOS F during the AM peak hour
- Eastbound SR 92, between US 101 and Mariners Island Boulevard/Edgewater Boulevard – LOS F during the PM peak hour

Therefore, the impact at these freeway segments due to the proposed project would be less than significant. The project would contribute a considerable amount of traffic to the remaining two freeway segments as described below.

Impact TRANS-9: The freeway segment of Southbound US 101, south of East Hillsdale Boulevard exceeds the CMP LOS standard during the PM peak hour under Background Conditions. The addition of project traffic would increase the traffic volume on this freeway segment by greater than one percent of the segment's capacity. (S)

Implementation of the following mitigation measure would reduce this project impact to a less-than-significant level.

> Mitigation Measure TRANS-9: The project sponsor shall be responsible for implementing the TDM Plan described in Mitigation Measure TRANS-2. Implementation of this measure would reduce the traffic contributed by the project from 1.03 percent to 0.97 percent of the freeway segment's capacity. This level of traffic represents less than one percent of the freeway's capacity. Therefore, this mitigation measure would reduce this project impact to a less-than-significant level. (LTS)

Impact TRANS-10: The freeway segment of Eastbound SR 92, east of Foster City Boulevard exceeds the CMP LOS standard during the PM peak hour under Background Conditions. The addition of project traffic would increase the traffic volume on this freeway segment by greater than one percent of the segment's capacity. (S)

Implementation of the following mitigation measure would reduce traffic volume, but this project impact would remain significant and unavoidable as explained below.

> Mitigation Measure TRANS-10: The project sponsor shall be responsible for developing and implementing the TDM Plan described in Mitigation Measure TRANS-4. At this time, without assured approval by Caltrans nor identified funding, this impact is deemed to be significant and unavoidable. (SU)

e. Cumulative Conditions

Cumulative Conditions represent projected conditions in 2040 including traffic estimates for probable future developments. The cumulative traffic volumes also include traffic due to occupancy of vacant buildings and approved but not yet constructed developments presented in Section V.C.2.d. The probable future developments included under Cumulative Conditions are shown in Table V.C-18. The locations of these developments are shown on Figure V.C-10.

(1) Cumulative Traffic Volumes

Cumulative Conditions intersection volumes were developed by adding traffic generated by the probable future developments shown in Table V.C-18 to the Background Conditions intersection volumes presented in Section 2.d.(1). Trip generation methodology for the Cumulative developments is the same as for Background developments, described in Section 2.d.(1). The results of the trip generation for the Cumulative developments are presented in Table V.C-19. Overall, the future probable developments associated with Cumulative Conditions are projected to add 4,648 daily trips, 492 AM peak hour trips, and 449 PM peak hour trips.

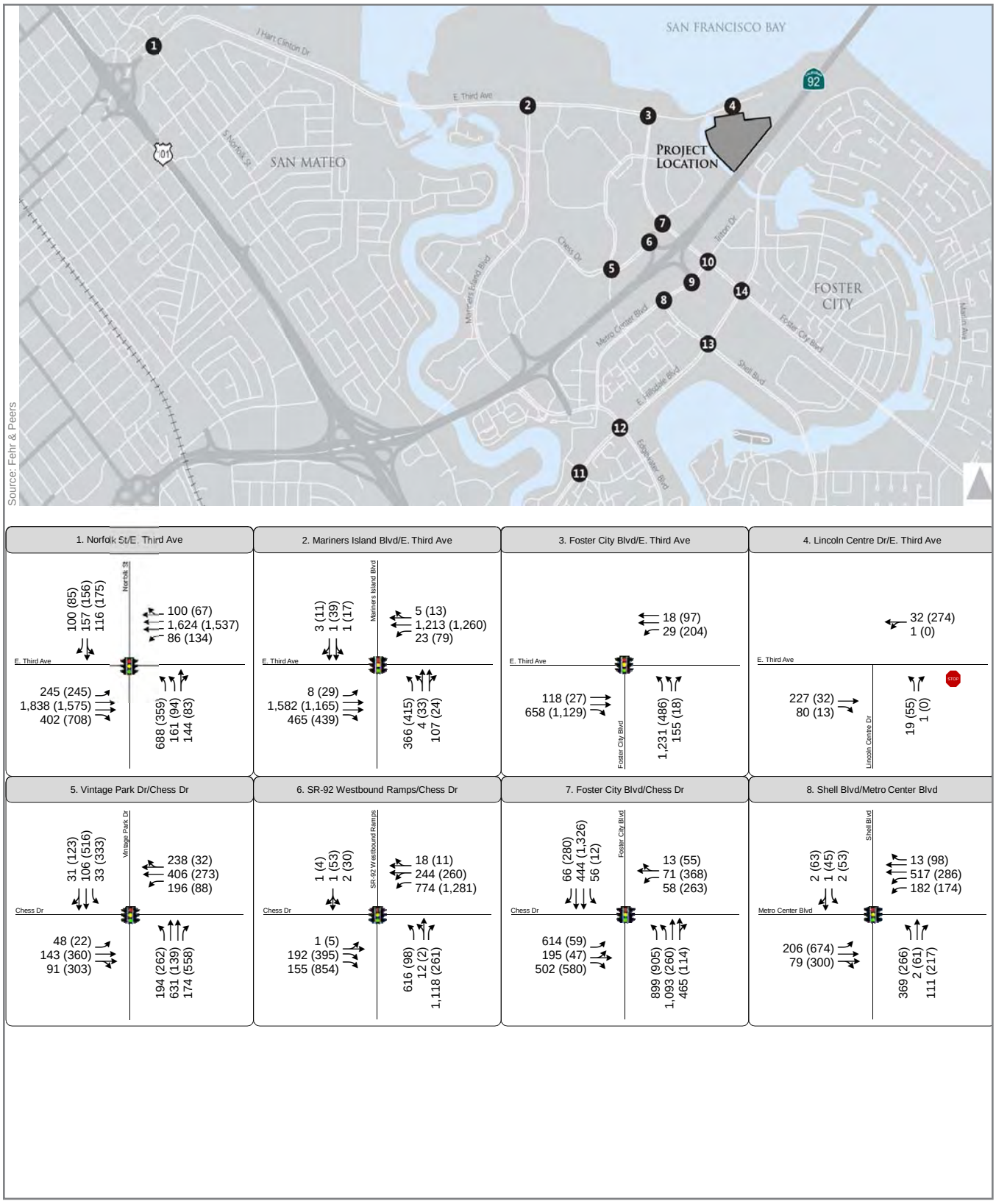
These AM and PM peak hour trips were assigned to the intersection turning movements based on the directions of approach and departure depicted on the trip distribution figure, Figure V.C-6. Trip distribution patterns for each broad category of land use (residential, office/business park/R&D, and retail/community services) were obtained from the Foster City Multi-Project Traffic Analysis and compared to more recent information described previously. The traffic projections at the study intersections for the developments projects included in Cumulative Conditions are presented on Appendix C. Intersection turning movement volumes for Cumulative Conditions were developed by adding the Cumulative project trips to the Background Condition volumes and are shown on Figures V.C-13A and V.C-13B.

Traffic projections for US 101 and SR 92 through San Mateo and Foster City were developed from freeway forecasts using the C/CAG travel demand forecasting model. The current C/CAG travel demand model covers both San Mateo and Santa Clara Counties and is maintained by Santa Clara Valley Transportation Authority (VTA) staff. To ensure model land use files were adequate for the study, the base (2013) and future year (2040) model files were reviewed to ensure land uses in Foster City matched the proposed build out of the Foster City General Plan Update. In addition, base model roadway volumes were reviewed to ensure that they adequately matched existing traffic patterns. Once the future land uses and existing traffic volumes were deemed acceptable, the model was run for the base and future years. The annual growth rate for traffic volumes between the 2013 and 2040 developed from model forecasts was then applied to the existing freeway volumes collected in 2014 to produce future year forecasts. Additionally, traffic volumes at study intersections

TABLE V.C-18 BACKGROUND AND FUTURE PROBABLE DEVELOPMENTS

Project No.	Project Name	Existing Land Uses[a]	Proposed Land Uses (Replaces Existing Land Uses)
Background Developments (from Table V.C-13Error! Reference source not found.)			
1	Pilgrim-Triton Master Plan[b]	75,200 s.f. general office	253,900 s.f. office 32,000 s.f. retail 386 apartment units 20 townhouses
2	Chess Hatch Master Plan	190,000 s.f. office park	800,000 s.f. office
3	Gilead Integrated Master Plan[c]	459,000 s.f. office 550,000 s.f. laboratory	1,524,000 s.f. general office 953,000 s.f. laboratory 24,000 s.f. warehouse
4	Foster Square	--	266 units senior housing 24 bed assisted living facility 131 units assisted/independent living senior housing
5	Chess Hotel	--	121 room hotel
6	400 Mariners Island Boulevard[d]	--	76 residential units
Cumulative Developments			
7	Marina	--	300 berths
8	Charter Square	55,000 s.f. retail	10,000 s.f. retail 95 townhouses
9	Harbor Cove Renovation	400 apartments	480 apartments
10	Harry's Hofbrau Site	8,840 s.f. retail	12,500 s.f. retail
11	Edgewater Place	123,300 s.f. retail	57,700 s.f. retail 154 condominiums
12	Beach Cove Apartments	N/A	Adding 239 apartments
13	Franciscan Apartments	N/A	Adding 104 apartments
14	Sand Cove Apartments	N/A	Adding 300 apartments
15	Shadow Cove Apartments	N/A	Adding 113 apartments

Notes: s.f. = square feet.
[a] Existing trip credit is applied for land uses that are currently occupied and would be replaced by the proposed land uses in the future. These land uses are currently generating traffic at the study locations and this traffic would be removed by the Proposed Land Uses. There are currently existing dwelling units at sites 12-15 and no existing units would be removed under the proposed plans.
[b] Includes under-construction development at Triton Pointe (Parcel H) and Waverly (Parcel A) and the approved but not yet constructed development proposed at Pilgrim-Triton Phase C, Triton Pointe (Parcel I), Triton Point (Parcel I) and the remainder of Waverly.
[c] Land uses that were currently under-construction buildings (such as New Buildings 355 and 309) or not fully occupied at the time of the NOP were not counted in the Existing Land Uses column.
[d] This development is located in the City of San Mateo.
Source: Fehr & Peers, 2014.



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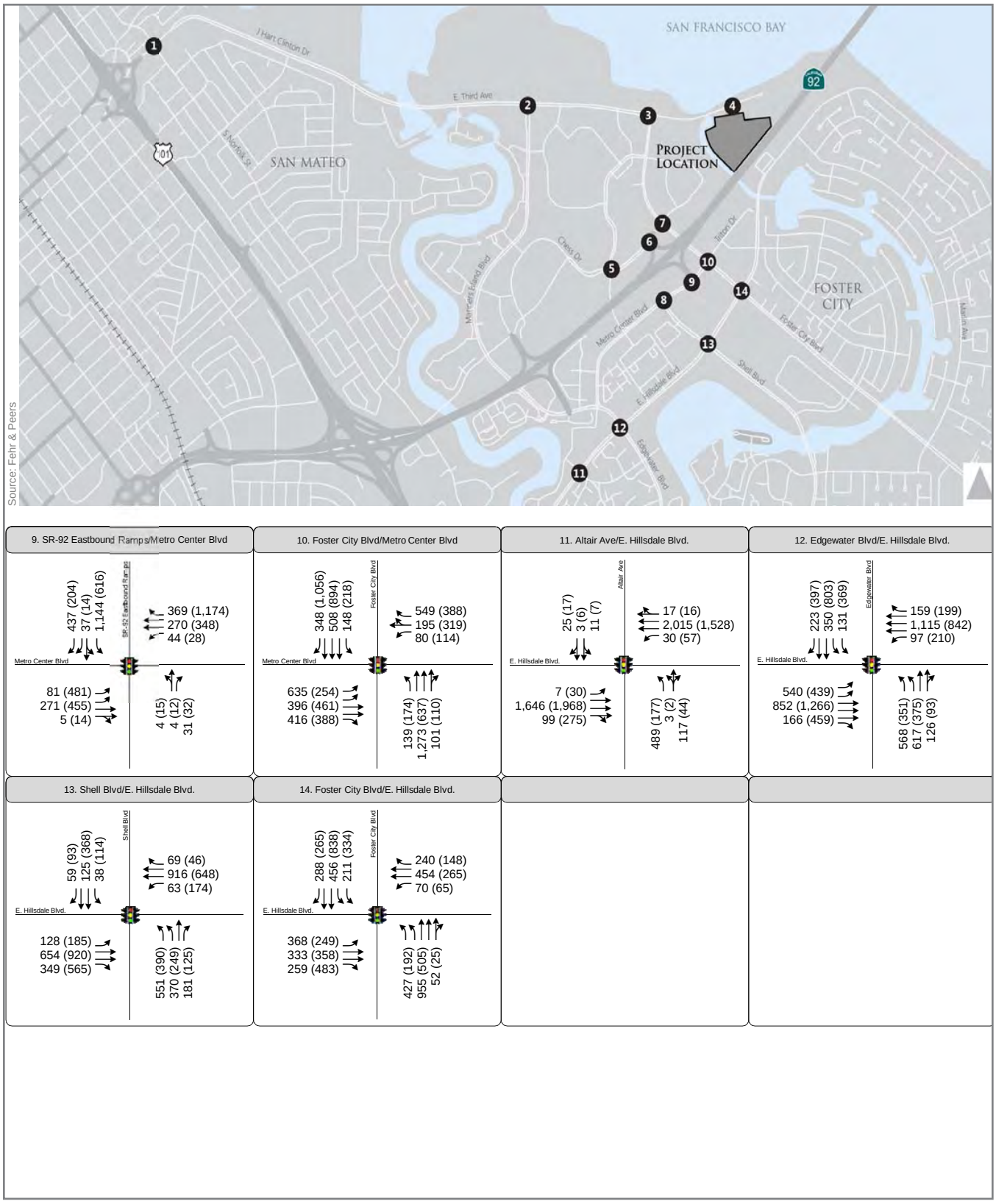
Source: Fehr & Peers 2015

Figure V.C-13A
Lincoln Centre Life Sciences Research Campus Project EIR
Cumulative Intersection
Peak Hour Traffic Volumes



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Source: Fehr & Peers 2015

Figure V.C-13B
Lincoln Centre Life Sciences Research Campus Project EIR
Cumulative Intersection
Peak Hour Traffic Volumes

TABLE V.C-19 SUMMARY OF TRIPS GENERATED FROM CUMULATIVE DEVELOPMENTS

Project No.	Project Name	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
7	Marina	890	8	16	24	34	23	57
8	Charter Square	-1,847	-31	17	-14	-58	-89	-147
9	Harbor Cove Renovation	608	9	34	43	40	22	62
10	Harry's Hofbrau Site	1,406	25	15	40	53	58	111
11	Edgewater Place	-1,485	-26	39	13	-40	-81	-121
12	Beach Cove Apartments	1,572	24	97	121	97	52	149
13	Franciscan Apartments	754	11	44	55	49	26	75
14	Sand Cove Apartments	1,942	30	121	151	119	64	183
15	Shadow Cove Apartments	808	12	47	59	52	28	80
Total		**4,648**			**492**			**449**

Source: Fehr & Peers, 2014.

along East 3rd Avenue and Foster City Boulevard were adjusted to account for projected growth in cut-through traffic between US 101 and the San Mateo Bridge. Existing counts and future year forecasted freeway volumes are shown in Appendix C. Traffic volumes for study freeway segments are based on forecasts from the C/CAG travel demand model and include the traffic projections for approved and pending development projects plus regional growth.

(2) Intersection Operations

The intersection LOS analysis results under Cumulative Conditions are presented in Table V.C-20. As shown below, the intersection of 10 of the 14 study intersections would continue to operate at an acceptable LOS D or better under Cumulative Conditions. The project, in combination with other reasonably foreseeable development, would add traffic to intersections currently operating at unacceptable levels or cause intersection operations to degrade from acceptable levels under Existing Conditions to unacceptable levels under Cumulative Conditions at the remaining six study intersections. This is considered a cumulative significant impact.

The project would add traffic to the intersections of SR 92 Westbound Ramps/Chess Drive and Foster City Boulevard/Metro Center Boulevard/Triton Drive, which operate at LOS F without the project in the PM peak hour. This is primarily due to congestion at the SR 92 Eastbound On-ramp that spills back to block southbound Foster City Boulevard and eastbound Chess Drive. Foster City General Plan Land Use and Circulation Policy LUC-50 states that it will be necessary to accept LOS E or F at these

TABLE V.C-20 CUMULATIVE AND CUMULATIVE PLUS PROJECT INTERSECTION LOS RESULTS

	Cumulative				Cumulative Plus Project			
	AM		PM		AM		PM	
Intersection	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS
1. Norfolk Street/ East 3rd Avenue[b]	**>80**	**F**	**53**	**D**	**>80**	**F**	**56**	**E**
2. Mariners Island Boulevard/ East 3rd Avenue	22	C	22	C	25	C	25	C
3. Foster City Boulevard/ East 3rd Avenue	<10	A	12	B	15	B	12	B
4. Lincoln Centre Drive/ East 3rd Avenue[c]	11	B	12	B	12	B	**>50**	**F**
5. Vintage Park Drive/ Chess Drive	32	C	53	D	32	C	**55**	**E**
6. SR 92 Westbound Ramps/ Chess Drive[d,e]	49	D	>80	F	51	D	>80	F
7. Foster City Boulevard/ Chess Drive[d,f]	37	D	**>80**	**F**	37	D	**>80**	**F**
8. Shell Boulevard/ Metro Center Boulevard	33	C	36	D	33	C	36	D
9. SR 92 Eastbound Ramps/ Metro Center Boulevard[d]	23	C	38	D	33	C	42	D
10. Foster City Boulevard/ Metro Center Boulevard/ Triton Drive[d,e]	43	D	>80	F	49	D	>80	F
11. Altair Avenue/ East Hillsdale Boulevard	<10	A	<10	A	<10	A	<10	A
12. Edgewater Boulevard/ East Hillsdale Boulevard	36	D	42	D	36	D	44	D
13. Shell Boulevard/ East Hillsdale Boulevard	23	C	29	C	24	C	29	C
14. Foster City Boulevard/ East Hillsdale Boulevard	36	D	27	C	39	D	27	C

Note: **Bold** = Unacceptable operations. **Shaded** = Significant impact.
[a] For signalized intersections, the delay shown is the weighted average for all movements in seconds per vehicle. For unsignalized intersections, the delay shown is the delay for the worst performing approach. As shown in Tables V.C-1 and V.C-2, the delay for LOS F conditions is greater than 80 seconds for signalized intersections and greater than 50 seconds unsignalized intersections.
[b] Traffic generated by the project increases delay at this intersection by 10 seconds in the AM peak hour.
[c] Unsignalized Intersection.
[d] Intersection analyzed using the VISSIM micro-simulation modeling program.
[e] Traffic generated by the project increases delay at this intersection which operates at LOS F in the PM peak hour. However, Foster City General Plan Land Use and Circulation Policy LUC-50 states that it will be necessary to accept LOS E or F at this intersection.
[f] Traffic generated by the project increases delay at this intersection by nine seconds in the PM peak hour.
Source: Fehr & Peers, 2015.

intersections. Therefore, the impact at these intersections due to the proposed project would be less-than-significant. The project would contribute a considerable amount of traffic to the remaining four study intersections as described below.

Impact TRANS-11: The addition of project traffic at the signalized intersection of Norfolk Street/East 3rd Avenue would increase vehicle delay by more than 4 seconds in the AM peak hour (which operates at LOS F without the project) and worsen traffic operations from LOS D to LOS E in the PM peak hour under Cumulative Conditions. (S)

Implementation of the following mitigation measure would reduce vehicle delay, but this cumulative impact would remain significant and unavoidable as explained below.

Mitigation Measure TRANS-11: Implementation of Mitigation Measure TRANS-5 would improve intersection operations from LOS F to LOS E in the AM peak hour (better than conditions without the project) and LOS D in the PM peak hour.

The City of San Mateo has jurisdiction to approve of this proposed improvement, but the City of San Mateo has previously stated that this improvement is not acceptable. The project sponsor shall offer the City of San Mateo a pro rata share of the cost of this improvement prior to issuance of a building permit. If the City of San Mateo does not accept the offer to construct the improvement within 5 years of receipt, the offer will become void and compliance with this mitigation measure will be considered fulfilled. Because the impacted location is in an adjacent jurisdiction and the identified improvement is not acceptable to that jurisdiction, the City of Foster City cannot guarantee that it will be implemented. Therefore this impact would remain significant and unavoidable. (SU)

Impact TRANS-12: The addition of project traffic would worsen operations at the side-street stop controlled intersection of Lincoln Centre Drive / East 3rd Avenue from acceptable LOS B to unacceptable LOS F in the PM peak hour under Cumulative Plus Project Conditions. Traffic volumes during the PM peak hour would meet the peak hour volume traffic signal warrant criteria contained in the *Manual on Uniform Traffic Control Devices*, 2003 Edition. (S)

Implementation of the following mitigation measure would reduce this cumulative impact to a less-than-significant level.

Mitigation Measure TRANS-12: Implementation of Mitigation Measure TRANS-1 would improve operations to LOS B in the PM peak hour and reduce this cumulative impact to a less-than-significant level. (LTS)

Impact TRANS-13: The addition of project traffic would worsen traffic operations at the intersection of Vintage Park Drive / Chess Drive from acceptable LOS D to unacceptable LOS E under Cumulative Conditions. (S)

Implementation of the following mitigation measure would reduce this cumulative impact to a less-than-significant level.

> Mitigation Measure TRANS-13: The project sponsor shall contribute their fair share to the restriping of northbound Vintage Park Drive to include a shared through right-lane. This improvement is shown in Figure V.C-14 and is currently under-consideration for implementation by the City of Foster City. Implementation of this mitigation measure would improve traffic operations to LOS D in the PM peak hour and reduce this cumulative impact to a less-than-significant level. The timing of this measure would be based on the completion of traffic engineering studies, if required, and approval by the City of Foster City Public Works Department. (LTS)

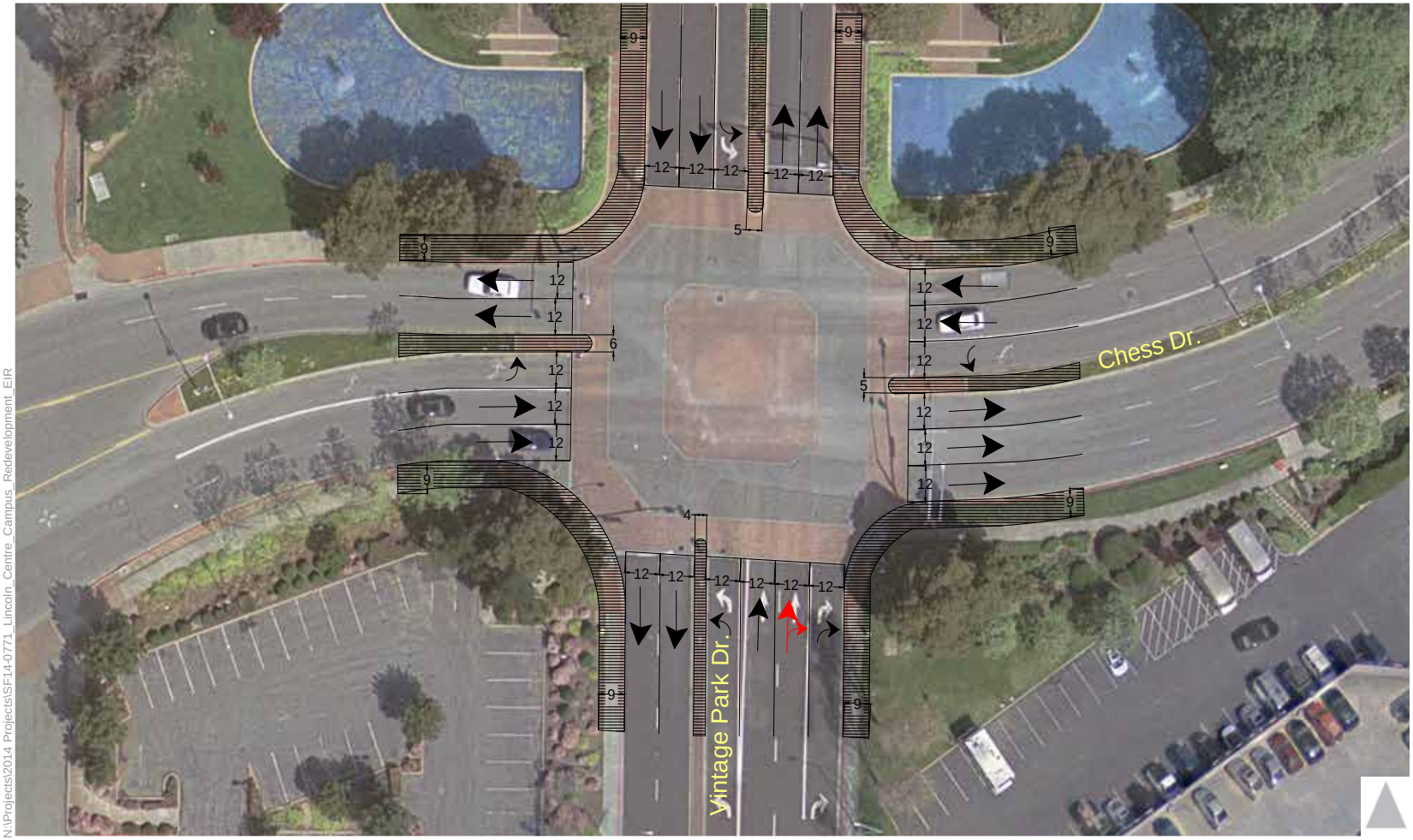
Impact TRANS-14: The addition of project traffic would increase vehicle delay by more than four seconds at the signalized intersection of Foster City Boulevard / Chess Drive, which operates at LOS F in the PM peak hour under Cumulative Conditions. (S)

Implementation of the following mitigation measure would reduce vehicle delay but this cumulative impact would remain significant and unavoidable as explained below.

> Mitigation Measure TRANS-14: Implementation of Mitigation Measure TRANS-2 would reduce the average vehicle delay to less than the vehicle delay under current conditions (i.e., without the project) but a portion of the mitigation measure may not be feasible, which would result in the impact being significant and unavoidable. (SU)

Similar to under Background Conditions, Mitigation Measure TRANS-14 would create a secondary impact by worsening traffic operations at the intersection of SR 92 Eastbound Ramps / Metro Center Boulevard from LOS D under Cumulative Conditions to LOS F under Cumulative Plus Project Conditions. The degradation of traffic operations would be due to the removal of the bottleneck on southbound Foster City Boulevard and the increased peak hour traffic volumes served at the on-ramp to eastbound SR 92 from Metro Center Drive. Therefore, the project would cause a significant impact to intersection operations at this location.

Impact TRANS-15: Mitigation Measure TRANS-14 would worsen operations at the signalized intersection of SR 92 Eastbound Ramps/Metro Center Boulevard from acceptable LOS D to unacceptable LOS F in the PM peak hour under Cumulative Plus Project Conditions. (S)



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Source: Fehr & Peers 2015

Figure V.C-14
Lincoln Centre Life Sciences Research Campus Project EIR
Roadway Improvements Proposed in Mitigation Measure TRANS-9

Implementation of the following mitigation measure would reduce vehicle delay to an acceptable level, but a portion of the mitigation measure may not be feasible, which would result in the impact being significant and unavoidable as explained below.

> Mitigation Measure TRANS-15: Reducing vehicle delay below current levels (i.e., without the project) would require implementation of Mitigation Measure TRANS-8 to add capacity eastbound SR 92 on-ramp, requiring Caltrans approval. If Caltrans approves and permits the City to implement these improvements, this impact could be mitigated to a less-than-significant level, although operations could continue to operate at LOS E or F. If Caltrans does not approve, and the City is unable to implement these improvements, then this impact would be significant and unavoidable. At this time, without assured approval by Caltrans, this impact is deemed to be significant and unavoidable. (SU)

(3) Freeway Operations

Cumulative freeway volumes are shown in Table V.C-21. Cumulative daily traffic volumes plus new vehicle trips due to the project on the study freeway segments are shown in Appendix C.

Traffic volumes would increase on all mainline segments due to regional traffic growth and development in Foster City. The following segments on SR 92 or US 101 would exceed their CMP LOS threshold with the addition of traffic due to cumulative development:

- Northbound US 101, north of East Hillsdale Boulevard – LOS F during the PM peak hour
- Southbound US 101, north of East Hillsdale Boulevard – LOS F during the PM peak hour
- Northbound US 101, south of East Hillsdale Boulevard – LOS F during the PM peak hour Southbound US 101, south of East Hillsdale Boulevard – LOS F during the AM and PM peak hours
- Eastbound SR 92, between US 101 and Mariners Island Boulevard/Edgewater Boulevard – LOS F during the PM peak hour
- Eastbound SR 92, east of Foster City Boulevard – LOS F during the PM peak hour

In addition, most of the freeway segments on northbound or southbound US 101 north of SR 92 operate at LOS F during the AM or PM peak hours. However, these operations are consistent with the CMP LOS standard of F for this segment. Therefore, the impact at these freeway segments due to the proposed project would be less-than-significant.

TABLE V. C-21 CUMULATIVE FREEWAY SEGMENT LOS RESULTS

Segment	Peak Hour	Direction	Existing		Cumulative		Cumulative Plus Project[a]	
			Vol.[b]	LOS	Vol.[b]	LOS	Vol.[b]	LOS
A. US 101, north of East 3rd Avenue	AM	NB	10,669	F	11,279	F	11,297	F
		SB	9,417	E	9,956	E	10,065	E
	PM	NB	10,041	E	10,302	E	10,412	F
		SB	11,271	F	13,322	F	13,343	F
B. US 101, between East 3rd Avenue and SR 92	AM	NB	11,760	F	12,432	F	12,432	F
		SB	9,560	E	10,057	E	10,057	E
	PM	NB	10,712	F	10,991	F	10,991	F
		SB	11,507	F	13,601	F	13,601	F
C. US 101, north of East Hillsdale Boulevard	AM	NB	7,747	D	8,190	D	8,264	D
		SB	9,568	E	9,791	E	9,803	E
	PM	NB	10,053	E	**10,576**	**F**	**10,589**	**F**
		SB	**10,661**	**F**	**12,601**	**F**	**12,675**	**F**
D. US 101, south of East Hillsdale Boulevard	AM	NB	7,380	D	9,298	E	9,407	E
		SB	**10,712**	**F**	**11,325**	**F**	**11,343**	**F**
	PM	NB	**10,608**	**F**	**10,884**	**F**	**10,904**	**F**
		SB	**10,712**	**F**	**13,219**	**F**	**13,330**	**F**
E. SR 92, between US 101 and Mariners Island Boulevard/Edgewater Boulevard	AM	EB	4,688	D	5,573	D	5,743	D
		WB	4,936	C	5,938	D	5,966	D
	PM	EB	6,742	E	**7,657**	**F**	**7,689**	**F**
		WB	5,829	D	7,607	E	7,778	E
F. SR 92, Mariners Island Boulevard/Edgewater Boulevard and Foster City Boulevard	AM	EB	3,287	B	4,173	C	4,323	C
		WB	4,655	C	5,658	D	5,678	D
	PM	EB	6,484	D	7,399	E	7,428	E
		WB	4,675	C	6,452	D	6,585	D
G. SR 92, east of Foster City Boulevard	AM	EB	2,301	B	3,187	C	3,201	C
		WB	5,209	D	6,211	E	6,302	E
	PM	EB	**7,038**	**F**	**7,953**	**F**	**8,046**	**F**
		WB	3,108	B	4,886	D	4,903	D

TABLE V. C-21 CUMULATIVE FREEWAY SEGMENT LOS RESULTS

Segment	Peak Hour	Direction	Existing		Cumulative		Cumulative Plus Project[a]	
			Vol.[b]	LOS	Vol.[b]	LOS	Vol.[b]	LOS
H. US 101, north of East 3rd Avenue	AM	NB	8,517	D	9,004	E	9,022	E
		SB	8,451	D	8,934	E	9,043	E
	PM	NB	8,756	D	8,984	E	9,095	E
		SB	8,256	D	9,759	E	9,780	E
I. US 101, between East 3rd Avenue and SR 92	AM	NB	9,608	E	10,157	E	10,157	E
		SB	8,594	D	9,040	E	9,040	E
	PM	NB	9,428	E	9,673	E	9,673	E
		SB	8,492	D	10,038	E	10,038	E
J. US 101, north of East Hillsdale Boulevard	AM	NB	7,747	D	8,190	D	8,264	D
		SB	8,601	D	8,802	E	8,813	E
	PM	NB	8,769	D	9,224	E	9,238	E
		SB	7,646	D	9,037	E	9,112	E
K. US 101, south of East Hillsdale Boulevard	AM	NB	7,380	D	9,298	E	9,407	E
		SB	9,746	E	10,303	E	10,321	E
	PM	NB	9,323	E	9,566	E	9,586	E
		SB	7,697	D	9,498	E	9,609	E
L. SR 92, between US 101 and Mariners Island Boulevard/Edgewater Boulevard	AM	EB	4,688	D	5,655	D	5,907	E
		WB	4,936	C	6,025	D	6,077	D
	PM	EB	4,889	D	5,645	D	5,716	D
		WB	5,829	D	7,719	E	7,928	E
M. SR 92, Mariners Island Boulevard/Edgewater Boulevard and Foster City Boulevard	AM	EB	3,287	B	4,234	C	4,337	C
		WB	4,655	C	5,741	D	5,769	D
	PM	EB	4,631	C	5,383	C	5,426	D
		WB	4,675	C	6,547	D	6,602	D
N. SR 92, east of Foster City Boulevard	AM	EB	2,301	B	3,233	C	3,201	C
		WB	5,209	D	6,303	E	6,302	E
	PM	EB	5,185	D	5,945	E	5,951	E
		WB	3,108	B	4,958	D	4,903	D

Bold = Exceeds C/CAG threshold for acceptable operations. **Shaded** = Significant impact.
[a] Project trip contribution are shown in Appendix C.
[a] Vol. = Volumes presented are passenger-car equivalents.
Source: Fehr & Peers, 2015.

The project, in combination with other reasonably foreseeable development, would add traffic to freeway segments currently operating at unacceptable levels or cause freeway segments to degrade from acceptable levels under Existing Conditions to unacceptable levels under Cumulative Conditions at these study segments. This is considered a cumulative significant impact.

The project would add traffic that represents less than one percent of the mainline capacity to the following freeway segments:

- Northbound US 101, north of East Hillsdale Boulevard – LOS F during the PM peak hour
- Southbound US 101, north of East Hillsdale Boulevard – LOS F during the PM peak hour
- Northbound US 101, south of East Hillsdale Boulevard – LOS F during the PM peak hour
- Southbound US 101, south of East Hillsdale Boulevard – LOS F during the AM peak hour
- Eastbound SR 92, between US 101 and Mariners Island Boulevard/Edgewater Boulevard – LOS F during the PM peak hour

Therefore, the impact at these freeway segments due to the proposed project would be less than significant. The project would contribute a considerable amount of traffic to the remaining two freeway segments as described below.

Impact TRANS-16: The freeway segment of Southbound US 101, south of East Hillsdale Boulevard exceeds the CMP LOS standard during the PM peak hour under Cumulative Conditions. The addition of project traffic would increase the traffic volume on this freeway segment by greater than one percent of the segment's capacity. (S)

Implementation of the following mitigation measure would reduce this cumulative impact to a less-than-significant level.

> Mitigation Measure TRANS-16: The project sponsor shall be responsible for implementing the TDM Plan described in Mitigation Measure TRANS-2. Implementation of this measure would reduce the traffic contributed by the project from 1.03 percent to 0.97 percent of the freeway segment's capacity. This level of traffic represents less than one percent of the freeway's capacity. Therefore, this mitigation measure would reduce this cumulative impact to a less-than-significant level. (LTS)

Impact TRANS-17: The freeway segment of Eastbound SR 92, east of Foster City Boulevard exceeds the CMP LOS standard during the PM peak hour under

Cumulative Conditions. The addition of project traffic would increase the traffic volume on this freeway segment by greater than one percent of the segment's capacity. (S)

Implementation of the following mitigation measure would reduce traffic volume, but this cumulative impact would remain significant and unavoidable as explained below.

> Mitigation Measure TRANS-17: The project sponsor shall be responsible for developing and implementing the TDM Plan described in Mitigation Measure TRANS-4. At this time, without assured approval by Caltrans nor identified funding, this impact is deemed to be significant and unavoidable. (SU)

f. Other Topics

This subsection includes a discussion of the potential impacts of the project related to pedestrian, bike, and transit facilities; site access and circulation; emergency access; air traffic; construction; transportation demand management; and parking.

(1) Pedestrian and Bicycle Facilities

The project would result in increased pedestrian and bicycle activity due to employees and visitors in and around the campus. As shown in Figure V.C-15, on-campus pedestrian and bicycle circulation includes a system of pathways following pedestrian desire lines connecting offices, laboratories, amenities, and parking facilities. The project includes a central pedestrian-oriented plaza to encourage a pedestrian-friendly campus atmosphere.

Off-campus pedestrian destinations include AC Transit Transbay bus stops located to the west of the project site on Chess Drive, the Bridgepointe Plaza located to the southwest of the project site, and the Bay Trail Class I multi-use pathway located 0.1-mile to the north of the project site. The prior owner of the project site is currently in the process of removing the existing footbridge across the canal inlet to Chess Drive as a part of their agreement with the City of Foster City.[8] The AC Transit Transbay bus stop and the Bridgepoint Plaza are located approximately ¾-mile and just over a mile away via Lincoln Centre Drive, East 3rd Avenue, and Foster City Boulevard. Sidewalks along Lincoln Centre Drive and East 3rd Avenue provide access to the Bay Trail via the staircase located ¼-mile to the east and the signalized crossing at Lakeside Drive located ⅔-mile to the west.

[8] The bridge was installed as part of the Perkins Elmer Applied Biosystems' project, as reflected in Planning Commission Resolution P-19-98 (Files UP-80-003QQ and UP-71-003A). Condition of Approval # 1.41 of Resolution P-19-98 states: "At such time when the applicant's business operations no longer require a pedestrian bridge, the applicant shall remove all of the bridge and associated ramps located above grade, to the satisfaction of the City Engineer." Perkins Elmer Applied Biosystems' successor, Lifetech, is removing the bridge in compliance with that condition.

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Source: Fehr & Peers 2015

Figure V.C-15
Lincoln Centre Life Sciences Research Campus Project EIR
Conceptual Project Site Plan

Off-campus bicycle access to the project site is provided through several City of Foster City designated Class III bicycle routes including East 3rd Avenue, Foster City Boulevard, Vintage Park Drive. The Bay Trail is located less than a ¼-mile to the north of the East 3rd Avenue and includes a Class I multi-use pathway connecting to San Mateo. Bicyclists would use Lincoln Centre Drive, a low volume and low speed roadway, to reach the Class III bicycle routes on and East 3rd Avenue.

The measures described below are recommended to improve pedestrian and bicycle circulation within and around the project site, but are not required to reduce significant environmental effects of the project. The signalization of the East 3rd Avenue/Lincoln Centre Drive intersection, as described in Mitigation Measure TRANS-1, would include crosswalks and directional curb ramps with truncated domes on all approaches. To improve connectivity for pedestrians and bicyclists wishing to access the Bay Trail for either commuting or recreational purposes, the project should include a 100-foot Class I multi-use pathway connecting this new signalized intersection. In addition, the site plan should include marked crosswalks, directional curb ramps with truncated domes on all legs at controlled on-site intersections, pedestrian and bicycle wayfinding to key destinations, and pedestrian scale-lighting on all pedestrian facilities.

(2) Transit Facilities

As discussed previously, two employer-funded shuttles connecting to BART or Caltrain stations serve the site: the Lincoln Centre and North Foster City shuttles. The Lincoln Centre Shuttle stops at the neighboring office park at 4000 East 3rd Avenue, while the North Foster City Shuttle stops at East 3rd Avenue and Lincoln Centre Drive. AC Transit Line M stops at 1133 Chess Drive, which is a 0.7-mile walk from the center of the Lincoln Centre campus (approximately 10- to 15-minute walk). Other transit routes in the area include SamTrans Routes 251 and 256 and the Mariners Island Area shuttle, which stop approximately ½-mile to the west of the project site. 2014 ridership counts on the Lincoln Centre and North Foster City shuttles provided by Peninsula Traffic Congestion Relief Alliance indicate that these shuttles are currently operated at full capacity throughout the service period.

Transit ridership estimates for the project were based on employee travel patterns at the nearby Gilead Sciences campus. Transit ridership at that campus was 9.5 percent of the total employment based on travel surveys conducted for the Gilead Sciences EIR in 2012. This transit mode share would result in 114 transit riders per day (based on 1,200 employees), most of whom would utilize the Lincoln Centre and North Foster City shuttles. This additional ridership would increase the demand for shuttles that are currently at capacity, constituting a significant impact.

Impact TRANS-18: The project could decrease the performance of public transit facilities due to additional demand for public shuttles that currently operate at full capacity. (S)

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level:

Mitigation Measure TRANS-18: The project sponsor shall prepare an analysis of its projected public transit ridership, and develop a plan for how that ridership will be accommodated. The plan may include, among other things, funding a pro rata share of expansion of existing public transit services; funding a pro rata share of new public transit services; or a demonstration that the project reduces or eliminates additional demand for public transit due to alternate means of transportation including, but not limited to, private shuttles. The initial plan shall be submitted to the City for approval during the use permit process. If the plan requires use of shuttles under the jurisdiction of the Peninsula Traffic Congestion Relief Alliance, the plan must be approved by Alliance staff as well as the City. The plan may be modified, provided the modification is approved by the City and, as relevant, Alliance staff.

The project sponsor shall demonstrate to the satisfaction of the Community Development Director that sufficient capacity will be available to accommodate all project trips that are expected to use public buses and/or public shuttles. Prior to issuance of a building permit, the project sponsor shall demonstrate compliance with this measure at a level sufficient to accommodate the trips to be generated by the development. This mitigation measure would ensure that the project does not cause ridership on public shuttles and public buses to exceed capacity to the point of decreasing performance. (LTS)

(3) Emergency Access

Emergency vehicles would be able to use the roadways surrounding the project site. In addition, emergency vehicles would be allowed full site access, maintaining existing emergency access. Therefore, the project would not result in emergency vehicle access impacts.

(4) Air Traffic

Additional employment associated with the project would not contribute substantially to demand for commercial flights because most new employees would be expected to work on-site. Therefore, the project would not substantially increase flight operations. In addition, no buildings or features would be constructed on-site that would interfere with flight operations at local airports.

(5) Construction

Project construction would affect off-site circulation due to increased truck traffic to and from the site. Construction would also disrupt on-site travel due to the potential closure of sidewalks and blockage of bicycle facilities and transit routes during construction.

Impact TRANS-19: Project construction activities could interfere with circulation patterns. (S)

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level:

Mitigation Measure TRANS-19: During the use permit process, the project sponsor shall develop and submit a construction management plan for City approval that specifies measures that would reduce impacts to motor vehicle, bicycle, pedestrian, and transit circulation. The construction management plan shall include the following:

- Location of construction staging areas for materials, equipment, and vehicles.
- Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur.
- Identification of haul routes for movement of construction vehicles that would minimize impacts on vehicular and pedestrian traffic, circulation, and safety; and provision for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by the project sponsor.
- Provisions for removal of trash generated by project construction activity.
- A process for responding to, and tracking, complaints pertaining to construction activity, including identification of an on-site complaint manager.
- Provisions for pedestrian and bicycle circulation through the congestion zone.

The project sponsor shall implement the construction management plan prior to the start of construction. Implementation of this measure would reduce project construction impacts to a less-than-significant level. (LTS)

(6) C/CAG Transportation Demand Management Requirements

C/CAG is the Congestion Management Agency for San Mateo County that develops the Congestion Management Program (CMP). As part of the land use element of the CMP, all projects that generate 100 or more new trips during the AM or PM peak hour are required to implement TDM programs that have the capacity to reduce the demand for new peak-hour trips. The project sponsor also has the option to reduce the scope of

the project to generate less than 100 peak hour trips or pay a one-time fee of $20,000 per new peak hour trip to a TDM fund.

The project would generate more than 100 new vehicle trips during both the AM and PM peak hours. Therefore, per C/CAG guidelines, the project sponsor has developed a draft TDM plan for the project which is presented in Table V.C-22 and Appendix C.

The draft TDM Plan is currently under review by C/CAG. Conformance with the C/CAG requirement will be verified by the City during the Specific Development Plan/Use Permit review process that would be conducted prior to implementation of the project.

C/CAG has identified acceptable TDM measures and assigned peak-hour trip credits that will be granted with implementation of each measure.[9] Measures can be assembled from this menu of options such that the total number of trip credits is equal to or greater than the new peak-hour trips generated by the project. These programs, once implemented, must be on-going for the occupied life of the development. Programs may be substituted, with prior approval of C/CAG, as long as the total number of trip credits offsets the new trips. In the following discussion, the number of new trips associated with the project is used for the trip credit comparison. This reflects the nature of the TDM strategies at buildout.

To select a menu of TDM strategies appropriate for the Lincoln Center context, the TDM plan presented in the Gilead Sciences SEIR was reviewed and considered a starting point for the project. As shown in Table V.C-22, a similar TDM plan to that in place at Gilead Sciences would result in 760 trip credits, which is greater than the estimated peak hour trip generation for the project of 621 trips. The project applicant shall monitor the effectiveness of the TDM plan and submit annual monitoring reports to the City as described in the below TDM Monitoring section. The City would require the implementation of an appropriate TDM Plan for the life of the project to reduce cumulative impacts on area roadways, per C/CAG requirements.

TDM+ Analysis of Lincoln Center

The TDM+ tool was used to assess the potential reduction in vehicle trips due to the implementation of the Lincoln Center Transportation Demand Management measures.

The TDM+ tool is the result of Fehr & Peers' technical analysis of greenhouse gas (GHG) mitigation measures for the California Air Pollution Control Officers Association (CAPCOA) and the Bay Area Air Quality Management District (BAAQMD). This work yielded a comprehensive set of guidelines for assessing and quantifying reductions in vehicle miles travelled (VMT) and GHG emissions associated with a suite of TDM strategies. The strategies cover a wide range of measures, from increasing transit

[9] The number of "trip credits" is the number of vehicle trips each mitigation measure would off-set as determined by C/CAG staff.

TABLE V. C-22 LINCOLN CENTER TDM PLAN AND C/CAG TRIP CREDITS

TDM Measure	Amount[a]	C/CAG Credit Rate[b]	C/CAG Trip Credits
Secure bicycle storage – bike racks/lockers	64	0.33	21
Bike showers and lockers[c]	9	10	135
Peak hour shuttle seats (22 seat shuttle, operating twice during peak hours)	44	2	88
Commuter checks (all transit riders)[d]	114	1	114
Vanpool program (number of vans)[d]	4	10	40
On-site video conferencing centers	1	5	5
Guaranteed Ride Home (all non-SOV users)	250	1	250
Preferential carpool parking	20	2	40
Preferential vanpool parking[e]	4	7	28
Annual Employee Travel Survey	1	3	3
Additional credit for providing 10 or more TDM Plan measures	1	5	5
Commute Assistance Center Features			
Staffed 4 hours per week	0.8	1	1
Transit brochure rack	1	1	1
Trip planning assistance	1	1	1
Bike-to-Work program and discounts	1	1	1
Park-and-Ride lot information provided	1	1	1
On-site vanpool marketing	1	1	1
On-Site Amenities			
Banking – ATM	1	5	5
Café	1	5	5
Dry cleaning services	1	5	5
Fitness center and fitness classes	1	5	5
Conference center	1	5	5
Total TDM Plan Measure Trip Credits		**760**	
Estimated New Peak Hour Vehicle Trips		**621**	

[a] All intervention amounts were calculated assuming 1,200 employees and mode splits similar to Gilead Campus surveys conducted in 2012. Each amount assumes all users of the mode fully utilize the service, unless otherwise noted.
[b] Includes any increase in trip credits due to presence of a Guaranteed Ride Home Program
[c] Showers are awarded 10 trip credits each, with a 5 credit bonus for each combination of five bike lockers to one shower/changing room.
[d] Applying a similar transit ridership of 9.5% as presented in the Gilead Sciences SEIR results in 114 transit riders.
[e] Vanpool numbers are conservatively assumed to be on the lower end to reflect difficulty of maintaining vanpool ridership.
Source: Fehr & Peers, 2014.

frequency to implementing road pricing to encouraging location-efficient land uses, as well as more traditional TDM measures like ride-sharing programs and parking cash-out. On behalf of BAAQMD, Fehr & Peers developed an Excel-based tool that models the combined effects of TDM strategies based on the literature review performed for the CAPCOA study. The model was subsequently tested, validated, and recalibrated based on nine Bay Area projects.

With the strategies chosen by the project and presented in Table V.C-22, the Lincoln Center TDM program would be required to vehicle trips by a minimum of 14.5 percent, which equates to a reduction of approximately 88 AM peak hour and 91 PM peak hour trips. Table V.C-23 presents the vehicle trip generation with the TDM Plan.

TDM Monitoring

The project applicant shall submit annual reports to the City describing the specific TDM measures that are being implemented, the number of employees on-site, and the success of the measures expressed in AM and PM peak hour inbound and outbound vehicle trips generated by the project. The report shall be prepared by an independent City-approved transportation planning/engineering firm. The Community Development Department shall review each annual TDM report submitted by the project applicant and verify that the trip counts meet the established targets or that the appropriate corrective measures are undertaken and/or fines are paid. The project applicant shall also provide payment to the City, based on the City's estimated cost, to review the annual monitoring report.

Daily, hourly, and 15-minute period counts shall be taken at the project driveways over a 2-week period. Counts obtained during the three midweek weekdays (Tuesday, Wednesday, Thursday) shall be averaged. Counts shall be performed between mid-February and late May (before the end of the school year) or between Labor Day and Thanksgiving week. Counts shall not be collected on days immediately before or after holidays or long weekends, and shall not be performed on days with inclement weather conditions.

The driveway traffic counts shall be summarized and added together, to confirm that the traffic generation of the project during the peak hours is less than 520 AM peak-hour vehicles and 540 PM peak hour vehicles (as presented in Table V.C-23). In addition, the number of outbound PM peak hour vehicle trips shall be less than 455 trips. If the allowable number of vehicle trips is exceeded, the applicant shall prepare a plan identifying additional TDM measures that will be implemented and/or modification to existing measures to assure compliance within 60 days of being notified by the City and implement them within 120 days from the notification date. Follow-up traffic counts shall be conducted to evaluate the effectiveness of the new TDM plan. If the target trip level is still exceeded, the applicant shall pay a penalty of $100 per extra vehicle trip (adjusted annually staring in 2014 per the Consumer Price

TABLE V.C-23 TRIP GENERATION WITH TDM PLAN

Land Use	AM Peak Hour Trips	PM Peak Hour Trips
Project Trip Generation (from Table V.C-9)	608	631
TDM Vehicle Trip Reduction	*88*	*91*
Total Vehicle Trips with TDM Plan	**520**	**540**

Source: Fehr & Peers, 2015.

Index for All Urban Consumers in the San Francisco-Oakland-San Jose area). Payments of these penalties are due to the City within 30 days of issuance of invoice.

(7) Parking

The project would provide employee and visitor parking in three open air parking structures, with one surface and up to three elevated levels of parking in each structure. Parking spaces would be universal stalls (8.5 feet wide by 18 feet long), per Foster City Municipal Code requirements.

Parking Requirements

The Foster City Municipal Parking Code requires one parking space for every 250 gross square feet of general office, and one parking space for every 300 square feet of research and development facilities. As shown in Table V.C-24, the project is required to provide a total of 2,109 parking spaces per this code. However, the City of Foster City will allow a 15 percent reduction in required parking supply for a biopharmaceutical campus with an approved TDM plan. Should the City of Foster City approve the proposed TDM Plan presented in Appendix C-6, the required parking supply would be 1,793 parking spaces. The project proposes to supply 1,793 parking spaces, meeting the parking requirement with an approved TDM plan. Without an approved TDM plan, the project would have a deficit of 316 parking spaces and would be required to provide additional parking.

Parking Demand

According to data collected by Kimley-Horn and Associates, Inc. for an April 1, 2008 parking study, parking demand ratios for Gilead Sciences office and laboratory uses are 2.64 spaces per 1,000 square feet and 1.35 spaces per 1,000 square feet, respectively.[10] As the Gilead Sciences campus has a similar location and use characteristics to the project, these data likely provide a valid comparison point when determining parking demand.

[10] Kimley-Horn, 2008. *Analysis of Gilead Sciences General Development Plan Traffic Impacts.*

TABLE V.C-24 LINCOLN CENTRE PROPOSED PARKING STALLS AND CITY REQUIREMENTS

Land Use	Proposed amount (ksf)	Proposed Spaces	Spaces Required, Office/R&D	Spaces Required (with 15% reduction)
General Office	388.5	--	1,554	1,321
Laboratory	166.5	--	555	472
Total	**555.0**[a]	**1,793**	**2,109**	**1,793**

[a] The City of Foster City municipal code assumes that parking for on-site amenities are included within the office and laboratory space. Therefore, the required parking supply calculations do not include amenity space.
Source: Fehr & Peers, 2014.

According to the Institute of Transportation Engineers' (ITE) *Parking Generation*, 4th Edition, the peak parking demand ratio is 2.84 spaces per 1,000 square feet of office space and 1.27 spaces per 1,000 square feet of industrial park space. The manual does not include a specific ratio for laboratory uses, but industrial park uses are available as a proxy.

Parking demand, as calculated from these two sources, is summarized in Table V.C-25. Because the land uses on-site are primarily office and laboratory uses, which peak at similar times of the day and days of the week, the potential for shared parking is limited.

TABLE V.C-25 PROPOSED PARKING AND EXPECTED PEAK PARKING DEMAND

		ITE Parking Demand Rates				Gilead Campus Observed Parking Demand Rates			
Land Use	ksf	Parking Demand Rate per ksf	Expected Total Demand	Proposed Spaces	Parking Surplus (Deficit)	Parking Demand Rate per ksf	Expected Total Demand	Proposed Spaces	Parking Surplus (Deficit)
General Office	388.5	2.84	1,103	--	--	2.64	1,026	--	--
Laboratory	166.5	1.27	211	--	--	1.35	225	--	--
Total	**555.0**[a]	--	**1,314**	**1,793**	**478**		**1,251**	**1,793**	**543**

[a] The City of Foster City municipal code assumes that parking for on-site amenities are included within the office and laboratory space. Therefore, the required parking supply calculations do not include amenity space.
Source: Fehr & Peers, 2014.

D. AIR QUALITY

This section evaluates the potential air quality impacts of the proposed project. The analysis considers both construction and operational effects. The focus of the air quality analysis is to evaluate the impact of future project-related emissions on regional air quality and health of existing local sensitive receptors, as well as the impact of existing sources of air pollution on potential new sensitive receptors. This analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1]

1. Setting

The following discussion provides an overview of existing air quality conditions in the Foster City area. Ambient standards and the regulation framework relating to air quality are described.

The ambient air quality in a given area depends on the quantities of pollutants emitted within the area, transport of pollutants to and from surrounding areas, local and regional meteorological conditions, as well as the surrounding topography of the air basin. Air quality is described by the concentration of various pollutants in the atmosphere. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). The significance of a pollutant concentration is determined by comparing the concentration to an appropriate ambient air quality standard. The standards represent the allowable pollutant concentrations designed to ensure that the public health and welfare are protected, while including a reasonable margin of safety to protect the more sensitive individuals in the population.

Foster City is located in the San Francisco Bay Area Air Basin (SFBAAB), which includes the counties of San Francisco, Santa Clara, San Mateo, Marin, Napa, Contra Costa, and Alameda, along with the southeast portion of Sonoma County and the southwest portion of Solano County. The local air quality regulatory agency responsible for this basin is the BAAQMD.

a. Local and Regional Climate

The climate of Foster City is characterized by warm dry summers and cool moist winters. The proximity of the San Francisco Bay and Pacific Ocean has a moderating influence on the climate. Foster City lies in the peninsula climatological sub region of the Bay Area Air Basin. The peninsula region extends from northwest of San Jose to the Golden Gate. Cities in the southeastern peninsula experience warmer temperatures and fewer foggy days than coastal towns to the north and west because the marine layer is blocked by the Santa Cruz Mountains running up the center of the peninsula.

[1] Bay Area Air Quality Management District (BAAQMD), 2012. *BAAQMD CEQA Air Quality Guidelines*, May.

However, the Crystal Springs Gap, between Half Moon Bay and San Carlos, permits maritime air to pass across the mountains and provide a cooling effect from San Mateo to Foster City.

The major large-scale weather feature controlling the area's climate is a large high pressure system located in the eastern Pacific Ocean, known as the Pacific High. The strength and position of the Pacific High varies seasonally. It is strongest during summer and located off the west coast of the United States. Large-scale atmospheric subsidence associated with the Pacific High produces an elevated temperature inversion along the West Coast. The base of this inversion is usually located from 1,000 to 3,000 feet above mean sea level (msl), depending on the intensity of subsidence and the prevailing weather condition. Vertical mixing is often limited to the base of the inversion, trapping air pollutants in the lower atmosphere. Marine air trapped below the base of the inversion is often condensed into fog or stratus clouds by the cool Pacific Ocean. This condition is typical of the warmer months of the year from roughly May through October. Stratus clouds usually form offshore and move into the Bay Area during the evening hours. As the land warms the following morning, the clouds often dissipate, except along the immediate coast. The stratus then redevelops and moves inland late in the day along with an increase in winds. Otherwise, clear skies and dry conditions prevail during summer.

As winter approaches, the Pacific High becomes weaker and shifts south, allowing weather systems associated with the polar jet stream to affect the region. Low-pressure systems produce periods of cloudiness, strong shifting winds, and precipitation. The number of days with precipitation can vary greatly from year-to-year, resulting in a wide range of annual precipitation totals. Precipitation is generally lowest along the Bay with much higher amounts occurring along south and west-facing slopes. About 90 percent of rainfall occurs from November through April. High-pressure systems are also common in winter and can produce cool stagnant conditions. Radiation fog and haze are common during extended winter periods where high-pressure systems influence the weather.

The proximity of the eastern Pacific High and relatively lower pressure inland produces a prevailing westerly sea breeze along the central and northern California coast for most of the year. As this wind is channeled through the Golden Gate and other topographical gaps such as the Crystal Springs Gap, it branches off to the northeast and southeast, following the general orientation of the San Francisco Bay system. The prevailing wind is primarily from the northwest, especially during spring and summer. In winter, winds become variable with more of a southeasterly orientation. Nocturnal winds and land breezes during the colder months of the year prevail with variable drainage out of the mountainous areas. Wind speeds are highest during the spring and early summer and lightest in fall. Winter storms bring relatively short episodes of strong southerly winds.

Temperatures in Foster City tend to be less extreme compared to inland locations due to the moderating effect of the Pacific Ocean and the Bay. In summer, high temperatures are generally in the low 80s and low temperatures during the winter months are in the low 40s.

b. Existing Air Quality Conditions

(1) Criteria Air Pollutants

Federal and State Ambient Air Quality Standards

Existing air quality conditions in the area surrounding the project can be characterized in terms of the primary ambient air quality standards that the State of California and the federal government have established for several different pollutants known as "criteria" pollutants (California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS), respectively). These primary standards have been set to protect public health. The criteria air pollutants (CAPs) include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter less than 10 microns in diameter (PM_{10}) and less than 2.5 microns in diameter ($PM_{2.5}$), and lead. For each criteria pollutant, those areas having pollutant levels less than the standards are called attainment areas (that is, these areas attain the air quality standard), and those with pollutant levels greater than the standards are called nonattainment areas (that is, these areas do not attain the air quality standard). Both State and federal standards are summarized in Table V.D-1. In addition to primary standards, "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation and other aspects of the general welfare. CAAQS are more stringent than NAAQS. Thus, CAAQS are used as the equal to or standard in this analysis.

The United States Environmental Protection Agency (U.S. EPA) has designated the SFBAAB as in nonattainment for the federal 8-hour O_3 standard, and the 24-hour $PM_{2.5}$ standard.[2] The U.S. EPA has designated the SFBAAB as unclassifiable for 1-hour NO_2, and 24-hour $PM_{10,}$ and in attainment of the federal carbon monoxide, lead, annual $PM_{2.5}$, annual NO_2, and SO_2 standards.[3,4] The State has designated the SFBAAB as in

[2] Bay Area Air Quality Management District (BAAQMD), 2014a. Air Quality Standards and Attainment Status. http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm, accessed December 21.

[3] Areas are designated as unclassifiable when the U.S. EPA cannot designate the area as meeting or not meeting the standards based on available information. CAA Section 107(d)(1)(A)(iii). Unclassifiable areas are treated the same as attainment areas under the Clean Air Act.

[4] The SFBAAB was previously designated as a CO nonattainment area. Since the area was redesignated, it is subject to federal Clean Air Act requirements for maintaining attainment, discussed in the Clean Air Act section of this document.

TABLE V.D-1 AMBIENT AIR QUALITY STANDARDS

Pollutant[a]	Averaging Time	California Standards[b]	National Standards[c]
Ozone	8-hour	0.07 ppm	0.075 ppm
	1-hour	0.09 ppm	—[d]
Carbon monoxide	8-hour	9 ppm	9 ppm
	1-hour	20 ppm	35 ppm
Nitrogen dioxide	Annual	0.03 ppm	0.053 ppm
	1-hour	0.18 ppm	0.100 ppm[e]
Sulfur dioxide[f]	Annual	—	0.03 ppm
	24-hour	0.04 ppm	0.14 ppm
	1-hour	0.25 ppm	0.075 ppm
PM_{10}	Annual	20 µg/m^3	--
	24-hour	50 µg/m^3	150 µg/m^3
$PM_{2.5}$	Annual	12 µg/m^3	15 µg/m^3
	24-hour	—	35 µg/m^3 [f]

Notes: ppm = parts per million, µg/m3 = micrograms per cubic meter, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, and $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5 µm or less.
[a] Lead (Pb) is not listed in the above table because it has been in attainment since the 1980s.
[b] California standards for ozone, carbon monoxide, sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, and suspended particulate matter PM_{10} and $PM_{2.5}$ are values that are not to be exceeded.
[c] National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 8-hour ozone standard is attained when the 3-year average of the 4th highest 8-hour concentrations is 0.075 ppm (75 ppb) or less. The 24-hour PM_{10} standard is attained when the expected number of days per calendar year with a 24-hour average concentration above standard is equal to or less than one. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of the 98th percentiles of the daily concentration is less than 35 µg/m3.
[d] The national 1-hour ozone standard was revoked by U.S. EPA on June 15, 2005.
[e] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).
[f] On June 2, 2010, the U.S. EPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24hour SO_2 NAAQS however must continue to be used until one year following U.S. EPA initial designations of the new 1-hour SO_2 NAAQS.
[g] U.S. EPA lowered the 24-hour $PM_{2.5}$ standard from 65 µg/m3 to 35 µg/m3 in 2006. U.S. EPA designated the Bay Area as nonattainment of the $PM_{2.5}$ standard on October 8, 2009. The effective date of the designation is December 14, 2009, and the Air District has 3 years to develop a SIP that demonstrates the Bay Area will achieve the revised standard by December 14, 2014.
Source: California Air Resources Board (CARB), 2013a. Ambient Air Quality Standards. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, accessed December 15 2014.

serious nonattainment of the State 1-hour O_3 standard and in nonattainment of the State 8-hour O_3 standards, PM_{10} and $PM_{2.5}$ standards. The SFBAAB has also been designated as being in attainment of the State CO, NO_2, SO_2, and lead standards.

These designations are based on the latest changes in the ambient air quality standards. For example, on October 15, 2008, the national rolling 3-month average lead standard was established; on June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked; and on December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 microgram per cubic meter ($\mu g/m^3$) to 12.0 $\mu g/m^3$. The 2013 State Area Designation changes were approved by the Office of Administrative Law on April 10, 2014 and became effective on July 1, 2014.[5] The federal designations are current as of July 2, 2014.[6] The U.S. EPA is currently proposing to revise the primary and secondary ozone standards to within the range of 0.065 to 0.070 ppm.[7]

Pollutants of Concern

The pollutants of greatest concern in the area surrounding the project are O_3, PM_{10}, $PM_{2.5}$, and CO. As discussed above, the SFBAAB does not meet attainment standards for either the O_3, PM_{10}, and $PM_{2.5}$ State standards, or the O_3 and $PM_{2.5}$ federal standards. Although the SFBAAB is in attainment of both State and federal CO standards, CO is a pollutant of concern because the number of motor vehicles and vehicle miles traveled (VMT) in the area continue to grow, and the potential for elevated levels of CO remains.

While attainment of the NO_2 standard has not been a problem in the Bay Area (except that the attainment status of the federal 1-hour standard is unclassified), oxides of nitrogen (NOx) emissions are of concern as a precursor to O_3. Reactive organic gases (ROGs) are not criteria pollutants, but their emissions are of concern as ROG are also precursors to O_3.

SO_2 is no longer considered a problem pollutant in the State, because the ambient levels are fairly low, and the State has attained this standard for some time. SO_2 emissions have decreased substantially over the past 30 years due to improved industrial source controls and use of natural gas instead of fuel oil for electricity generation. In addition, SO_2 emissions from mobile sources have decreased due to lower sulfur content in fuels.

Ozone

Ozone (O_3), or smog, is not emitted directly into the environment, but is formed in the atmosphere by complex chemical reactions between ROG and NOx in the presence of sunlight. O_3 formation is greatest on warm, windless, sunny days. The main sources of

[5] California Air Resources Board (CARB), 2014h. *State Standard Area Designations.* http://www.arb.ca.gov/desig/statedesig.htm#prior, accessed December 21.

[6] U.S. Environmental Protection Agency (U.S. EPA), 2014b. *The Green Book Nonattainment Areas for Criteria Pollutants.* http://epa.gov/airquality/greenbk/, accessed December 21.

[7] Federal Register, 2014. Vol. 79. No. 242, December 17.

NOx and ROG, often referred to as ozone precursors, are combustion processes (including motor vehicle engines); the evaporation of solvents, paints, and fuels; and biogenic sources. Automobiles are the single largest source of ozone precursors in the SFBAAB. O_3 levels usually build up during the day and peak in the afternoon hours.

While O_3 serves a beneficial purpose in the upper atmosphere (stratosphere) by reducing ultraviolet radiation potentially harmful to humans, when it reaches elevated concentrations in the lower atmosphere it can be harmful to the human respiratory system and to sensitive species of plants. Ozone concentrations build to peak levels during periods of light winds, bright sunshine, and high temperatures. Short-term exposure can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, it can aggravate existing respiratory diseases such as asthma, bronchitis and emphysema. Chronic exposure to high ozone levels can permanently damage lung tissue. Sensitivity to ozone varies among individuals, but about 20 percent of the population is sensitive to O_3, with exercising children being particularly vulnerable. O_3 can also damage plants and trees, and materials such as rubber and fabrics.

Particulate Matter

Particulate matter pollution consists of very small particles suspended in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter also forms when industry and gaseous pollutant undergo chemical reactions in the atmosphere. Respirable particulate matter (PM_{10}) and $PM_{2.5}$ represent fractions of particulate matter. PM_{10} refers to particulate matter less than 10 microns in diameter and $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter. $PM_{2.5}$ results primarily from diesel fuel combustion (from motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. Sources of PM_{10} include all $PM_{2.5}$ sources as well as emissions from dust generated by construction, landfills, and agriculture; wildfires and brush/waste burning, industrial sources, windblown dust from open lands, and atmospheric chemical and photochemical reactions.

PM_{10} and $PM_{2.5}$ pose a greater health risk than larger-size particles because these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract, increasing the number and severity of asthma attacks, causing or aggravating bronchitis and other lung diseases, and reducing the body's ability to fight infections. Whereas larger particles tend to collect in the upper portion of the respiratory system, $PM_{2.5}$ are miniscule and can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, as well as produce haze and reduce regional visibility.

Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless gas that is formed by the incomplete combustion of fuels. The single largest source of CO in the SFBAAB is motor vehicles. Emissions are highest during cold starts, hard acceleration, stop-and-go driving, and when a vehicle is moving at low speeds. Carbon monoxide emitted from a vehicle is highest near the origin of a trip and considerably lower when vehicles are operating in a hot-stabilized mode (usually 5 to 10 minutes into a trip). Vehicle operation on freeways is usually in a hot-stabilized mode so the individual emission rates are much lower than those encountered on arterial roadways leading to the freeway.

When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease or anemia, as well as fetuses. Even healthy people exposed to high CO concentrations can experience headaches, dizziness, fatigue, unconsciousness, and even death.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) forms quickly from emissions from cars, trucks and buses, power plants, and off-road equipment. NO and NO_2 are collectively referred to as nitrogen oxides (NOx) and are major contributors to ozone formation. In addition to contributing to the formation of ground-level ozone, and fine particle pollution, NO_2 is linked with a number of adverse effects on the respiratory system. It irritates the lungs and can cause breathing difficulties at high concentrations. Monitored levels in the Bay Area are well below ambient air quality standards.

Sulfur Oxides

Sulfur oxides, primarily SO_2, are a product of high-sulfur fuel combustion. The main sources of SO_2 are coal and oil used in power stations, in industries, and for domestic heating. SO_2 is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 concentrations have been reduced to levels well below the State and national standards, but further reductions in emissions are needed to attain compliance with standards for PM_{10}, of which SO_2 is a contributor.

Air Monitoring Data

Air quality in the region is affected by the rate of pollutant emissions and meteorological conditions. Meteorological conditions such as wind speed, atmospheric stability, and mixing height may all affect the atmosphere's ability to mix and disperse pollutants. Long-term variations in air quality typically result from changes in air pollutant emissions, while frequent, short-term variations result from changes in atmospheric conditions. The existing air quality conditions in the area

surrounding the project can be characterized by monitoring data collected in the region. BAAQMD monitors air quality conditions at more than 30 locations throughout the Bay Area. The closest monitoring station to the project is in Redwood City. Summarized air pollutant data for this station is shown in Table V.D-2. This table shows the highest air pollutant concentrations measured at the stations.

Attainment Status

Violations of ambient air quality standards are based on air pollutant monitoring data and are judged for each air pollutant. The Bay Area as a whole does not meet State or federal ambient air quality standards for ground level ozone and $PM_{2.5}$, nor does the Bay Area meet State standards for PM_{10}. These nonattainment issues are discussed further below.

As indicated in Table V.D-3, NAAQS and CAAQS for 1and 8-hour ozone for the area were exceeded on one day over the last 3 years, based on readings taken at the Redwood City monitoring station. The NAAQS for $PM_{2.5}$ was exceeded once in 2011, and three times in 2013. Continuous monitoring for PM_{10} in Redwood City was discontinued in 2008. The highest carbon monoxide concentrations measured in Redwood City have been well below the national and State ambient standards. However, since automobile emissions are the primary source of carbon monoxide, the highest concentrations would typically be found away from monitoring stations, near congested roadways that carry large volumes of traffic. These are referred to as "hot spots." Other criteria pollutants, such as NO_2, SO_2, and lead, are typically found at low levels. As noted above, these pollutants should not pose a major air pollution concern in Foster City. As shown in Table V.D-3, the Bay Area as a whole exceeded the NAAQS for ozone on 3 to 4 days per year over the last 3 years. The CAAQS for ozone was exceeded on 3 to 10 days per year. The NAAQS for $PM_{2.5}$ is exceeded about 3 to 13 days per year. The NAAQS for PM_{10} or other pollutants are not exceeded except that NO_2 1-hour standard was exceeded on one day. However, the CAAQS for PM_{10} is exceeded several times per year.

(2) Toxic Air Contaminants

In California, toxic air contaminants (TACs) are defined by the CARB as those air pollutants that "may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health."[8] To date, CARB has identified more than 21 TACs and adopted U.S. EPA's list of hazardous air pollutants (HAPs) as TACs.[9] U.S. EPA defines HAPs as "pollutants that are known or suspected to

[8] California Air Resources Board (CARB), 2014e. *Glossary of Air Pollution Terms.* http://www.arb.ca.gov/html/gloss.htm#T, accessed December 21.

[9] California Air Resources Board (CARB), 2014i. *Toxic Air Contaminant Identification List.* http://www.arb.ca.gov/toxics/id/taclist.htm, accessed December 21.

TABLE V.D-2 HIGHEST MEASURED AIR POLLUTANT CONCENTRATIONS

Pollutant	Average Time	Measured Air Pollutant Levels				
		2009	2010	2011	2012	2013
Redwood City						
Ozone (O_3)	1-Hour	0.09 ppm	0.11 ppm	0.08 ppm	0.06 ppm	0.08 ppm
	8-Hour	0.063 ppm	0.077 ppm	0.061 ppm	0.054 ppm	0.075 ppm
Carbon Monoxide (CO)	8-Hour	1.8 ppm	1.7 ppm	1.7 ppm	1.8 ppm	1.6 ppm
Nitrogen Dioxide (NO_2)	1-Hour	0.06 ppm	0.05 ppm	0.06 ppm	0.06 ppm	0.05 ppm
	Annual	0.012 ppm	0.012 ppm	0.012 ppm	0.011 ppm	0.013 ppm
Respirable Particulate Matter (PM_{10})	24-Hour	--	--	--	--	--
	Annual	--	--	--	--	--
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	32 ug/m^3	37 ug/m^3	40 ug/m^3	33 ug/m^3	39 ug/m^3
	Annual	9 ug/m^3	8 ug/m^3	9 ug/m^3	9 ug/m^3	11 ug/m^3
Bay Area (Basin Summary)						
Ozone (O_3)	1-Hour	0.11 ppm	0.15 ppm	0.12 ppm	0.10 ppm	0.10 ppm
	8-Hour	0.094 ppm	0.097 ppm	0.084 ppm	0.090 ppm	0.079 ppm
Carbon Monoxide (CO)	8-Hour	2.9 ppm	2.2 ppm	2.7 ppm	2.4 ppm	3.2 ppm
Nitrogen Dioxide (NO_2)	1-Hour	0.07 ppm	0.09 ppm	0.09 ppm	0.12 ppm	0.07 ppm
	Annual	0.016 ppm	0.016 ppm	0.016 ppm	0.015 ppm	0.017 ppm
Respirable Particulate Matter (PM_{10})	24-Hour	55 ug/m^3	70 ug/m^3	73 ug/m^3	60 ug/m^3	58 ug/m^3
	Annual	20 ug/m^3	21 ug/m^3	20 ug/m^3	19 ug/m^3	22 ug/m^3
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	46 ug/m^3	47 ug/m^3	54 ug/m^3	38 ug/m^3	58 ug/m^3
	Annual	10 ug/m^3	11 ug/m^3	10 ug/m^3	10 ug/m^3	13 ug/m^3

Notes: ppm = parts per million and μg/m3 = micrograms per cubic meter.
Values reported in bold exceed ambient air quality standard.
-- = data not available.
Source: Bay Area Air Quality Management District (BAAQMD) Air Quality Summaries for 2009, 2010, 2011, 2012, and 2013. Accessed December 2014. http://www.baaqmd.gov/Divisions/Communications-and-Outreach/Air-Quality-in-the-Bay-Area/Air-Quality-Summaries.aspx.

cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects". Currently, there are 187 identified HAPs.[10]

[10] U.S. Environmental Protection Agency (U.S. EPA), 2012. *Toxic Air Pollutants.* http://www.epa.gov/oar/toxicair/newtoxics.html, accessed December 21, 2014.

TABLE V.D-3 ANNUAL NUMBER OF DAYS EXCEEDING AMBIENT AIR QUALITY STANDARDS

Pollutant	Standard	Monitoring Station	Days Exceeding Standard 2009	2010	2011	2012	2013
Ozone (O3)	NAAQS 8-hr	Redwood City	0	1	0	0	0
		Bay Area	8	9	4	4	3
	CAAQS 1-hr	Redwood City	0	2	0	0	0
		Bay Area	11	8	5	3	3
	CAAQS 8-hr	Redwood City	0	1	0	0	1
		Bay Area	13	11	10	8	3
Respirable Particulate Matter (PM_{10})	CAAQS 24-hr	Redwood City	--	--	--	--	--
		Bay Area	1	2	3	2	6
	NAAQS 24-hr	Redwood City	--	--	--	--	--
		Bay Area	0	0	0	0	0
Fine Particulate Matter ($PM_{2.5}$)	NAAQS 24-hr	Redwood City	0	1	1	0	3
		Bay Area	11	6	8	3	13
All Other (CO, NO_2, SO_2)	NAAQS or CAAQS	Redwood City	0	0	0	0	0
		Bay Area	0	0	0	1	0

Notes: X = Standard revoked in 2004.
-- = data not available.
Source: Bay Area Air Quality Management District (BAAQMD) Air Quality Summaries for 2009, 2010, 2011, 2012, and 2013.

The nature and magnitude of the potential health effects of TACs depends on the substance, the concentration, and the period of exposure. Some TACs cause effects in response to short-term (acute) exposure; others cause effects only after sustained exposures over weeks, months, or years. The effects of acute exposure may be minor, such as watery eyes or respiratory irritation; or they may involve damage such as to the reproductive system or nervous system. If exposure to a sufficient concentration occurs for a sufficient period, individuals may have an increased risk of developing cancer, or a greater likelihood of experiencing non-carcinogenic chronic adverse effects. These chronic non-carcinogenic health effects may be minor, such as nasal rhinitis or respiratory irritation; or they may involve long-term damage to the immune, neurological, reproductive, respiratory, or other systems.[11]

Significant sources of TACs in the environment are industrial processes, such as petroleum refining, chemical manufacturing, electric utilities, metal mining/refining and chrome plating; commercial operations, such as gasoline stations and dry cleaners; and transportation activities, particularly diesel-powered vehicles, including trains, buses, and trucks. In 1998, the CARB identified PM from diesel-powered engines as a TAC. Compared to other air toxics that the CARB has identified and regulated, diesel particulate matter (DPM) emissions are estimated to be responsible

[11] U.S. Environmental Protection Agency (U.S. EPA), 2012. *Toxic Air Pollutants.* http://www.epa.gov/oar/toxicair/newtoxics.html, accessed December 21, 2014.

for about 70 percent of the total ambient air toxics risk. On a statewide basis, the average potential cancer risk associated with these emissions is over 500 potential cases per million.[12]

Unlike criteria pollutants, the concentrations of individual TACs are not regulated per se; however, concentrations of TACs may be regulated indirectly based on results from a health risk assessment (HRA). An HRA is a scientifically-based tool used to determine if exposure to chemicals(s) pose a significant risk to human health.

According to the California Almanac of Emissions and Air Quality,[13] the majority of the estimated health risk from TACs in ambient air is attributed to relatively few compounds, the most dominant being particulate matter exhaust from diesel-fueled engines. Based on available data, the other nine TACs that pose the greatest risk from breathing ambient air in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.[14]

DPM is a complex mixture of hydrocarbons, particulates, gases, and other compounds. DPM is emitted by diesel-fueled internal combustion engines, and the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Both California's Office of Environmental Health Hazard (OEHHA) and the U.S. EPA consider DPM to be a carcinogen. The cancer potency factor derived by California EPA (Cal/EPA) for DPM is highly uncertain in both the estimation of response and dose. In the past, due to inadequate animal test data and epidemiology data on diesel exhaust, the International Agency for Research on Cancer (IARC), a branch of the World Health Organization (WHO), had classified DPM as Probably Carcinogenic to Humans (Group 2); the U.S. EPA had also concluded that the existing data did not provide an adequate basis for quantitative risk assessment.[15] However, based on two recent scientific studies, IARC recently re-classified DPM as Carcinogenic to Humans, placing it in Group 1.[16,17,18] This classification means that the agency has determined that there is

[12] California Air Resources Board (CARB), 2000b. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles, October.

[13] California Air Resources Board (CARB), 2009b. *The California Almanac of Emissions and Air Quality,* Chapter 4: Air Basin Trends and Forecasts – Criteria Air Pollutants.

[14] California Air Resources Board (CARB), 2009c. *The California Almanac of Emissions and Air Quality,* Appendix C: Emissions, Air Quality, and Health Risk for Ten Toxic Air Contaminants.

[15] U.S. Environmental Protection Agency (U.S. EPA), 2002. *Health Assessment Document for Diesel Engine Exhaust.* National Center for Environmental Assessment, Office of Research and Development, Washington, DC. EPA/600/8-90/057F, May.

[16] Silverman D.T., Samanic C.M., Lubin J.H., Blair A.E., Stewart P.A., Vermeulen R., Coble J.B., Rothman N., Schleiff P.L., Travis W.D., Ziegler R.G., Wacholder S., Attfield M.D., 2011. *The Diesel*

"sufficient evidence of carcinogenicity" of a substance in humans; it represents the strongest weight-of-evidence rating in IARC's carcinogen classification scheme. The U.S. EPA, OEHHA, and IARC also recognize that exposure to DPM may cause non-cancer effects such as change(s) in lung function and airway inflammation.[19,20,21] DPM is a component of PM, and recent scientific data have linked prolonged exposure to PM to premature mortality, respiratory effects, and cardiovascular disease. The BAAQMD has estimated that the carcinogenic health risks from exposure to DPM in 2003 in the Bay Area region was about 500 to 700 in 1 million.[22]

(3) Sensitive Receptors

Sensitive receptors are locations where individuals with increased sensitivity to the health effects of air pollutants, such as children, hospital patients, and the elderly are usually present. Typical sensitive receptors include schools, school yards, daycare centers, parks, playgrounds, nursing homes, hospitals, and residential communities. Figure V.D-1 shows the locations of off-site sensitive receptors within the 1,000-foot zone of influence surrounding the project boundary.[23] The proposed project could include a daycare center conservatively assumed to serve children between 6 weeks and 6 years old.

Exhaust in Miners Study: A Nested Case-Control Study of Lung Cancer and Diesel Exhaust. Journal National Cancer Institute.

[17] Attfield M.D., Schleiff P.L., Lubin J.H., Blair A., Stewart P.A., Vermeulen R., Coble J.B., Silverman D.T., 2011. *The Diesel Exhaust in Miners Study: A Cohort Mortality Study With Emphasis on Lung Cancer*. Journal National Cancer Institute.

[18] International Agency for Research on Cancer (IARC), 2012. Press Release No. 213. IARC: Diesel Engine Exhaust Carcinogenic, June.

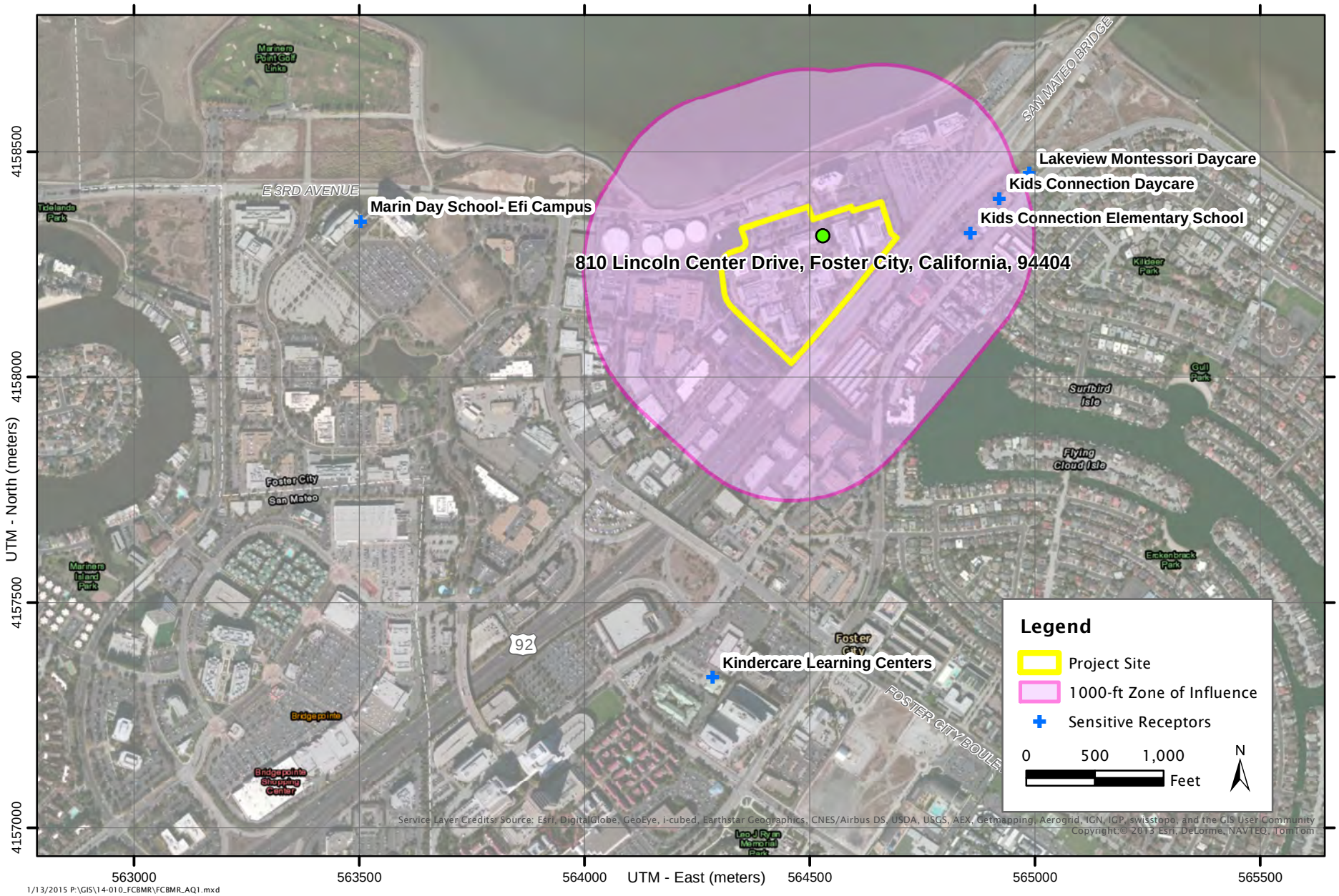
[19] Office of Environmental Health Hazard Assessment (OEHHA), 1998. *Findings of the Scientific Review Panel on The Report on Diesel Exhaust*, as adopted at the Panel's April 22, 1998, meeting. April.

[20] Office of Environmental Health Hazard Assessment (OEHHA), 2002. *Air Toxics Hot Spots Program Risk Assessment Guidelines: Part II Technical Support Document for Describing Available Cancer Potency Factors.* California Environmental Protection Agency (Cal/EPA), December.

[21] United States Environmental Protection Agency (U.S. EPA), 2011. Integrated Risk Information System (IRIS). United States Environmental Protection Agency. Available at: http://www.epa.gov/iris/.

[22] Bay Area Air Quality Management District (BAAQMD), 2007. *Toxic Air Contaminants 2003 Annual Report,* August.

[23] The sensitive receptor locations generated by EDR were reviewed to ensure accuracy. Two sensitive receptors further than 1,000-foot zone of influence surrounding the Project boundary were also mapped on the figure because they were at a different direction relative to the Project.



Source: ENVIRON, 2014; Urban Planning Partners, Inc. 2015

Figure V.D-1
Lincoln Centre Life Sciences Research Campus Project EIR
Sensitive Receptor Locations

c. Regulatory Setting

Air quality regulations have been established to control and reduce emissions and ambient concentrations criteria pollutants. The framework for regulation of criteria pollutants is established at the federal level by the federal Clean Air Act (CAA), which provides the bases for establishment of the NAAQS discussed above. The CAA is also implemented at the State and local levels through State Implementation Plans (SIPS). Individual states or tribes may have stronger air pollution laws, but they may not have weaker pollution limits than those set by U.S. EPA. The California Clean Air Act also establishes ambient air quality standards for criteria pollutants, as discussed below. Air quality regulations also focus on TACs (or in federal terminology, HAPs). In general, for those TACs that may cause cancer, there is no threshold concentration below which risks do not occur. However, standards for carcinogenic TACs are established to reflect incremental risks of one in one million to one in ten thousand – values identified as *de minimis* by regulatory agencies. U.S. EPA and CARB regulation of TACs is consistent with this, in that these agencies have statutes and regulations that typically reflect the *de* minimis risk levels noted above, while also generally requiring the use of the maximum achievable control technology (MACT) or best available control technology for toxics (T-BACT) to limit emissions. These, in conjunction with additional rules set forth by BAAQMD, establish the regulatory framework for TACs.

U.S. EPA, CARB, and BAAQMD administer regulations that limit criteria air pollutant and HAP/TAC emissions (including DPM) from specific sources. There are federal, State, regional, and local policies that regulate. The following sections describe the regulations applicable to emissions sources that are included in *Chapter III, Project Description,* including construction equipment, heavy-duty trucks, and emergency generators. The federal and State regulations are described in *Appendix D1, Air Quality*, due to their length. The regional and local regulations applicable to the project are described below.

(1) Regional Regulations

Bay Area Air Quality Management District

BAAQMD attains and maintains air quality conditions in the 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 CAA, FCAAA, and the California CAA.

In 2011, BAAQMD released the update to its CEQA Guidelines. This is an advisory document that provides the lead agency, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. The guidelines also identified CEQA thresholds of significance for TACs and $PM_{2.5}$. The updated guidelines were challenged in the case *California Building Industry Association v. Bay Area Air Quality Management District*. On March 5th 2012, the Alameda County Superior Court ruled that the BAAQMD's adoption of thresholds of significance was a "project" under CEQA, and ordered the BAAQMD to set aside the thresholds until it complied with CEQA requirements.[24] In view of this court order, the BAAQMD ceased recommending that their thresholds be used as a generally applicable measure of a project's significant air quality impacts, and instead recommended that lead agencies determine appropriate air quality thresholds of significance based on substantial evidence in the record. On August 13th 2013, the California First District Court of Appeal reversed the Superior Court's decision, ruling that adoption of CEQA significance thresholds does not constitute a "project" under CEQA, and therefore does not require CEQA review.[25] This decision has been appealed to the California Supreme Court which has granted review limited to the following issue: Under what circumstances, if any, does the California Environmental Quality Act (Pub. Resources Code, Section 21000 et seq.) require an analysis of how existing environmental conditions will impact future residents or users (receptors) of a proposed project?[26]

Air Quality Plans for Criteria Air Pollutants

As stated above, BAAQMD prepares plans to attain ambient air quality standards in the SFBAAB. The 1994 Carbon Monoxide Maintenance Plan was developed in coordination with the Association of Bay Area Governments (ABAG) to ensure continued attainment of the national CO standard.

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 O_3 standards. Currently, there are three plans for the Bay Area:

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[24] Alameda County Superior Court, 2012. *California Building Industry Association v. Bay Area Air Quality Management District,* Case RG10548693, March 5. Available at: http://apps.alameda.courts.ca.gov/domainweb/html/casesumbody.html.

[25] California Court of Appeals First District, 2013. *California Building Industry Association v. Bay Area Air Quality Management District,* Case A135335 and A136212, August 13. Available at: http://www.courts.ca.gov/opinions/documents/A135335.pdf.

[26] California Court of Appeals First District, 2013. *California Building Industry Association v. Bay Area Air Quality Management District*. http://appellatecases.courtinfo.ca.gov/search/case/mainCaseScreen.cfm?dist=0&doc_id=2056930&doc_no=S213478

- 2001 Ozone Attainment Plan, which describes the Bay Area's strategy for compliance with the federal 1-hour O_3 standard. Although the U.S. EPA revoked the federal 1-hour O_3 standard on June 15, 2005, the emission reduction commitments in the plan are still being carried out by the BAAQMD.
- 2005 Bay Area Ozone Strategy, which reviews the region's progress in reducing ozone levels. The plan describes current conditions and charts a course for future actions to further reduce ozone and ozone precursor levels in the Bay Area and achieve compliance with the State 1-hour O_3 standard. Control strategies identified in the plan include stationary source measures, mobile source measures, and transportation control measures.
- 2010 Clean Air Plan, which provides control strategies to reduce O_3, PM, air toxics, and greenhouse gases (GHGs) and specifically addresses nonattainment of the State O_3 standards in the SFBAAB. The purpose of the 2010 Clean Air Plan is to:
  - Update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the California CAA to implement—all feasible measures—to reduce ozone;
  - Provide a control strategy to reduce O_3, PM, air toxics, and GHGs in a single, integrated plan;
  - Review progress in improving air quality in recent years;
  - Establish emission control measures to be adopted or implemented in the 2009-2012 timeframe.

The Bay Area also does not attain the State PM_{10} and $PM_{2.5}$ standards. As explained above; the 2010 Clean Air Plan is an integrated plan which also provides a comprehensive program of control strategies for PM in the Bay Area. This includes measures to reduce emissions and ambient concentrations of PM, as well as population exposure to PM. [27] The control strategy serves as the backbone of the Air District's current PM control program. The 2010 Plan includes 55 control measures to reduce emissions of PM, PM precursors and other air pollutants from a wide variety of emission sources.[28] The control measures can be classified into five main categories:

- Stationary Source Measures (SSMs)
- Mobile Source Measures (MSMs)
- Transportation Control Measures (TCMs)
- Land Use and Local Impact Measures (LUMs)
- Energy and Climate Measures (ECMs)

[27] Bay Area Air Quality Management District (BAAQMD), 2012d. *Understanding Particulate Matter: Protecting Public Health in the San Francisco Bay Area*, November.

[28] Bay Area Air Quality Management District (BAAQMD), 2013. Particulate Matter (PM) Planning. http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans/PM-Planning.aspx, accessed December 21, 2014.

In addition to the 2010 Clean Air Plan, BAAQMD has also initiated the Community Air Risk Evaluation (CARE) program in 2004. This program has helped identify communities in the Bay Area that are disproportionately impacted by local emission sources. The CARE program serves as a foundation for the District's efforts to reduce population exposure to TACs, including DPM. Further details regarding the CARE program are provided under the TACs local regulation discussion below.

Local Air Toxic Regulations and Policies

At the local level, air pollution control or management districts may adopt and enforce CARB control measures. BAAQMD limits emissions and public exposure to TACs through a number of programs. Under BAAQMD Rule 2-1 (General Permit Requirements), Rule 2-2 (New Source Review [NSR]), and Rule 2-5 (NSR of TACs), all sources that have the potential to emit TACs are required to obtain permits from BAAQMD. Permits may be granted if the sources are constructed and operated in accordance with applicable regulations, including NSR standards and ATCM. BAAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions, and on the proximity of the facilities to sensitive receptors.

BAAQMD analyzes sources that require a permit (e.g., performs HRAs) based on their potential to emit TACs. If it is determined that the project's emissions would exceed BAAQMD's threshold of significance for TACs, as identified below, the source has to implement BACT for TACs (T-BACT) to reduce emissions. If a source cannot reduce the risk below the threshold of significance even after implementing T-BACT, then BAAQMD will deny the permit. BAAQMD permit requirements help to prevent problems from new emissions sources and reduce emissions from existing sources by requiring them to apply new technology when retrofitting. BAAQMD's air quality permitting process applies to stationary sources. New emergency generators included the project will have to comply with these requirements as applicable.[29]

Properties that are exposed to elevated levels of TACs from non-stationary sources and the non-stationary sources themselves (e.g., on-road vehicles) are not subject to air quality permits. Further, for reasons of feasibility and practicality, mobile sources (e.g., cars, trucks) are not required to implement T-BACT even if they have the potential to expose adjacent properties to elevated levels of TACs. Rather, emissions controls on mobile sources are subject to regulations implemented at the federal and State levels by U.S. EPA and CARB, respectively.

[29] BAAQMD also regulates NOx and CO emissions from stationary engines through Rule 9-8 (Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines), but emergency standby engines are exempt from this regulation (9-8-110.5). http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/Rules%20and%20Regs/reg%2009/rg0908.ashx?la=en, accessed December 2014.

Under the CARE program, BAAQMD aims to identify areas (referred to in this context as "priority" or "impacted" communities) with high TAC emissions and sensitive populations that could be affected by them, and to use this information to establish policies and programs to reduce TAC emissions and exposures.[30]

One highlight of the CARE program is the development of a Mitigation Action Plan, in which risk reduction activities are focused on the most at-risk communities. This plan identified six different at-risk communities that would benefit from targeted mitigation, based on TAC emissions and presence of sensitive land uses. Foster City is not located in any of these at-risk communities.

Odors

Although offensive odors rarely cause any physical harm, they can be very unpleasant and often can generate citizen complaints to local governments and BAAQMD. BAAQMD's Regulation 7 (Odorous Substances) places general limitations on odorous substances and specific emission limitations on certain odorous compounds in the SFBAAB. This regulation does not apply until the Air Pollution Control Officer (APCO) receives, within a 90-day period, 10 or more odor complaints alleging that a person or entity has caused odors at or beyond the source's property line, which are perceived to be objectionable by the complainants in the normal course of their work, travel, or residence. When this regulation becomes effective as a result of complaints, the limits specified in the regulation remain effective until such time as no complaints have been received by the APCO for 1 year. The limits specified by this regulation become applicable again if the APCO receives odor complaints from five or more complainants within a 90-day period.

(2) City of Foster City

City of Foster City General Plan

Several policies and programs in the City of Foster City General Plan are related to air quality.[31,32] In addition, the City of Foster City adopted an ordinance in February of 2001 to ban installation of wood-burning fireplaces in new residential construction. The ordinance requires installation of either a wood heater or fireplace insert certified by the U.S. EPA, or a gas or wood pellet-fueled heater in new housing construction.

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[30] Bay Area Air Quality Management District (BAAQMD), 2014b. BAAQMD Care Program. http://www.baaqmd.gov/Divisions/Planning-and-Research/CARE-Program.aspx, accessed December.

[31] City of Foster City, 2009. *Foster City General Plan Conservation Element*, September. http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/upload/GP-Chapter-8-Conservation-Element.pdf, accessed December 15, 2014.

[32] City of Foster City, 2010a. *Foster City General Plan, Housing Element.* Adopted February 1. http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/upload/4_Housing-Element-2010.pdf, accessed December 15, 2014.

- *Goal C-1: Protect and Conserve Natural Resources.* Protect and conserve wildlife habitat, energy resources, land resources, air quality, and the quality and quantity of water resources.
- *Policy C-3: Air Quality.* Reduce the impact of development on local air quality.
- *Program C-*j: *Air Quality Impacts.* Review proposed projects for their potential to affect air quality conditions.
- *Program C-k: Air Pollution Sensitive Land Uses.* To the extent feasible, separate air pollution sensitive land uses from sources of air pollution.
- *Program C-m: Reduction in Automobile Trips.* Encourage Foster City residents and employees to consolidate and/or eliminate motor vehicle trips as often as possible.
- *Program C-n: Coordination with Other Agencies in Air Quality Improvements.* Coordinate review of large projects with local, regional and state agencies to improve air quality.
- *Policy H-A-4-a: Air Quality Impacts.* When site-specific development is proposed and/or a Rezoning application is processed, potential air quality impacts from project traffic shall be studied, and mitigation measures to ensure compliance with the Bay Area Air Quality Management District standards in effect at the time shall be recommended if necessary.

Foster City Standard Conditions of Approval

Foster City has adopted Standard Conditions of Approval (SCOAs) for large new and redevelopment projects. The following SCOAs related to air quality would apply to the proposed project.

- **SCOA 9.12:** The following controls shall be implemented at all construction sites within the project to control dust production and fugitive dust.
  - Water all active construction areas at least twice daily and more often during windy periods; active areas adjacent to existing sensitive land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers to control dust;
  - Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard;
  - Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites;
  - Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites; and
  - Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
  - Blowing dust shall be reduced by timing construction activities so that paving and building construction begin as soon as possible after completion of grading, and by landscaping disturbed soils as soon as possible.
  - Water trucks shall be present and in use at the construction site.
  - All portions of the site subject to blowing dust shall be watered as often as deemed necessary by the City in order to insure proper control of blowing dust for the duration of the project.

- Watering on public streets shall not occur.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- 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.
- 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.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
- Streets will be cleaned by street sweepers or by hand as often as deemed necessary by the City Engineer.
- Watering associated with on-site construction activity shall take place between the hours of 8 a.m. and 7 p.m. and shall include at least one late-afternoon watering to minimize the effects of blowing dust.
- All public streets and medians soiled or littered due to this construction activity shall be cleaned and swept on a daily basis during the workweek to the satisfaction of the City.
- 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.

2. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section discusses potential impacts to air quality that could result from implementation of the project. The section begins with the significance criteria, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the project and identifies SCOAs and mitigation measures, as appropriate.

a. Criteria of Significance

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on BAAQMD's website and included in the Air District's updated CEQA Guidelines (updated May 2012).[33,34]

[33] Bay Area Air Quality Management District (BAAQMD), 2010b. *CEQA Guidelines,* May. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/Draft_BAAQMD_CEQA_Guidelines_May_2010_Final.ashx?la=en, accessed December 15, 2014.

Consistent with guidance from the BAAQMD and Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on the environment related to air quality if it would:

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation by:
  - Contributing to CO concentrations exceeding the State ambient air quality standards;
  - Generate construction emissions of ROG, NOx or $PM_{2.5}$ greater than 54 pounds per day or PM_{10} exhaust emissions greater than 82 pounds per day; or
  - Generate operational emissions of ROG, NOx or $PM_{2.5}$ greater than 10 tons per year or 54 pounds per day, or PM_{10} emissions greater than 15 tons per year or 82 pounds per day.
- 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).
- Expose sensitive receptors or the general public to substantial pollutant concentrations by[35]:
  - Individually exposing sensitive receptors (such as residential areas) to toxic air contaminants in excess of the following thresholds:
    - Increased cancer risk greater than 10.0 in one million;
    - Increased non-cancer risk of greater than 1.0 on the Hazard Index (chronic or acute); or
    - Ambient $PM_{2.5}$ increase greater than 0.3 $\mu g/m^3$ annual average.
  - Cumulatively exposing sensitive receptors to toxic air contaminants in excess of the following thresholds:
    - Increased cancer risk greater than 100.0 in one million;
    - Increased non-cancer risk of greater than 10.0 on the Hazard Index (chronic); or

[34] Bay Area Air Quality Management District (BAAQMD), 2012a. *CEQA Guidelines,* May. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_Final_May%202012.ashx?la=en, accessed December 15, 2014.

[35] The thresholds listed in this bullet for individual sources only apply to project impact on off-site sensitive receptors, or impacts of non-project cumulative sources on on-site sensitive receptors. The individual thresholds do not apply to impacts of non-project cumulative sources on off-site sensitive receptors because these impacts exist with or without the project.

- Ambient $PM_{2.5}$ increase greater than 0.8 µg/m^3 annual average.

- Create objectionable odors affecting a substantial number of people.

The numeric thresholds stated in Table V.D-4 were calculated by BAAQMD to ensure compliance with all above thresholds except that pertaining to odors. Odors are discussed on the beginning of page 206.

This analysis uses the BAAQMD thresholds because they are supported by substantial evidence. Scientific information supporting the thresholds was documented in BAAQMD's proposed thresholds of significance analysis. This analysis herein uses the thresholds and methodologies from BAAQMD's May 2010 CEQA Air Quality Guidelines to determine the potential impacts of the project on the existing environment. The significance thresholds identified by BAAQMD and used in this analysis are included in the significance criteria listed below and summarized in Table V.D-4.CEQA requires the analysis of potential adverse effects of a project on the environment. Potential effects of the environment on a project are legally not required to be analyzed or mitigated under CEQA. However, this EIR nevertheless analyzes potential effects of "the environment on the project" in order to provide information to the public and decision-makers.

b. Less-Than-Significant Air Quality Impacts

A discussion of less-than-significant impacts for both construction and operation periods of the proposed project is provided below.

(1) Construction Period

Fugitive Dust

During site preparation, grading and some building construction activities, substantial amounts of dust could be generated and lead to elevated PM_{10} and $PM_{2.5}$ levels near the construction site. Most of the dust would result during grading activities. The amount of dust generated would be highly variable and would depend on the size of the area disturbed at any given time, intensity of grading activity, soil conditions and meteorological conditions. The BAAQMD CEQA Air Quality Guidelines recommend implementing Best Management Practices (BMPs).[36] SCOA 9.12, presented on page 197 above is consistent with the BMPs and would reduce fugitive dust impacts to a less-than-significant level. Construction activities associated with the project will be conducted in accordance with the SCOA and will address fugitive dust.

[36] Bay Area Air Quality Management District (BAAQMD), 2012b. *CEQA Guidelines*, Table 8.1, May.

TABLE V.D-4 AIR QUALITY SIGNIFICANCE THRESHOLDS

Pollutant	Construction Thresholds Average Daily Emissions (lbs/day)	Operational Thresholds	
		Average Daily Emissions (lbs/day)	Annual Average Emissions (tons/year)
Criteria Air Pollutants			
ROG	54	54	10
NOx	54	54	10
PM_{10}	82	82	15
$PM_{2.5}$	54	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Health Risks and Hazards for New Sources			
Excess Cancer Risk	10 per one million	10 per one million	
Chronic or Acute Hazard Index	1.0	1.0	
Incremental annual average $PM_{2.5}$	0.3 µg/m³	0.3 µg/m³	
Health Risks and Hazards for Sensitive Receptors (Cumulative from All Sources within 1,000-Foot Zone of Influence) and Cumulative Thresholds for New Sources			
Excess Cancer Risk	100 per 1 million		
Chronic Hazard Index	Greater than 10.0		
Annual Average $PM_{2.5}$	0.8 µg/m³		

Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 µm or less, and $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5 µm or less.
Source: City of Foster City, 2009. Foster City General Plan Conservation Element, September. Accessed December 15 2014. http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/upload/GP-Chapter-8-Conservation-Element.pdf.
City of Foster City, 2010. Foster City General Plan, Housing Element. Adopted February 1. Accessed December 14 2014. http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/upload/4_Housing-Element-2010.pdf.

Toxic Air Contaminants (TACs) Health Impacts

Construction equipment and associated heavy-duty truck traffic generate DPM. A construction HRA was conducted to evaluate whether health impact from the construction DPM emissions on off-site sensitive receptors would be significant. If so, project features or mitigation measures would be identified to avoid the significant impacts.

The construction HRA focused on modeling on-site construction emissions estimated using CalEEMod®. As discussed above, construction of the project is expected to occur over an approximate 12-month period during 2016. Construction activities were assumed to occur five days per week between 8:00 a.m. and 4:00 p.m. The CalEEMod®-estimated annual PM_{10} exhaust emissions (assumed to be DPM) were used for the HRA, and presented in *Appendix D2*, *Air Quality and GHG Modeling Data*.

The project will implement Mitigation Measure AIR-1, as described on page 214 below. Emission reductions associated with Mitigation Measure AIR-1were quantified using CalEEMod®. The mitigated emissions were used as the basis for the air dispersion modeling.

ISCST3 dispersion modeling was used to predict off-site DPM concentrations from construction emissions at sensitive receptors. ISCST3 is a recommended model for refined modeling analysis as stated in the BAAQMD Recommended Methods for Screening and Modeling Local Risks and Hazards.[37] The model parameters and assumptions are described in *Appendix D3*, *Air Quality Supporting Documentation, Tables, and Attachments*. The sources modeled comprised the on-site off-road construction equipment.

Incremental lifetime cancer risks were calculated using the modeled annual concentration and BAAQMD recommended risk assessment methods. Exposure parameters and assumptions used in the risk characterization are also described in *Appendix D3*, *Air Quality Supporting Documentation, Tables, and Attachments*.

Results of the HRA indicate an incremental cancer risk for the MEISR of 3.7 in a million. The annual $PM_{2.5}$ concentration at the MEISR would be 0.04 ($\mu g/m^3$). The results are summarized below in Table V.D-5. The predicted incremental increase in cancer risk, chronic or acute hazard index, and $PM_{2.5}$ concentration would not exceed the significance thresholds and would be considered less than significant.

(2) Operation Period

Emission Standards

Operations at the developed project site would result in an increase in criteria air pollutant and precursor emissions, including ROG, NOx, PM_{10} and $PM_{2.5}$ from a variety of emissions sources, including on-site sources (e.g., natural gas combustion for space and water heating, landscape maintenance, use of consumer products such as hairsprays, deodorants, cleaning products, etc., reapplication of building surface

[37] Bay Area Air Quality Management District (BAAQMD), 2012c. Recommended Methods for Screening and Modeling Local Risks and Hazards, May. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/Risk%20Modeling%20Approach%20May%202012.ashx?la=en, accessed November 2014.

TABLE V.D-5 MITIGATED CONSTRUCTION HUMAN HEALTH IMPACT

Receptor	UTMx	UTMy	Cancer Risk (per million)	Chronic Hazard Index (unit-less)	Acute Hazard Index (unit-less)	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Chronic Off-Site MEISR[a]	564,730	4,158,060	3.7	0.008	Not Applicable	0.04
Acute MEIR[b]	564,670	4,158,390	Not Applicable	Not Applicable	0.07	Not Applicable
Construction Health Impact Thresholds			*10*	*1*	*1*	*0.3*
Exceed Thresholds?			**No**	**No**	**No**	**No**

Note: MEISR = Maximally Exposed Individual Sensitive Receptor, MEIR = Maximally Exposed Individual Receptor, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5 µm or less.
[a] The MEISR is a residential receptor. All sensitive receptors have lower health risk impacts.
[b] The Acute MEIR is a to the east of the project site and in close proximity.
Source: Bay Area Air Quality Management District (BAAQMD), 2010. CEQA Guidelines, May. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/Draft_BAAQMD_CEQA_Guidelines_May_2010_Final.ashx?la=en, accessed December 15 2014.

coatings), and mobile on-road sources. In addition, one or more diesel emergency generators (EGs) may be used on to the project site to power elevators and other emergency systems during emergency situations. Since the horsepower and locations of the EGs are not yet determined, a screening approach was used to conservatively determine the maximum allowable horsepower for the emergency generators that would maintain the incremental cancer risk from testing of the generators below the BAAQMD threshold of 10 in one million, as described below in the health risk section.

The maximum allowable horsepower corresponding to two scenarios: (a) annual testing of 50 hours per year or (b) 20 hours per year was evaluated. CAP emissions corresponding to these two screening scenarios were evaluated to assess the EGs potential contribution to operational CAP emissions. The CAP emission factors corresponding to Tier 3 engines were conservatively assumed. Table V.D-6 reports the predicted average daily and annual emissions from the emergency generators.

The CalEEMod® model, along with the project vehicle trip generation rates,[38] was used to predict operational air pollutant emissions associated with the proposed project. CalEEMod® is a statewide 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. The mobile source emission factors used in the model are derived from EMFAC2011 and the 2011

[38] Fehr & Peers Transportation Consultants, 2014. Transportation Impact Study for Lincoln Centre Campus Redevelopment Project, December.

TABLE V.D-6 ANNUAL AND AVERAGE DAILY EMISSIONS FROM OPERATION OF THE EMERGENCY GENERATOR(S)

Operation (hours/year)	Maximum Total Horsepower Allowed	hp hours	Pollutant	Tier 3 Emission Factors (grams/ hp-hour)	Emissions (tons/year)	Emissions (lbs/day)
50	2107	105,337	ROG	0.16	0.02	0.10
			NOx	2.9	0.33	1.81
20	5267		PM_{10}	0.15	0.02	0.10
			$PM_{2.5}$	0.15	0.02	0.10

Notes: VOC = volatile organic compounds, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 µm or less, and $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5 µm or less, hp = horsepower. lbs = ponds.
Emissions were calculated based on the maximum total horsepower allowed and corresponding hours of operation per year. Emission factors for Tier 3 engines were conservatively assumed even though the maximum total horsepower allowed was back-calculated using higher tier engines. Emission factors used assume engines between 175 and 750 hp.
NMHC + NOx emissions were split according to BAAQMD Policy as a ratio of 5% NMHC to 95% NOx.
Sources: Bay Area Air Quality Management District (BAAQMD), 2008. Policy: CARB Emission Factors for CI Diesel Engines – Percent HC in Relation to NMHC + NOx. Accessed December 2014. http://www.baaqmd.gov/~/media/Files/Engineering/policy_and_procedures/Engines/EmissionFactorsforDieselEngines.ashx.
California Air Resources Board (CARB), n.d., Off-Road Diesel Standards. Accessed December 2014. http://www.arb.ca.gov/msprog/ordiesel/documents/Off-Road_Diesel_Stds.xls.
US Environmental Protection Agency (U.S. EPA), 2010. Conversion Factors for Hydrocarbon Emission Components. Accessed December 2014.
http://www.epa.gov/otaq/models/nonrdmdl/nonrdmdl2010/420r10015.pdf.

Off-Road Inventory Model.[39] Further, the model identifies mitigation measures to reduce criteria pollutant emissions along with calculating the benefits achieved from measures chosen by the user. The model was developed in collaboration with the air districts of California. The use of CalEEMod® is consistent with guidance issued by BAAQMD on July 31, 2013, indicating that BAAQMD will no longer support the use of Urbemis. The model uses mobile emission factors from the CARB's EMFAC2011 model, including recent regulations such as the Pavley Standards. Assumptions used in the modeling are described below. CalEEMod® input and output worksheets are provided in *Appendix D2, Air Quality and GHG Modeling Data*.

Year of Analysis

Emissions associated with vehicle travel depend on the year of analysis. The earlier the year, the higher the emission rates as CalEEMod® uses CARB's EMFAC2011 motor vehicle emissions model. This model assumes reduced emission rates as newer

[39] EMFAC2011 is the latest installment of the EMFAC series of models, which is CARB's tool for estimating emissions from on-road vehicles. The EMFAC model and supporting documentation can be found at http://www.arb.ca.gov/msei/modeling.htm.

vehicles with lower emission rates replace older, more polluting vehicles through attrition of the overall vehicle fleet. The earliest possible year in which the project will become operational is 2017. Thus, the year 2017 was conservatively used for project operational emissions.

Land Use Descriptions

Based on CalEEMod®'s general land use categories, the project was categorized into three land uses: "Commercial (Research and Development)" (555,000 square feet), "Educational (Daycare Center)" (40,000 square feet), and "Parking" (597,667 square feet). The Parking was further subdivided into the "Parking Lot (surface) (200 spaces, 66,667 square feet) and "Unenclosed Parking with Elevator" (1593 spaces, 531,000 square feet). The site was previously occupied by a 280,000 square feet building which has already been demolished. Therefore the baseline air quality impacts were conservatively not subtracted from the project impact in this analysis.

Trip Generation Rates

Mobile on-road emissions are direct emissions from mobile sources including automobiles, trucks, motorcycles, and buses. CalEEMod® allows the user to enter specific trip generation rates. Fehr & Peers provided the weekday trip generation rates in the Project Transportation Impact Study for the project by land use type, which were entered into the model.[40] Weekend trip rates were scaled based on the CalEEMod® default ratio between weekday and weekend trip generation rates for the research and development land use category. No separate trips were assumed for the Daycare Center in the Transportation Impact Study, since it is for employee use only.

Area Sources

CalEEMod® default emission factors and assumptions were used for area sources. The model assumes that portions of buildings (about 10 percent) are continuously being painted every year. CalEEMod® defaults of 150 grams per liter (g/L) of VOC for exterior coating and 100 g/L of VOC for interior coating were used.

Natural Gas Usage

It was assumed that all buildings will comply with the 2013 Title 24 energy efficiency standard. Because the 2013 Title 24 will be 25 percent more efficient than the 2008 Title 24 for residential construction and 30 percent better for nonresidential

[40] Provided via e-mail from UPP to ENVIRON November 13, 2014. Trip generation rates were provided for two land use categories: general office and laboratory. Because CalEEMod® does not contain a general land use category corresponding to laboratory, the trip generation rates for these two categories were summed and applied to the "Commercial (Research and Development)" category.

construction, these percentage reductions were applied to the relevant CalEEMod® default energy intensity factors to estimate the energy demand for the project.

Table V.D-7 reports the predicted average daily operational emissions and Table V.D-8 reports annual emissions (both including the emergency generators). As shown in Tables V.D-7 and V.D-8 average daily and annual emissions of ROG, NOx, PM_{10} exhaust, and $PM_{2.5}$ exhaust associated with operation would not exceed the BAAQMD significance thresholds. Therefore, this impact is considered less than significant.

Odors

During construction, the various diesel powered vehicles and equipment in use on-site would create localized odors. These odors would be temporary and not likely to be noticeable for extended periods of time much beyond the p roject's site boundaries. The potential for diesel odor impacts during construction is therefore less than significant. Health risks associated with diesel emission are considered below.

The BAAQMD 2012 Guidelines identify wastewater treatment plants, oil refineries, asphalt plants, chemical manufacturing, painting/coating operations, coffee roasters, food processing facilities, recycling operations and metal smelters as odor sources of particular concern, and recommends buffer zones of 1 to 2 miles around them to avoid potential odor conflicts. The Lincoln Centre proposed project does not include any of these typical odor producing sources. In addition, no existing sources within the 2-mile radius of the site are expected to result in frequent odor complaints (i.e., five times over the last 3-year period); therefore this would be a less-than-significant impact.

CO Concentrations

Congested intersections with a large volume of traffic have the greatest potential to cause high localized concentrations of carbon monoxide. Air pollutant monitoring data indicate that carbon monoxide levels have below State and federal standards in the Bay Area since the early 1990s. As a result, the region has been designated as attainment for the standard. Pursuant to BAAQMD CEQA Air Quality Guidelines, localized CO concentrations should be estimated for projects in which (a) project-generated traffic would conflict with an applicable congestion management program established by the county congestion management agency or (b) project generated traffic would increase traffic volumes at affected intersections to more than 44,000 vehicles per hour (or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited, such as tunnels, parking garages, bridge underpasses, natural or urban street canyons, and below-grade roadways).

Intersections affected by the project would have cumulative traffic volumes less than the BAAQMD screening criteria and, thus, would not cause a violation of an ambient

TABLE V.D-7 DAILY AIR POLLUTANT EMISSIONS FROM OPERATION OF THE PROJECT (POUNDS/DAY)

Scenario	ROG	NOx	PM_{10}	$PM_{2.5}$
Proposed Project	43	33	24	7.0
Daily Emission Thresholds	*54*	*54*	*82*	*54*
Exceed Thresholds?	**No**	**No**	**No**	**No**

Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 µm or less, and $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5 µm or less.
Source: ENVIRON, 2014 (see Appendix D2).

TABLE V.D-8 ANNUAL AIR POLLUTANT EMISSIONS FROM OPERATION OF THE PROJECT (TONS/YEAR)

Scenario	ROG	NOx	PM_{10}	$PM_{2.5}$
Proposed Project	7.9	6.0	4.4	1.3
Annual Emission Thresholds	*10*	*10*	*15*	*10*
Exceed Thresholds?	**No**	**No**	**No**	**No**

Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 µm or less, and $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5 µm or less.
Source: ENVIRON, 2014 (see Appendix D2).

air quality standard or have a considerable contribution to cumulative violations of these standards.[41]

Toxic Air Contaminants Project and Cumulative Health

The potential increase on individual and cumulative exposure of sensitive receptors to TACs that could result from the project are described below. Both mobile (project-generated traffic) and stationary sources associated with project operation could increase exposure to TACs for off-site receptors. For this case, the project impacts are compared to individual source thresholds and the project, in conjunction with cumulative sources, are evaluated against the cumulative thresholds to determine whether the project contributes to an already high exposure area. In addition, the establishment of on-site sensitive receptors (children at a potential daycare) is evaluated to determine if siting at the project would cause an unacceptable exposure to TACs. For the on-site receptor case, the project impacts and adjacent off-site

[41] Bay Area Air Quality Management District (BAAQMD), 2010b. *CEQA Guidelines,* May. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/Draft_BAAQMD_CEQA_Guidelines_May_2010_Final.ashx?la=en, accessed December 15 2014.

sources are compared individually to the individual source thresholds and combined to the cumulative source thresholds.

Project Impacts

- **Roadways.** The weekday trip generation rates provided by Fehr & Peers indicate that the total trips from/to the project site are 6,033 trips a day, below the BAAQMD screening level of 10,000 trips a day. Therefore the impact related to TACs from the project-generated traffic would be minimal and less than significant.
- **Stationary Sources.** One or more diesel emergency generators (EGs) may be in use on to the project site to power elevators and other emergency systems during emergency situations. Since the horsepower and locations of the EGs is not yet determined, a screening approach was used to conservatively determine the maximum allowable horsepower for the emergency generators that would maintain the incremental cancer risk from testing of the generators below the BAAQMD threshold of 10 in 1 million. Scenarios for annual testing of 50 hours per year or 20 hours per year, and scenarios for engines meeting emissions standards for Tier 2, Tier 3, Tier 3 with DPFs, or Tier 4 were evaluated. The resulting maximum allowable total horsepower for the emergency generators for each scenario are shown in Table V.D-9. Emission factors for each combination of Tier level and annual testing time were converted to unit factors in grams/second-hp. The SCREEN3 air dispersion screening model was used to determine emissions factors in grams/second that would maintain incremental cancer risk below the BAAQMD threshold, from which the maximum allowable horsepower for each scenario was determined. Health risks associated with the screening concentrations were calculated using the same assumptions as described in the health risk section. The emissions calculations, SCREEN3 model runs, and the risk calculations to determine the allowable horsepower are included in *Appendix D3*, *Air Quality Supporting Documentation, Tables, and Attachments*. Impacts on both on-site and off-site receptors were evaluated, and the minimum horsepower allowable for either case was chosen. The one or more emergency generators will be selected such that the total horsepower is below the maximum allowable values shown below. Health risks related to emergency generator testing would consequently be below District thresholds.

Cumulative

Health impacts from existing sources of TACs within 1,000 feet of the project were evaluated together with the project-generated impacts in order to assess the cumulative health impacts of the project and existing sources. Existing TAC sources include emissions from non-project vehicles traveling on local streets and highways and non-project stationary source emissions.

TABLE V.D-9 MAXIMUM EMERGENCY GENERATOR HORSEPOWER BASED ON SCREENING ANALYSIS

	Maximum Total Horsepower Allowed		
Testing Hours per Year	**Tier 2 or Tier 3**	**Tier 2 or Tier 3, plus DPF**	**Tier 4 Interim or Final**
50 hours	211	1,404	2,107
20 hours	527	3,511	5,267

Notes: Emission factors used assume engines between 175 and 750 hp. "Rural" setting was used for the Screen3 model. It is assumed that EG testing will occur during daylight hours, when wind blows over water towards the project site and the rural designation is applicable and conservative.
Source: ENVIRON, 2014 (see Appendix D3 Attachment B).

- **Roadways.** The two local roadways evaluated in the project Transportation Impact Study within 1,000 feet of the project boundary are East 3rd Avenue and E. Hillsdale Boulevard. East 3rd Avenue is projected to have cumulative plus project traffic volumes of just over 10,000 average annual daily traffic (AADT). However, this roadway is beyond 1,000 feet from the project off-site maximally exposed individual sensitive receptor (MEISR) determined from the project construction HRA as described below. Using the BAAQMD screening table for local roadways, the exposure from this roadway at the off-site MEISR is 0.33 in 1 million for cancer risk, and 0 µg/m^3 for $PM_{2.5}$ concentration.[42] However, E. Hillsdale Boulevard is projected to have cumulative plus project traffic volume of almost 20,000 AADT.

  Using the BAAQMD screening table for local roadways, the exposure from this roadway at the off-site MEISR, 50 feet from the roadway, is 4.78 in 1 million for cancer risk, 0.166 µg/m^3 for $PM_{2.5}$ concentration, and 0.02 for chronic hazard index.

- **Freeways** The CA State Route 92 (SR 92) highway runs next to the project site. This highway's impact on the project off-site MEISR was evaluated using the BAAQMD's Highway Screening Analysis Tool and based on the shortest distance between the project site and the off-site MEISR.[43] The impact of the freeway would be 18 in 1 million for cancer risk, 0.02 for chronic hazard index and 0.14 µg/m^3 for $PM_{2.5}$ concentration.
- **Stationary Sources.** The BAAQMD's Google Earth Screening Tool provides locations of stationary sources of TACs as well as screening level exposures that do not account for the distance between the project site and the source. The San Mateo

[42] Bay Area Air Quality Management District (BAAQMD), 2011b. Roadway Screening Analysis Tables, updated May.

[43] Bay Area Air Quality Management District (BAAQMD), 2011a. *Highway Screening Analysis Tool*, April.

County tool was used to identify the six sources within 1,000 feet of the project site. An inquiry was sent to BAAQMD to obtain additional information for three sources, which were missing data needed for this analysis. After eliminating one source that was formerly on the project site and is no longer in operation, five sources remained. The risks, chronic HI and $PM_{2.5}$ concentrations of these included sources were either reported by the BAAQMD, scaled using distance multipliers, or calculated using the BAAQMD-provided calculator. The results are included in Table V.D-10.

Table V.D-10 shows the results of the cumulative analysis for the off-site MEISR. The table includes the operational emissions from the project as well as the construction phase TAC emissions. Details of the construction TAC analysis are described in the Construction TAC Pollutant Health Impacts section below. The project would not result in a significant cumulative risk impact at the off-site MEISR because the cumulative cancer risk, $PM_{2.5}$ concentration and chronic hazard index are all below the cumulative thresholds. As a result, the cumulative impacts of the project on off-site receptors would be less than significant.

Toxic Air Contaminant Impacts on the Project

When siting new sensitive receptors, BAAQMD recommends that impacts on the project from existing TAC sources located within 1,000-foot zone of influence be considered. These sources include, but are not limited to, stationary sources, freeways, major roadways (10,000 or greater AADT), truck distribution centers, ports, and rail lines. For this project, the new sensitive receptor is the potential Daycare Center, which was conservatively assumed to serve children between 6 weeks and 6 years old.

As described above, the proposed project could place a new daycare near two surface streets with traffic volume of larger than 10,000 AADT, a freeway, and six stationary sources. The methodology used to estimate cumulative impact for the off-site MEISR and described above was also used to estimate cumulative impact for on-site MEISR. The minimum distance between the daycare child and the E. Hillsdale Blvd. was adjusted to be 500 feet. In addition, the risks obtained from the Highway Screening Analysis Tool and for the existing stationary source 14271 for a 70-year resident were scaled down to reflect exposure level of a daycare child.

Table V.D-11 shows the results of the cumulative analysis for on-site MEISR. The table includes the operational emissions from the project as well as the construction phase TAC emissions. Details of the construction TAC analysis are described in the Construction TAC Pollutant Health Impacts section below. The table also includes impacts from the non-project cumulative sources, which were evaluated independently against individual source thresholds and together against the cumulative source threshold. None of the sources individually exceed the individual source thresholds

TABLE V.D-10 CUMULATIVE RISK FOR OFF-SITE MEISR

Type	Source	Source ID	Lifetime Excess Cancer Risk (per million)	Chronic Hazard Index (unit-less)	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Project	Construction (Mitigated)	N/A	3.7	0.008	0.04
	Operation	N/A	<10	<0.004	<0.02
Stationary Sources	City of Foster City	14271	5.1	0.002	0.009
	Foster City Corp Yard	G9634	0.012	0.00001	0
	City of Foster City	14274	1.5	0.0005	0.0004
	Zouves Fertility Center	19393	8.8	0.0031	0.028
	City of Foster City	14773	4.3	0.002	0.008
	City of Foster City	14277	2.4	0.001	0.001
	Total		**22.1**	**0.01**	**0.05**
Surface Street	E. Hillsdale Blvd	N/A	4.78	0.02	0.166
	East 3rd Avenue	N/A	0.33	0	0
Freeway	SR 92	N/A	18	0.02	0.14
	Cumulative Total		**59**	**0.1**	**0.4**
	Cumulative Significance Thresholds		***100***	***10***	***0.8***
	Exceed Thresholds?		**No**	**No**	**No**

Note: MEISR = Maximally Exposed Individual Sensitive Receptor, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5 µm or less.
Source: BAAQMD, 2014. Tools & Methodology. Available at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

for on-site MEISR. Additionally, the cumulative cancer risk, $PM_{2.5}$ concentration and chronic hazard index are all below the cumulative thresholds. As a result, impacts of siting new sensitive receptors at the project would be less than significant both individually and cumulatively.

While a single phase construction scenario (i.e., on-site receptors are occupied only after the construction is completed) was evaluated in the assessment of mass emissions thresholds and health impacts as a worst-case (generating the most emissions in the shortest period of time), a phased construction scenario was also considered, in order to evaluate the potential exposure of daycare children to construction related TACs. If the project is constructed in phases and the daycare is completed and in use prior to completion of the last phase, the children at the daycare could be exposed to impacts from construction of later phases of the project.

TABLE V.D-11 CUMULATIVE RISK FOR ON-SITE MEISR

Type	Source	Source ID	Lifetime Excess Cancer Risk (per million)	Chronic Hazard Index (unit-less)	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Project	Construction (Mitigated)	N/A	<10	<1	<0.3
	Operation	N/A	<10	<0.004	<0.02
Stationary Sources	City of Foster City	14271	9.7	0.03	0.062
	Foster City Corp Yard	G9634	0.36	0.0004	0
	City of Foster City	14274	1.5	0.0005	0.0004
	Zouves Fertility Center	19393	8.8	0.0031	0.028
	City of Foster City	14773	6.7	0.0024	0.012
	City of Foster City	14277	4.3	0.0015	0.001
	Total		**31.3**	**0.04**	**0.10**
Surface Street	E. Hillsdale Blvd	N/A	1.04	0.02	0.022
	East 3rd Avenue	N/A	0.33	0	0
Freeway	SR 92	N/A	5.5	0.01	0.09
	Cumulative Total		**48**	**0.1**	**0.2**
	Cumulative Significance Thresholds		***100***	***10***	***0.8***
	Exceed Thresholds?		**No**	**No**	**No**

Note: MEISR = Maximally Exposed Individual Sensitive Receptor, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5 µm or less. Mitigated construction impacts are assumed to be less that the individual source thresholds with implementation of Mitigation Measure AIR-2.
Source: BAAQMD, 2014. Tools and Methodology. Available at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

This scenario is discussed in the Construction TAC Pollutant Health Impacts section below. For this cumulative analysis, it is assumed that impacts from the construction of Project phases occurring after the daycare is in use would be below the thresholds for impacts from individual TAC sources, with implementation of Mitigation Measure AIR-2.

c. Significant Air Quality Impacts and Mitigation Measures

Implementation of the proposed project would result in the following significant air quality impacts.

(1) Construction Period Impacts

Project construction would generate air emissions through the use of heavy-duty construction equipment, from vehicle trips hauling materials, and from construction workers and vendors traveling to and from the project site. Mobile source emissions, primarily NOx, would be generated from the use of construction equipment such as excavators, bulldozers, wheeled loaders, and cranes. During the architectural coating and paving phases, paving operations and the application of asphalt, architectural coatings (i.e., paints) and other building materials would release ROG. The assessment of construction air quality impacts considers each of these sources, and recognizes that construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and the prevailing weather conditions.

Emission Standards

Criteria Air Pollutants

Criteria pollutant emissions from construction of the project were calculated using CalEEMod®. Project specific construction schedule, equipment list, and vehicle trip data was used when known. In cases where project-specific data was not available, default data provided by CalEEMod® were used. Default data (e.g., emission factors, trip lengths, vehicle fleet mix, etc.) have been provided by the various California air districts to account for local requirements and conditions.

Construction of the project was assumed to occur over an approximately 12-month period beginning January 1, 2016 with completion on December 15, 2016.[44] This period would include non-consecutive phases of approximately 2 months of site preparation and grading, 8.5 months of building construction, 5 months of architectural coating, and 1 month of paving. No demolition of existing buildings is included in the project since the 280,000 square feet building previously located at the site has already been demolished.

Construction equipment operating schedules were provided by the project. The model default fleet mix was used for computing construction equipment exhaust emissions rates. In addition, ROG emissions from architectural coatings were calculated assuming 150 g/L for exterior coating and 100 g/L for interior coating to account for BAAQMD's Regulation 8, Rule 3 that applies to the volatile organic compound content of paints and solvents sold and used in the region.

CalEEMod® provided annual construction period emissions for the construction year. Table V.D-12 reports the average daily emissions that were computed by dividing the

[44] Evaluation of a single phase construction schedule in this assessment is conservative for daily mass emissions, since it results in a higher daily emission rate than an extended, multi-phase schedule.

TABLE V.D-12 UNMITIGATED CONSTRUCTION-PERIOD EMISSIONS, AVERAGE DAILY EMISSIONS (POUNDS PER DAY)

Description	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
2016 Annual Emissions in Tons	7.15	11.24	0.39	0.37
Average Daily Emissions in Pounds Per Day[a]	41	64	2.3	2.1
Daily Emission Thresholds	*54*	*54*	*82*	*54*
Exceed Threshold?	**No**	**Yes**	**No**	**No**

Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 µm or less, and $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5 µm or less.
[a] Emissions were averaged to 350 days (1/1/2016 – 12/15/2016).
Source: ENVIRON, 2014 (see Appendix D2).

total construction period emissions by the number of days between the start and end dates of construction.

Impact AIR-1: The project's average daily emissions of ROG, PM_{10} exhaust, or $PM_{2.5}$ exhaust during construction would not exceed the BAAQMD significance thresholds, but average daily emissions of NOx would exceed the BAAQMD significance thresholds resulting in a significant impact. (S)

Mitigation Measure AIR-1: The project will implement the following mitigation measure during construction:

- Idling time of off-road equipment will be less than 2 minutes; and
- Tier 3 engines will be used for three cranes during the building construction phase.
- As an alternative to the two measures above, the project shall achieve a performance standard of not exceeding the BAAQMD daily NOx emission threshold of 54 pounds per day, which shall be demonstrated to the satisfaction of the City by a qualified air quality consultant. Alternative means of achieving this Performance Standard include use of Tier 3 engines on different pieces of equipment; use of Tier 4 equipment; use of Level 3 selective catalytic reduction (SCR) on Tier 3 equipment; and use of alternative fuels (biodiesel/biofuel, hybrid-electric, and/or electrification). (LTS)

The emission reductions due to implementation of the first two bullet points of Mitigation Measure AIR-1 were quantified using CalEEMod® and are shown below in Table V.D-13. The resulting mitigated average daily emissions of NOx would not exceed the BAAQMD significance thresholds. Consequently, construction related emissions of criteria pollutants would be considered less-than-significant after mitigation.

TABLE V.D-13 MITIGATED CONSTRUCTION PERIOD EMISSIONS, AVERAGE DAILY EMISSIONS (POUNDS PER DAY)

Description	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
2016 Annual Emissions in Tons	7.00	8.72	0.204	0.192
Average Daily Emissions in Pounds Per Day[a]	40	50	1.2	1.1
Daily Emission Thresholds	*54*	*54*	*82*	*54*
Exceed Thresholds?	**No**	**No**	**No**	**No**

Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 µm or less, and $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5 µm or less.
[a] Emissions were averaged to 350 days (1/1/2016 – 12/15/2016).
Source: ENVIRON, 2014 see Appendix D2.

Construction Toxic Air Contaminants (TACs) Impacts on On-Site Receptors

A single phase condensed construction schedule has been assumed for evaluation of worst-case TAC emissions and health impacts to off-site receptors. While this is a conservative scenario in most cases, a phased schedule in which an on-site daycare is in use prior to completion of construction is the worst-case scenario for assessing individual and cumulative health impacts from the project on the on-site daycare. As stated in the applicant's original project description, the earliest the daycare would be operational would be after completion of Buildings B, C and D, parking structures PS-2 and PS-3, and site improvements. Only construction of Building A and parking structure PS-1 would occur after a daycare becomes operational.

Impact AIR-2: If the project is constructed in multiple phases and the daycare is anticipated to be in use prior to the completion of construction of the entire site, an HRA should be performed to determine the health impact of the remaining construction activities on the daycare children. (S)

Mitigation Measure AIR-2: In the case that the on-site daycare is in operation in advance of completion of construction of the project, the project shall achieve a performance standard of meeting the BAAQMD thresholds of 10 in a million for cancer risk, 1.0 for chronic or acute hazard index, and 0.3 µg/m^3 for $PM_{2.5}$ concentration. Depending upon the amount and location of construction remaining once the daycare opens, that threshold could be achieved with a reduction in emissions of roughly 30 percent on top of the mitigated emissions achieved with AIR-1. That reduction is achievable using a combination of the measures including Tier 3 engines, Tier 4 engines, Level 3 diesel particulate filter on Tier 3 equipment, alternative fuels such as biodiesel/biofuel, hybrid-electric, electrification, and/or MERV filters on the daycare. (LTS)

(2) Operation Period

No significant operation period air quality impacts would result from the proposed project.

d. Cumulative Air Quality Impacts

As discussed above, the project would have a less-than-significant impact on long-term air quality. Short-term construction-related impacts were identified along with SCOA 9.12 and appropriate measures to mitigate those impacts to less than significant. Under BAAQMD CEQA Guidelines, the contribution to a cumulative air quality impact for projects that have less-than-significant incremental impacts is not cumulatively considerable. Implementation of the proposed project would not make a cumulatively considerable contribution to a significant air quality impact.

E. GEOLOGY AND SOILS

This section describes the proposed project site's soil, geologic and seismic environment based on information obtained from: 1) a 2014 site-specific *Draft Geotechnical Investigation*[1] (Geotechnical Investigation); 2) geologic reports and maps by the United States Geological Survey (USGS), California Geological Survey (CGS), City of Foster City, and others, as available; and 3) a site reconnaissance conducted on December 10, 2014. This section also assesses potentially significant impacts from strong seismic ground shaking, differential settlement, seismic-related ground failure, and unstable or expansive soils. SCOAs for identified significant impacts are provided, where appropriate.

1. Setting

This section describes the existing soil, geologic and seismic conditions at the project site and vicinity. All information provided is based on the Geotechnical Investigation, unless otherwise noted.

a. Geologic Conditions

(1) Topography

The roughly 20-acre project site is located within an urbanized portion of central Foster City. The project site is covered by reinforced concrete floor slabs and foundations that once supported buildings, asphalt and concrete parking areas, driveways, and landscaped areas containing shrubs and trees. The project site gently slopes down to the north. The existing ground surface elevation ranges from approximately 4 to 7 feet above the National Geodetic Vertical Datum (NGVD) of 1929.[2,3] The project site is bordered on the west by a channel that is part of the man-made Foster City Lagoon. The Foster City levee and San Francisco Bay are located about 300 feet north of the project site.

(2) Regional and Site-Specific Geology

The project site is located within the Coast Ranges geomorphic province, a relatively geologically young and seismically-active region on the western margin of the North American plate.[4,5] The Coast Ranges extend from near the Oregon border, to the

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[1] Langan Treadwell Rollo, 2014. *Draft Geotechnical Investigation, Lincoln Centre Campus,* Foster City, California. No. 731622001, December 19.

[2] Ibid.

[3] The NGVD 1929 is a vertical control datum established to measure vertical positions or elevations based on mean sea level measurements circa 1929. For most purposes, NGVD is equivalent to mean sea level.

[4] California Geological Survey (CGS), 2002a. California Geomorphic Provinces, Note 36.

Transverse Ranges of southern California. The only break in the Coast Ranges is the depression containing the San Francisco Bay, where the project site is located. Based on USGS mapping of the San Francisco Bay region, the project site is underlain by man-made artificial fills that have been placed at the site over Bay Mud.[6,7,8]

The Geotechnical Investigation for the project site included the drilling of four soil borings and eight cone penetration tests. The results of the testing are consistent with the USGS regional mapping and indicate that the site subsurface consists of an upper layer of approximately 1 to 10 feet of fill material, underlain by a 34.5- to 39-foot-thick layer of weak, compressible, soft to very soft Bay Mud, which in turn is underlain by an 82- to 105-foot-thick layer of stiff to hard clays. Intermittent medium dense to dense silty sand to clayey sand/sand lenses were encountered throughout the stiff to hard clays. Groundwater was measured at depths of 3 to 4.5 feet below ground surface (bgs). The Geotechnical Investigation notes that there was a former slough near the western side of the site that was backfilled with soft, silty clay at the time that the Foster City Lagoon was constructed. The slough was about 58 feet wide and extended about 12 to 13 feet below the existing ground surface.

(3) Soils

The project site and surrounding areas were originally part of tidal marshlands. By 1897, several thousand acres of the tidal marshlands were diked and drained to form an area known as Brewer's Island.[9] Brewer's Island was the precursor of Foster City. As part of the preparation for development of Foster City as a planned community in the late 1950s, approximately 14 million cubic yards of sandy silt were pumped in from San Bruno Shoal to provide 4 to 5 feet of fill throughout the area of Foster City.

Regional soil mapping indicates that the project site is located within an area classified as: Urban land-Orthents, reclaimed complex, 0 to 2 percent slopes.[10] This

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[5] Norris, Robert M. and Robert W. Webb, 1976. *Geology of California,* 2nd Edition, J. Wiley & Sons, Inc.

[6] Bay Mud is formed by the distribution of silt and clay throughout San Francisco Bay by estuarine currents. The silt and clay settles to the bottom during slack water periods and forms the fine-grained, water-saturated deposit called "Bay Mud". Bay Mud has low permeability and is generally rated high for shrink-swell, differential settlement, and liquefaction potential.

[7] United States Geological Survey (USGS), 1983. *Geologic Map of San Mateo County,* USGS Misc. Investigation I-1257-A.

[8] United States Geological Survey (USGS), 1979. *Flatlands Deposits of the San Francisco Bay Region,* California, USGS Professional Paper 943. Jointly by DOI, HUD, USGS.

[9] City of Foster City, 2014e. The Creation of Foster City. http://www.fostercity.org/ourcommunity/Creation-of-Foster-City-Part-1.cfm, accessed December 5.

[10] Natural Resources Conservation Service (NRCS), 2014. Web Soil Survey, USDA Mapping. http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm, accessed December 8.

soil unit consists of about 65 percent urban land, 30 percent Orthents, reclaimed, and 5 percent minor soil components and water bodies.[11] Areas designated as "urban land" have essentially no soil and are covered by streets, parking lots, buildings, and other structures, while Orthents, reclaimed, are soils that show no soil horizon development and consist of fill material and Bay Mud.[12]

b. Seismic Conditions

The entire San Francisco Bay Area is located within the San Andreas Fault Zone, a complex of active faults (i.e., to have evidence of fault rupture in the past 11,000 years) forming the boundary between the North American Plate and Pacific Plate. Movement of the plates relative to one another result in the accumulation of strain along the faults, which is released during earthquakes. Numerous historic earthquakes have been generated in northern California by the San Andreas Fault Zone. This level of active seismicity results in relatively high seismic risk in the San Francisco Bay Area. Regional active faults in the San Francisco Bay Area are shown on Figure V.E-1.[13]

In a fact sheet published in 2008, the USGS estimated that there was a 21 percent probability that between 2008 and 2037, a 6.7 or greater magnitude (M_w, or Moment Magnitude)[14] earthquake will occur along the Northern segment of the San Andreas Fault.[15] The probability of an Mw 6.7 or greater earthquake occurring along other local active faults was estimated to be 31 percent along the Hayward-Rodgers Creek Fault, and seven percent along the Calaveras Fault.[16]

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[11] Natural Resources Conservation Service (NRCS), 2014. Web Soil Survey, USDA Mapping. http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm, accessed December 8.

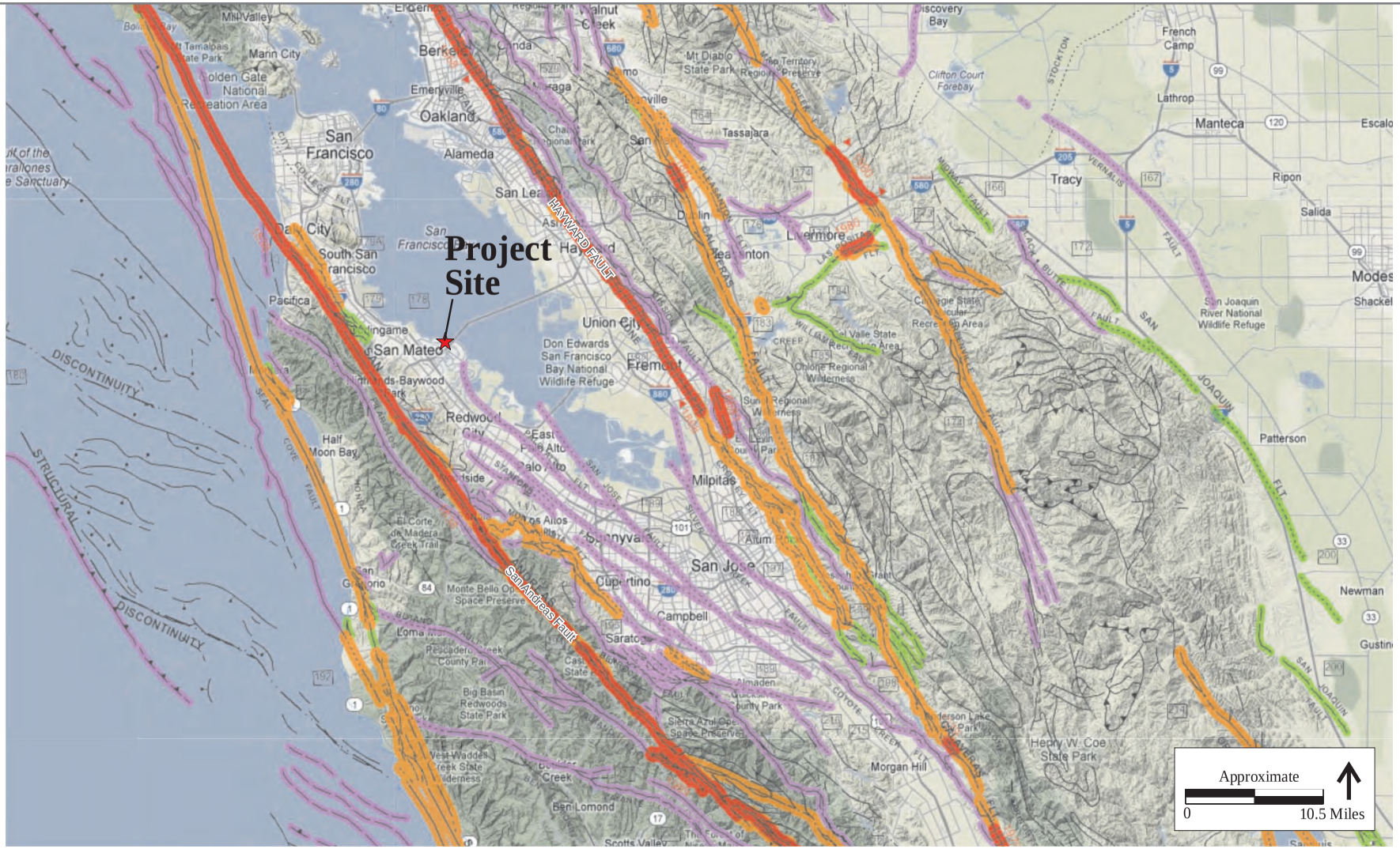
[12] Soil Conservation Service (SCS), 1991. *Soil Survey of San Mateo County, Eastern Part, and San Francisco County, California.*

[13] California Geological Survey (CGS), 2010. *2010 Fault Activity Map of California,* Geologic Data Map No. 6. http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html, accessed December 8, 2014.

[14] Moment magnitude (M_w) is now commonly used to characterize seismic events as opposed to Richter Magnitude. Moment magnitude is determined from the physical size (area) of the rupture of the fault plane, the amount of horizontal and/or vertical displacement along the fault plane, and the resistance to rupture of the rock type along the fault.

[15] United States Geological Survey (USGS), 2008. *Forecasting California's Earthquakes – What Can We Expect in the Next 30 Years,* USGS Fact Sheet 2008-3027.

[16] United States Geological Survey (USGS), 2008. *Forecasting California's Earthquakes – What Can We Expect in the Next 30 Years,* USGS Fact Sheet 2008-3027.



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Source: California Geological Survey, 2010; BASELINE Environmental Consulting 2014; Urban Planning Partners, 2015

Figure V.E-1
Lincoln Centre Life Sciences Research Campus Project EIR
Regional Faults

c. Seismic, Soils, and Geologic Hazards

Seismic, soils, and geologic hazards include surface rupture, ground shaking, liquefaction, lateral spreading, landslides, settlement and differential settlement, and expansive and corrosive soils. Each of these hazards is discussed below.

(1) Surface Rupture

Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. Surface rupture generally can be assumed to occur along an active or potentially active major fault trace. The project site is not located within an area mapped as subject to surface rupture under the Alquist-Priolo Earthquake Fault Zoning Act, and no known active or potentially active faults cross the site.[17, 18, 19] The nearest Alquist-Priolo Earthquake Fault Zone is the San Andreas Fault, located about 6 miles southwest of the project site (Figure V.E-1).[20]

(2) Ground Shaking

Ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake, and is normally the major cause of damage in seismic events. The extent of ground shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. The Modified Mercalli Intensity Scale (MMI) is the most commonly used scale for measurement of the subjective effects of earthquake intensity (Table V.E-1). As described above, the closest active fault to the proposed project is the San Andreas Fault, located approximately 6 miles to the southwest. The San Andreas Fault is considered capable of generating an M_w 7.9 earthquake (similar to the 1906 San

[17] California Department of Conservation (CDC), 1974. State of California Special Studies Zones, San Mateo Quadrangle Map [Alquist-Priolo Map]. Available at: http://www.quake.ca.gov/gmaps/WH/regulatorymaps.htm.

[18] California Geological Survey (CGS), 2010. *2010 Fault Activity Map of California,* Geologic Data Map No. 6. http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html, accessed December 8, 2014,

[19] City of Foster City, 1995. *General Plan – Ch. 7 Safety Element,* adopted October. Available at:http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/General-Plan.cfm.

[20] California Department of Conservation (CDC), 1974. State of California Special Studies Zones, San Mateo Quadrangle Map [Alquist-Priolo Map]. Available at: http://www.quake.ca.gov/gmaps/WH/regulatorymaps.htm.

TABLE V.E-1 MODIFIED MERCALLI SCALE

I	Not felt except by a very few under especially favorable circumstances.
II	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
III	Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration like passing of truck. Duration estimated.
IV	During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
VII	Everybody runs outdoors. Damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Board fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted.

Source: California Geological Survey (CGS), 2002. *How Earthquakes and Their Effects are Measured*, Note 32.

Francisco quake).[21] An earthquake of this magnitude on the San Andreas Fault would generate violent (MMI IX) ground shaking at the proposed project site.[22] The project site also has the potential to be subject to strong (MMI VII) to very strong (MMI VIII) ground shaking generated by an earthquake on the Calaveras Fault, Concord-Green Valley Fault, Greenville Fault, Hayward Fault, Mount Diablo Thrust Fault, or San Gregorio Fault.

(3) Liquefaction and Lateral Spreading

Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state as a result of seismic ground shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement or ground failure to occur. Since saturated soils are a necessary condition for liquefaction, soil layers in areas where the groundwater table is near the surface have higher liquefaction potential than those in which the water table is located at greater depths. Lateral spreading is a form of horizontal displacement of soil toward an open channel or other "free" face, such as an excavation boundary. In a lateral spread failure, a layer of ground at the surface is carried on an underlying layer of liquefied material over a nearly flat surface toward a river channel or other bank.[23] The lateral spreading hazard will tend to mirror the liquefaction hazard for a site.

Regional studies by the USGS for the Bay Area provide information on Quaternary deposits and liquefaction susceptibility in the area.[24] Based on these regional studies, the Association of Bay Area Governments (ABAG) mapping indicates that the site's liquefaction hazard (susceptibility combined with likelihood) is moderate to very high.[25] Regional studies can help provide guidance for general planning and hazard potential assessment; however, site-specific studies are needed to assess the design and engineering requirements for any particular site. The site-specific Geotechnical Investigation found that the project site is underlain by medium dense to dense sandy soils and soft to hard clays. Based on the density of these subsurface deposits, the

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[21] Association of Bay Area Governments (ABAG), 2008. *Shaking Scenarios.* http://resilience.abag.ca.gov/earthquakes/sanmateo/, accessed December 8, 2014.

[22] Ibid.

[23] Association of Bay Area Governments (ABAG), 2001. *The REAL Dirt on Liquefaction, A Guide to the Liquefaction Hazard in Future Earthquakes Affecting the San Francisco Bay Area,* February.

[24] United States Geological Survey (USGS), 2006. Maps of Quaternary Deposits and Liquefaction Susceptibility in the Central San Francisco Bay Region. Available at: http://pubs.usgs.gov/of/2006/1037/.

[25] Association of Bay Area Governments (ABAG), 2006. Liquefaction Susceptibility. http://resilience.abag.ca.gov/earthquakes/, accessed December 8, 2014.

Geotechnical Investigation predicts that the potential for liquefaction and lateral spreading is low at the project site.

(4) Landslides

Slope failure can occur as either rapid movement of large masses of soil (landslide) or slow, continuous movement (creep). The project site and vicinity are gently sloped and therefore not subject to landslides or other slope stability hazards.

(5) Settlement and Differential Settlement

Settlement is the lowering of the land-surface elevation as a result of the development of a site. Settlement or differential (e.g., unequal) settlement could occur if buildings or other improvements are built on low-strength foundation materials (including imported non-engineered fill) or if improvements straddle the boundary between different types of subsurface materials (e.g., a boundary between native material (Bay Mud), buried sloughs or levees, older un-engineered fill and/or new engineered fill). Although settlement generally occurs slowly enough that its effects are not dangerous to inhabitants, it can cause significant building damage over time. The Geotechnical Investigation indicates that the construction of the proposed structures using a shallow foundation system would result in large settlement and differential settlement because of the highly compressible 34½- to 39-foot-thick Bay Mud layer underlying the project site. To provide the necessary foundation support for the proposed structures, the Geotechnical Investigation recommends a deep foundation system that derives support in the stiff to hard clays and medium dense to dense silty to clayey sand lenses that are present beneath the Bay Mud. Additionally, the Geotechnical Investigation notes that the proposed placement of 0.5 to 5 feet of new fill across the project site would cause settlement and differential settlement.

(6) Expansive and Corrosive Soils

Expansion and contraction of soil volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. As a consequence of such volume changes, structural damage to buildings and infrastructure may occur if potentially expansive soils are not considered in project design and during construction. The Geotechnical Investigation notes that surface materials at the site consist of up to 11 feet of man-made fill and that the fill is not expansive.

Corrosivity is a function of the chemical composition of the soils, and the materials from which it is derived. If not addressed by design measures and proper selection of building materials, corrosive soils could cause substantial damage to building foundations, pavements, utilities, and/or other improvements. As part of the Geotechnical Investigation, one soil sample was collected from fill and one soil sample was collected from Bay Mud. The laboratory analysis of the samples found that the fill is corrosive and that the Bay Mud is severely corrosive.

d. Regulatory Setting

A description of State and local regulations related to geology and soils and relevant to the proposed project are described below.

(1) California Building Code

The 2013 California Building Code (CBC), which refers to Part 2 of the California Building Standards Code in Title 24 of the California Code of Regulations, is based on the 2012 International Building Code, and is the most current state building code. The 2013 CBC covers grading and other geotechnical issues, building specifications, and non-building structures. Foster City follows the most current state building codes.[26] Foster City's Building Department is responsible for reviewing plans, issuing building permits and conducting field inspections.

The 2013 CBC requires that a site-specific geotechnical investigation report be prepared by a licensed professional for proposed developments of one or more buildings greater than 4,000 square feet to evaluate geologic and seismic hazards. The purpose of a site-specific geotechnical investigation is to identify seismic and geologic conditions that require project mitigation, such as ground shaking, liquefaction, or soil stability. Requirements for the geotechnical investigation are presented in Chapter 16 "Structural Design" and Chapter 18 "Soils and Foundation" of the 2013 CBC. Foster City's Building Department is required to review geotechnical investigations prior to issuance of building permits.

(2) Alquist-Priolo Earthquake Fault Zoning Act (A-PEFZA)

Surface rupture is the most easily avoided seismic hazard. The Alquist-Priolo Earthquake Fault Zoning Act was passed in December 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The Alquist-Priolo Earthquake Fault Zoning Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. As discussed in Section E.1.c, Seismic and Geologic Hazards, above, the project site is not located within an Alquist-Priolo Earthquake Fault Zone.

(3) Seismic Hazards Mapping Act

In 1990, following the Loma Prieta earthquake, the California Legislature enacted the Seismic Hazards Mapping Act to protect the public from the effects of strong ground shaking, liquefaction, landslides and other seismic hazards. The Seismic Hazards Mapping Act established a state-wide mapping program to identify areas subject to violent shaking and ground failure; the program is intended to assist cities and

[26] City of Foster City Municipal Code, Chapter 1.01, Code Adoption, and Chapter 15.04, Building Code.

counties in protecting public health and safety. The Seismic Hazards Mapping Act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. As a result, the CGS is mapping Seismic Hazards Mapping Act Zones and has completed seismic hazard mapping for the portions of California most susceptible to liquefaction, ground shaking, and landslides; primarily the San Francisco Bay area and Los Angeles basin. Before a development permit is granted for a site within a seismic hazard zone, a geotechnical investigation of the site must be conducted and appropriate SCOAs incorporated into the project design. At the time of the preparation of this EIR, the area of the project has not yet been mapped by the CGS in conformance with the SHMA, although mapping is reportedly in progress.[27]

(4) City of Foster City

The Foster City Municipal Code and the Estero Municipal Improvement District (EMID) Code are a compilation of Foster City's and EMID's applicable ordinances (rules, regulations or standards). They are the City and EMID's primary codes. Secondary codes include any other codes adopted by reference (e.g., the 2013 CBC). Applicable geologic and seismic safety regulations in the City's General Plan and in the Municipal Code are described below.

General Plan (1995)

The following goals, policies, and programs from the Foster City General Plan Safety Element related to seismic and geologic hazards pertain to the proposed project.

- *Goal S-A: Protect From Seismic and Geologic Hazards.* Protect the community from unreasonable risk to life and property caused by seismic and geologic hazards.
- *Policy S-1: Use Most Current Uniform Codes.* The City will use the most current uniform codes to review permits for new and modified structures.
- *Program S-a: Geotechnical and Engineering Reports.* The City (Building Inspection Division) will require site specific geotechnical and engineering reports for new structures.

Municipal Code Ordinances: Title 15 -- Buildings and Construction

- *Chapter 15.04 Building Code.* Title 15 of the Foster City Municipal Code includes amendments to the 2013 California Building Code that may affect the proposed project. These changes are detailed under individual chapters beginning with 1 5.04.010 of the Foster City Municipal Code.[28]

[27] California Geological Survey (CGS), 2014. Seismic Hazards Zonation Program. http://www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx, accessed December 12, 2014.

[28] City of Foster City Municipal Code, Chapter 15.04, Building Code.

Foster City Standard Conditions of Approval

Foster City has adopted SCOAs for large new and redevelopment projects. The following SCOAs related to geology and soils would apply to the proposed project.

- **SCOA 2.2:** Three (3) sets of a site specific, design level, fault zone geotechnical report satisfactory to the Chief Building Official, including one electronic or pdf version, shall be submitted for review and approval to the Building Division and contain design recommendations for grading, footings, retaining walls, and provisions for anticipated differential settlement for each construction site within the project area. Specifically:
  - Each investigation shall include an analysis of expected ground motions at the site identified faults. The analysis shall be in accordance with applicable City ordinances and policies, and consistent with the most recent version of the California Building Code, which requires structural design that can accommodate ground accelerations expected from identified faults. The analysis presented in the geotechnical investigation report shall provide recommendations to minimize seismic damage to structures from total and differential settlements and to protect steel and concrete (and any other material that may be placed in the subsurface) from long-term deterioration caused by contact with corrosive on-site soils. All design measures, recommendations, design criteria, and specifications set forth in the final geotechnical investigation report shall be implemented.
  - The investigations shall determine final design parameters for the walls, foundations, foundation slabs, surrounding related improvements, and infrastructure (utilities, roadways, parking lots and sidewalks).
  - The investigations shall be reviewed and approved by a registered geotechnical engineer. All recommendations by the project engineer, geotechnical engineer, shall be included in the final design, as approved by the City of Foster City.
  - The geotechnical report shall include a map prepared by a land surveyor or civil engineer that shows all field work and location of the "No Build" zone. The map shall include a statement that the locations and limitations of the geologic features are accurate representations of said features as they exist on the ground, were placed on this map by the surveyor, the civil engineer or under their supervision, and are accurate to the best of their knowledge.
  - The geotechnical report for the project shall include evaluation of fixtures, furnishings, and fasteners with the intent of minimizing collateral injuries to building occupants from falling fixtures or furnishings during the course of a violent seismic event. Recommendations that are applicable to foundation design, earthwork, and site preparation that were prepared prior to or during the projects design phase, shall be incorporated in the project.
  - Final seismic considerations for the site shall be submitted to and approved by the Building Division prior to commencement of the project.
  - If deemed necessary by the Chief Building Official, a peer review may be required for the geotechnical report. Personnel reviewing the geologic report shall approve the report, reject it, or withhold approval pending the submission by the applicant

or subdivider of further geologic and engineering studies to more adequately define active fault traces.

- A licensed geotechnical engineer or their representatives shall be retained to provide geotechnical observation and testing during all earthwork and foundation construction activities. The geotechnical engineer shall be allowed to evaluate any conditions differing from those encountered during the geotechnical investigation and shall provide supplemental recommendations, as necessary. At the end of construction, the geotechnical engineer shall provide a letter regarding contractor compliance with project plans and specifications and with the recommendations of the final geotechnical investigation report and any supplemental recommendations issued during construction. The letter shall be submitted for review to the Building Division.

- The final geotechnical investigation report shall provide recommendations to minimize the potential damage to structures from total and differential settlement and to protect steel and concrete (and any other material that may be placed in the subsurface) from long-term deterioration caused by contact with corrosive on-site soils. All design measures, recommendations, design criteria, and specifications set forth in the final geotechnical investigation report shall be implemented.
- **SCOA 5.3:** Due to potential differential settlement, flexible connections shall be provided for gas, electric, sewer, water and other utilities. Hinged, reinforced slabs shall be provided at transitions from building to sidewalks, walkways and driveways.

2. Impacts and Standard Conditions of Approval

Impacts related to geology and soils that could result from implementation of the proposed project are described below. This section begins with criteria of significance, identifies less than significant impacts, and then describes potentially significant geotechnical impacts/hazards associated with the proposed project. SCOAs are recommended to reduce significant impacts to a less-than-significant level.

a. Criteria of Significance

The project would have a significant geology and soils impact if it would:

- Expose people or structures to substantial risk of loss, injury, or death involving:
- Rupture of a known active or potentially active 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;
- Strong seismic ground shaking;
- Seismic-related ground failure, including liquefaction; or
- Landslides.

- Result in substantial soil erosion or loss of topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in an on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
- Be located on expansive soils (as defined in Table 18-1-B of the 1994 Uniform Building Code) or corrosive soils, which could cause substantial risks to life or property, including damage to building foundations, pavements, utilities, and/or other improvements.
- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State.
- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

These criteria are adapted from the *CEQA Guidelines* Environmental Checklist. A criterion regarding septic tanks and alternative wastewater disposal systems is not included since the project would be served by a municipal wastewater system.

b. Less-Than-Significant Geology and Soils Impacts

The most recent Alquist-Priolo Earthquake Fault Zoning maps indicate that the nearest active fault to the project site is the San Andreas Fault, approximately 6 miles to the southwest. Additionally, no known active or potentially active faults cross the site.[29,30,31] The proposed project would therefore not be expected to be affected by rupture of a known active fault.

All structures in the Bay Area could be affected by ground shaking in the event of an earthquake on regional active faults. As a result, project occupants would be subject to seismic shaking hazards. The amount of ground shaking depends on the magnitude of the earthquake, the distance from the epicenter, and the type of earth materials between the receptor and the epicenter. Strong to violent ground shaking is

[29] California Department of Conservation (CDC), 1974. State of California Special Studies Zones, San Mateo Quadrangle Map [Alquist-Priolo Map]. Available at: http://www.quake.ca.gov/gmaps/WH/regulatorymaps.htm.

[30] California Geological Survey (CGS), 2010. *2010 Fault Activity Map of California,* Geologic Data Map No. 6. http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html, accessed December 8, 2014.

[31] City of Foster City, 1995. *General Plan, Ch. 7, Safety Element*, adopted October. Available at:http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/General-Plan.cfm.

expected at the proposed project during predicted earthquakes on the San Andreas and other regional active faults. This level of seismic shaking could cause considerable damage to buildings at the site and could result in injuries to building occupants. However, these impacts would be reduced by the implementation of SCOA 2.2. SCOA 2.2 requires a site-specific, design level, fault zone geotechnical report with recommendations to minimize seismic damage prior to the issuance of a building permit.

The Geotechnical Investigation found that subsurface materials at the site consist of medium dense to dense sandy soils and soft to hard clays, and consequently have a relatively low risk of liquefaction and lateral spreading. Therefore, the potential of liquefaction and lateral spreading to result in substantial risk to people and structures on the project site is less than significant. The Geotechnical Investigation also found that the site fill is not expansive. Therefore, the potential for expansive soils to result in substantial risk to people and structures is less than significant.

Potential impacts from the loss of topsoil and soil erosion are discussed in *Section V.F, Hydrology and Water Quality*, of this EIR. Implementation of the proposed project would not be affected by slope instability as the project site and surrounding areas are gently sloped. Therefore, the risk of landslides at the project area is considered to be less than significant.

The Geotechnical Investigation notes that the man-made fill at the site is underlain by up to 39 feet of highly compressible Bay Mud. The introduction of new loads, such as additional fill, foundations, and buildings would therefore be expected to result in large total and differential settlement. Therefore, damage to structures or property could result from unstable or corrosive soils. Accordingly, the Geotechnical Investigation recommends the use of a deep pile foundation system and the incorporation or design and construction features to mitigate the effects of predicted settlement. Additionally, the Geotechnical Investigation found that the site fill is corrosive and the Bay Mud is extremely corrosive, and recommends the use of corrosion control measures, such as dielectric coated steel and cathodic protection, or the use of materials not subject to corrosion, to protect underground utilities and structures. Implementation of SCOAs 2.2 and 5.3 would reduce impacts to structures or property related to unstable and corrosive soils to a less-than-significant level.

The project site is located within an area classified as MRZ-1, “Areas where adequate information indicates that no significant mineral deposits are present, or where it is

judged that little likelihood exists for their presence."[32] Additionally, the project site is not identified in a planning document as being a locally-important mineral resource site. The project would therefore not result in the loss of, or hinder the availability of, a known mineral resource of value locally or to the region or state.

c. Significant Geology and Soils Impacts and Mitigation Measures

Implementation of the proposed project would not result in any geology or soils impacts; all impacts would be less than significant with implementation of the City's SCOAs as discussed above.

d. Cumulative Geology and Soils Impacts

The proposed project would not contribute considerably to any cumulative impacts related to geology. Development of the proposed project, in conjunction with other past, present, and reasonably foreseeable future development would increase the number of individuals that could be exposed to regional seismic risks in the seismically active San Francisco Bay Area. In addition, new structures could be built on areas of man-made fill, unstable soil, expansive soil and/or corrosive soil. However, these impacts are generally confined to specific development sites and are not expected to be significant once incorporation of required standard geotechnical SCOAs 2.2 and 5.3 have been implemented.

[32] California Department of Mines and Geology (CDMG), 1987, updated 1996. *Mineral Land Classification: Aggregate Minerals in the San Francisco-Monterey Bay Area,* California Department of Conservation.

F. GREENHOUSE GAS EMISSIONS

Over the past several years there has been a significant advancement in scientific understanding of the relationship between certain air emissions and trend-line changes in climatic conditions that have national and even global ramifications. New information about greenhouse gas (GHG) emissions and their potential effects on global climate change, as well as new public environmental policy has emerged and become more formalized. Guidance has been issued by the State regarding requirements for environmental review under California Environmental Quality Act (CEQA) for proposed projects related to GHG emissions and global climate change. CEQA requires that lead agencies consider the reasonably foreseeable adverse environmental effects of projects considered for approval. According to a letter from California's Office of the Attorney General and other State guidance, global climate change can be considered an "effect on the environment" and an individual project's incremental contribution to global climate change can have a cumulatively considerable impact.[1]

The Bay Area Air Quality Management District (BAAQMD) has adopted updated *CEQA Guidelines* which include thresholds of significance for levels of GHG emissions attributable to projects and plans.[2] The updated guidelines were challenged in the case *California Building Industry Association v. Bay Area Air Quality Management District*. On March 5 2012, the Alameda County Superior Court ruled that the BAAQMD's adoption of thresholds of significance was a "project" under CEQA, and ordered the BAAQMD to set aside the thresholds until it complied with CEQA requirements.[3] In view of this court order, the BAAQMD ceased recommending that their thresholds be used as a generally applicable measure of a project's significant air quality impacts, and instead recommended that lead agencies determine appropriate thresholds of significance based on substantial evidence in the record. On August 13 2013, the California First District Court of Appeal reversed the Superior Court's decision, ruling that adoption of CEQA significance thresholds does not constitute a "project" under CEQA, and therefore does not require CEQA review.[4] This decision has been appealed to the California Supreme Court which has granted review limited to the following issue: Under what circumstances, if any, does the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) require an analysis

[1] California, Department of Justice, 2008. Comment letter to the City of Concord re "Concord Community Reuse Plan Draft Environmental Impact Report – SCH#2007052094," August 8.

[2] Bay Area Air Quality Management District (BAAQMD), 2010b. *CEQA Guidelines*, May.

[3] Alameda County Superior Court, 2012. *California Building Industry Association v. Bay Area Air Quality Management District*, Case RG10548693, March 5.

[4] California Court of Appeals First District, 2013. *California Building Industry Association v. Bay Area Air Quality Management District,* Case A135335 and A136212, August 13.

of how existing environmental conditions will impact future residents or users (receptors) of a proposed project?[5]

This chapter analyzes GHG emissions of the Lincoln Centre Campus Redevelopment Project (project). The analysis contained in this EIR relies upon the BAAQMD thresholds as contained in the BAAQMD 2010 CEQA Guidelines and the adopted BAAQMD Thresholds of Significance which are supported by the extensive data collection and analysis reflected in BAAQMD's Thresholds of Significance Justification, attached as Appendix D to the BAAQMD CEQA Guidelines.

The construction and operation of a land use development project cause GHG emissions. Operational GHG emissions result from energy consumption associated with heating, lighting and powering buildings (typically through natural gas and electricity consumption), pumping and processing water, and fuel consumption during transportation, and decomposition of waste associated with building occupants. Construction GHG emissions result from fuel consumption by construction equipment and vehicles, creation and decomposition of building materials, and vegetation change. Appendix F of the CEQA Guidelines[6] – Energy Conservation requires Project EIR to discuss transportation energy impacts, construction energy impacts, and renewable energy impacts. Appendix F is an advisory document that assists EIR preparers in determining whether a project would result in the inefficient, wasteful, and unnecessary consumption of energy.

New land use development does not necessarily create entirely new GHG emissions, since most of the population who will visit or occupy new development will come from other locations where they were already causing such GHG emissions. Furthermore, it has not been demonstrated that new GHG emissions caused by a local development project can affect global climate change, or that a project's net increase in GHG emissions, if any, when coupled with other activities in the region, would be cumulatively considerable. Consequently, while evaluation for climate change impacts and the analysis of GHG emissions is potentially broad, the study area is limited by the CEQA Guidelines *Section 15064(d)+, which directs lead agencies to consider an "indirect physical change" only if that change is a reasonably foreseeable impact which may be caused by the project.

Cumulative impacts are the collective impacts of one or more past, present, or future projects, that, when combined, result in adverse changes to the environment. Climate change is a global environmental problem in which: (a) any given development project

[5] California Court of Appeals First District, 2013. *California Building Industry Association v. Bay Area Air Quality Management District*. Available at: http://appellatecases.courtinfo.ca.gov/search/case/mainCaseScreen.cfm?dist=0&doc_id=2056930&doc_no=S213478,

[6] California Natural Resources Agency. CEQA Guidelines Amendments, adopted March 18, 2010. Available at: http://resources.ca.gov/ceqa/guidelines/.

contributes only a small portion of any net increase in GHGs and (b) global growth is continuing to contribute large amounts of GHGs across the world. No individual project would result in a significant impact on global climate change, or an environmental impact resulting from global climate change. Therefore, this section addresses climate change primarily as a cumulative impact.

This section begins by providing general background information on climate change and local GHG emissions, and then provides data on the existing global climate setting. It then discusses the regulatory framework for global climate change, and evaluates potential global climate-related emissions associated with the project. Project emissions were estimated based on the proposed land uses, employment data, and project trip generation, among other variables. These emissions are then compared against the BAAQMD thresholds of significance.

1. Setting

The following discussion provides an overview of global climate change, its causes, and its potential effects. The regulatory framework relating to global climate change is also summarized.

a. Global Climate Change

Global climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. There is a general scientific consensus that global climate change is occurring, caused in whole or in part by increased emissions of GHGs that keep the Earth's surface warm by trapping heat in the Earth's atmosphere, in much the same way as glass traps heat in a greenhouse. The Earth's climate is changing because human activities, primarily the combustion of fossil fuels, are altering the chemical composition of the atmosphere through the buildup of GHGs. In particular, if climate change remains unabated, surface temperatures in California are expected to increase anywhere from 4.1 to 8.6 degrees Fahrenheit by the end of the century.[7] The increased amounts of carbon dioxide (CO_2) and other GHGs are the primary means of the human-induced component of warming. GHGs are released by the combustion of fossil fuels, land clearing, agriculture, and other activities, and lead to an increase in the greenhouse effect.[8]

[7] California Climate Change Center, 2012. *Our Changing Climate 2012, Vulnerability and Adaptation to the Increasing Risks from Climate Change in California*. http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf, accessed December 19, 2014.

[8] The temperature on Earth is regulated by a system commonly known as the "greenhouse effect." Just as the glass in a greenhouse lets heat from sunlight in and reduces the heat escaping, greenhouse gases like carbon dioxide, methane, and nitrous oxide in the atmosphere keep the Earth at a relatively even temperature. Without the greenhouse effect, the Earth would be a frozen globe; thus, although an excess of greenhouse gas results in global

Emissions of CO_2 are the leading cause of global warming, with other pollutants such as methane (CH_4), nitrous oxide (N_2O), hydro fluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) also contributing. The magnitude of the impact on global warming differs among the GHGs. The effect each GHG has on climate change is measured as a combination of the volume of its emissions, and its global warming potential (GWP), expressed as a function of how much warming would be caused by the same mass of CO_2. Thus, GHG emissions are typically measured in terms of pounds or tons of CO_2 equivalents (CO_2e). HFCs, PFCs, and SF_6 have a greater "global warming potential" than CO_2. In other words, these other GHGs have a greater contribution to global warming than CO_2 on a per mass basis. However, CO_2 has the greatest impact on global warming because of the relatively large quantities of CO_2 emitted into the atmosphere. For example, BAAQMD estimates that CO_2 made up about 92 percent of the total emission of the six gases listed above in 2007 in the Bay Area.[9]

The following discussion summarizes the characteristics of the six GHGs.

b. Greenhouse Gases

- **Carbon Dioxide (CO_2).** In the atmosphere, carbon generally exists in its oxidized form, as CO_2. Natural sources of CO_2 include the respiration (breathing) of humans, animals and plants, volcanic outgassing, decomposition of organic matter and evaporation from the oceans. Anthropogenic sources of CO_2 include the combustion of fossil fuels and wood, waste incineration, mineral production and deforestation… Anthropogenic sources of CO_2 amount over 30 billion tons per year, globally. Natural sources release substantially larger amounts of CO_2, Nevertheless, natural removal processes, such as photosynthesis by land and ocean-dwelling plant species, cannot keep pace with this extra input of man-made CO_2, and consequently, the gas is building up in the atmosphere.
- **Methane (CH_4).** Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Decomposition occurring in landfills accounts for the majority of human-generated CH_4 emissions in California and in the United States as a whole. Agricultural processes such as intestinal fermentation, manure management, and rice cultivation are also significant sources of CH_4 in California.
- **Nitrous Oxide (N_2O).** Nitrous oxide is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils

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warming, the *naturally occurring* greenhouse effect is necessary to keep our planet at a comfortable temperature.

[9] Bay Area Air Quality Management District (BAAQMD), 2010d. Source Inventory of Bay Area Greenhouse Gas Emissions. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/Emission%20Inventory/regionalinventory2007_2_10.ashx, accessed December 19, 2014.

and oceans account for the majority of natural source emissions. Nitrous oxide is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion produce N_2O, and the quantity emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N_2O emissions in California.

- **Hydro fluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulfur Hexafluoride (SF_6).** HFCs are primarily used as substitutes for ozone depleting substances regulated under the Montreal Protocol.[10] PFCs and SF_6 are emitted from various industrial processes including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no primary aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry leads to greater use of PFCs.

c. Greenhouse Gas Emissions

(1) United States

In 2012, the United States emitted about 6.5 billion metric tons (MT) (emissions not including sinks) of CO_2e or about 20.5 MT/person/year, calculated by dividing by the United States (U.S.) Census Bureau 2012 population estimate. This represents a 10 percent reduction below 2005 total emission levels. Of the four major sectors nationwide - residential, commercial, industrial and transportation - transportation accounts for the highest fraction of GHG emissions (approximately 34 percent of emissions from these four sectors); these emissions are entirely generated from direct fossil fuel combustion. Over 60 percent of the transportation emissions resulted from passenger car and light-duty truck use. The remaining emissions came from other transportation activities, including the combustion of diesel-fuel in medium- and heavy-duty vehicles and jet fuel in aircraft. According to Inventory of U.S. GHG Emissions and Sinks, from 2005 to 2012 transportation emissions dropped by 9 percent due, in part, to increased fuel efficiency across the U.S. vehicle fleet, as well as higher fuel prices, and an associated decrease in the demand for passenger transportation. However, from 1990 to 2012 as a whole, transportation emissions rose by 16 percent, principally because of "increased demand for travel within limited gains in fuel efficiency" across the U.S. vehicle fleet.

(2) California

California's gross GHG emissions decreased by 1.6 percent from 466.3 million metric tons (MMT) of CO_2e in 2000 to 458.7 million in 2012, with a maximum of 492.7 MMT

[10] The Montreal Protocol is an international treaty that was approved on January 1, 1989, and was designated to project the ozone layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for ozone depletion.

in 2004.[11] California's GHG emissions represent about 7 percent of the U.S. emissions. This large number is due primarily to the sheer size of California compared to other states. By contrast, California has the fourth lowest per capita GHG emission rates in the country[12], due to the success of its energy-efficiency and renewable energy programs and commitments that have lowered the State's GHG emissions rate of growth by more than half of what it would have been otherwise.[13] Another factor that has reduced California's fuel use and GHG emissions is its mild climate compared to that of many other states.

The California Energy Commission (CEC) found that transportation is the source of approximately 41 percent of the State's GHG emissions, followed by electricity generation (both in-state and out-of-state) at 23 percent, and industrial sources at 20 percent. Agriculture and forestry is the source of approximately 8.3 percent of the State's GHG emissions. The source category "other," which includes residential and commercial activities, also comprised approximately 8.3 percent of the inventory.

(3) Bay Area

The BAAQMD regularly prepares inventories of criteria and toxic air pollutants to support planning, regulatory and other programs. The most recent emissions inventory estimates GHG emissions produced in the San Francisco Bay Area in 2007.[14] The inventory, which was published February 2010, updates the BAAQMD's previous GHG emission inventory for base year 2002.

According to the BAAQMD, in 2007, 95.8 MMT of CO_2e of GHGs were emitted by the nine-county San Francisco Bay Area. The transportation sector, including on-road motor vehicles, locomotives, ships and boats, and aircraft, and the industrial/ commercial sector (excluding electricity and agriculture) are the largest sources of GHG emissions, each contributing about 36 percent of the region's total CO_2e emissions in the Bay Area. Energy production activities such as electricity generation and co-generation were the third largest contributor with 16 percent of the total GHG

[11] California Air Resources Board (CARB), 2014b. California Greenhouse Gas Emissions for 2000 to 2012 – Trends of Emissions and Other Indicators. 2014. http://www.arb.ca.gov/cc/inventory/data/misc/ghg_inventory_trends_00-12_2014-05-13.pdf, accessed December 21 2014.

[12] U.S. Energy Information Administration (EIA), 2014. State-Level Energy-Related Carbon Dioxide Emissions, 2000-2011. http://www.eia.gov/environment/emissions/state/analysis/, accessed December 21, 2014.

[13] California Energy Commission (CEC), 2006. Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004 – Final Staff Report, publication # CEC-600-2006-013-SF. December 22, 2006 and January 23, 2007 update to that report.

[14] Bay Area Air Quality Management District (BAAQMD), 2010d. Source Inventory of Bay Area Greenhouse Gas Emissions. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/Emission%20Inventory/regionalinventory2007_2_10.ashx, accessed December 19, 2014.

emissions. Off-road equipment such as construction, industrial, commercial, and lawn and garden equipment contributed 3 percent of GHG emissions. The contribution from residential fuel usage, primarily from space heating, cooking and water heating, contributed 7 percent of the total GHG emissions. Agriculture and farming activities was the smallest sector with 1 percent of the total GHG emissions in the Bay Area.

(4) Foster City

A community-wide GHG emissions inventory was conducted for Foster City and indicated 2005 annual emissions of 245,754 MT of CO_2e, with 87,577 MT of CO_2e coming from the built environment (i.e., residential and commercial sectors), 151,873 MT of CO_2e from the transportation sector, and 6,304 MT of CO_2e from waste disposal.[15]

d. Potential Effects of Global Warming

(1) Potential Effects of Human Activity on Global Climate Change

Globally, climate change has the potential to impact numerous environmental resources through anticipated, though uncertain, impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. A warming of about 0.2 degrees Celsius (°C) (0.36 degrees Fahrenheit (°F)) per decade is projected, and there are identifiable signs that global warming is taking place, including substantial loss of ice in the Arctic.[16]

However, the understanding of GHG emissions, particulate matter, and aerosols on global climate trends is complex and involves varying uncertainties and a balance of different effects. In addition to uncertainties about the extent to which human activity rather than solar or volcanic activity is responsible for increasing warming, there is also evidence that some human activity has cooling, rather than warming, effects, as discussed in detail in numerous publications by the International Panel on Climate Change (IPCC), such as the Fifth Assessment Report (AR5) Working Group 1 Report "The Physical Science Basis."[17,18] Nonetheless, when all effects and uncertainties are

[15] City of Foster City Ad Hoc Environmental Task Force, 2009. Recommended Sustainability Action Plan. http://www.fostercity.org/projectsandinitiatives/upload/Final-W8_1.pdf, accessed December 2014.

[16] International Panel on Climate Change (IPCC), 2013. Fifth Assessment Report. Climate Change 2013: Working Group I Report: The Physical Science Basis. http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf, accessed December 2014.

[17] The IPCC was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme to assess scientific, technical and socio-economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation. The IPCC has produced a series of Assessment Reports

considered together, the consensus is that human activity has contributed significantly to global warming. As stated in the AR5 discussion of Attribution of Climate Change, "It is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century."[19]

Acknowledging uncertainties regarding the rate at which anthropogenic GHG emissions would continue to increase (based upon various factors under human control, such as future population growth and the locations of that growth; the amount, type, and locations of economic development; the amount, type, and locations of technological advancement; adoption of alternative energy sources; legislative and public initiatives to curb emissions; and public awareness and acceptance of methods for reducing emissions), and the impact of such emissions on climate change, the IPCC devises emission scenarios which utilize various assumptions about the rates of economic development, population growth, and technological advancement over the course of the next century. For the AR5, a set of four new scenarios, denoted Representative Concentration Pathways (RCP), were developed. RCPs are based on a combination of integrated assessment models, simple climate models, atmospheric chemistry and global carbon cycle models. The four RCPs include a mitigation scenario, two stabilizing scenarios, and one scenario with very high GHG emissions. "The RCPs can thus represent a range of 21st century climate policies, as compared with the no-climate policy of the Special Report on Emissions Scenarios (SRES) used in the AR3 and the AR4."[20]

The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects, according to the IPCC.[21]

- It is *very likely* that the Arctic sea ice cover will continue to shrink and thin and that Northern Hemisphere spring snow cover will decrease during the 21st century

comprised of full scientific and technical assessments of climate change. The first assessment report (FAR) was developed in 1990.

[18] International Panel on Climate Change (IPCC), 2013. Fifth Assessment Report. Climate Change 2013: Working Group I Report: The Physical Science Basis. http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf, accessed December 2014.

[19] International Panel on Climate Change (IPCC), 2013. Fifth Assessment Report. 2013. Climate Change 2013: Working Group I Report: The Physical Science Basis. Summary for Policymakers. Detection and Attribution of Climate Change. http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf, accessed December 2014.

[20] Ibid

[21] IPCC Fifth Assessment Report, 2013. Climate Change 2013: Working Group I Report: The Physical Science Basis. Summary for Policymakers. http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf, accessed December 2014.

as global mean surface temperature rises. Global glacier volume will further decrease;

- It is virtually certain that there will be more frequent hot and fewer cold temperature extremes over most land areas on daily and seasonal timescales as global mean temperatures increase. It is very likely that heat waves will occur with a higher frequency and duration. Occasional cold winter extremes will continue to occur;
- Global surface temperature change for the end of the 21st century is *likely* to exceed 1.5˚C relative to 1850 to 1900 for all RCP scenarios except the mitigation scenario. It is *likely* to exceed 2˚C for the highest forcing scenario and one stabilizing scenario, and *more likely than not* to exceed 2˚C for the remaining stabilizing scenario. Warming will continue beyond 2100 under all RCP scenarios except the mitigation scenario.
- The global ocean will continue to warm during the 21st century. Heat will penetrate from the surface to the deep ocean and affect ocean circulation;
- Climate change will affect carbon cycle processes in a way that will exacerbate the increase of CO_2 in the atmosphere (*high confidence*). Further uptake of carbon by the ocean will increase ocean acidification;
- Changes in the global water cycle in response to the warming over the 21st century will not be uniform. The contrast in precipitation between wet and dry regions and between wet and dry seasons will increase, although there may be regional exceptions; Global mean sea level will continue to rise during the 21st century;
- Cumulative emissions of CO_2 largely determine global mean surface warming by the late 21st century and beyond (see Figure SPM.10). Most aspects of climate change will persist for many centuries even if emissions of CO_2 are stopped.

Potential secondary effects from global warming include global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.

e. Potential Effects of Climate Change on State of California

According to the California Air Resources Board (CARB), some of the potential impacts in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years.[22] Several recent studies have attempted to explore the possible negative consequences that climate change, left unchecked, could have in California. These reports acknowledge that climate scientists' understanding of the complex

[22] California Air Resources Board (CARB), 2006. Public Workshop to Discuss Establishing the 1990 Emissions Level and the California 2020 Limit and Developing Regulations to Require Reporting of Greenhouse Gas Emissions, December.

global climate system, and the interplay of the various internal and external factors that affect climate change, remains too limited to yield scientifically valid conclusions on such a localized scale. Substantial work has been done at the international and national level to evaluate climatic impacts, but far less information is available on regional and local impacts. In addition, projecting regional impacts of climate change and variability relies on large-scale scenarios of changing climate parameters, using information that is typically at too general a scale to make accurate regional assessments.[23]

Below is a summary of some of the potential effects reported in an array of studies that could be experienced in California as a result of global warming and climate change.

(1) Air Quality

Higher temperatures, conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. For other pollutants, the effects of climate change and/or weather are less well studied, and even less well understood. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thus ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the State.[24]

(2) Water Supply

Uncertainty remains with respect to the overall impact of global climate change on future water supplies in California. For example, models that predict drier conditions (i.e., parallel climate model (PCM)) suggest decreased reservoir inflows and storage and decreased river flows, relative to current conditions. By comparison, models that predict wetter conditions (i.e., HadCM2) project increased reservoir inflows and storage, and increased river flows.[25]

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[23] Kiparsky, M. and P.H. Gleick, 2003. Climate Change and California Water Resources: A Survey and Summary of the Literature. Oakland, CA: Pacific Institute for Studies in Development, July.

[24] California Climate Change Center (CCCC), 2006a. *Our Changing Climate: Assessing the Risks to California,* CEC500-2006-077, July.

[25] Brekke, L.D., et al., 2004. Climate Change Impacts Uncertainty for Water Resources in the San Joaquin River Basin, California. Journal of the American Water Resources Association (AWRA). 40(2): pp. 149–164.

A July 2006 technical report prepared by the California Department of Water Resources (DWR) addresses the State Water Project (SWP), the Central Valley Project, and the Sacramento-San Joaquin Delta. Although the report projects that "[climate] change will likely have a significant effect on California's future water resources … [and] future water demand," it also reports that, "there is much uncertainty about future water demand, especially those aspects of future demand that will be directly affected by climate change and warming. While climate change is expected to continue through at least the end of this century, the magnitude and, in some cases, the nature of future changes is uncertain. This uncertainty serves to complicate the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood."[26] DWR adds that "it is unlikely that this level of uncertainty will diminish significantly in the foreseeable future."[27] Still, changes in water supply are expected to occur, and many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows.[28]

Water purveyors, such as the Estero Municipal Improvement District (EMID) , are required by state law to prepare Urban Water Management Plans (UWMPs) (discussed below, under Regulatory Context for Greenhouse Gas Emissions and Climate Change) that consider climatic variations and corresponding impacts on long-term water supplies.[29] EMID's most recent UWMPs (required every five years per the California Water Code), was adopted in 2010, prior to the current four-year drought. Section 7.0 of the UWMPs discusses the impact of climatic variations on water supplies and concludes that based on the preliminary analysis conducted by San Francisco Public Utilities Commission (SFPUC) at that time that the potential impacts of climate change are not expected to affect the water supply available from the San Francisco Regional Water System (RWS) or the overall operation of RWS through 2030. However, the UWMPs also point out that the assessment of the effects of climate change is an ongoing project requiring regular update to reflect improvements in climate science, atmospheric/ocean modeling, and human response to GHG emissions. To refine its climate change analysis and expand the range of climate parameters being evaluated, as well as expand the timeframes being considered, the SFPUC is currently

[26] Department of Water Resources (DWR), 2006. Progress on Incorporating Climate Change into Management of California Water Resources, July.

[27] Ibid

[28] Kiparsky, M. and P.H. Gleick, 2003. Climate Change and California Water Resources: A Survey and Summary of the Literature. Oakland, CA: Pacific Institute for Studies in Development, July.

Department of Water Resources (DWR), 2006. Progress on Incorporating Climate Change into Management of California Water Resources, July.

Cayan, D., et al., 2006. Scenarios of Climate Change in California: An Overview (White Paper, CEC-500-2005-203-SF), February.

[29] California Water Code, Section 10631(c).

undertaking two additional studies. The first utilizes a newly calibrated hydrologic model of the Hetch Hetchy watershed to explore sensitivities of inflow to different climate change scenarios involving changes in air temperature and precipitation. The second study will seek to utilize state-of-the-art climate modeling techniques in conjunction with water system modeling tools to more fully explore potential effects of climate change on the SFPUC water system as a whole. Both analyses will consider potential effects through the year 2100.

(3) Hydrology

As discussed above, climate change could potentially affect the following: the amount of snowfall, rainfall and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain, or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise can be a product of global warming through two main processes - expansion of sea water as the oceans warm and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could also jeopardize California's water supply. In particular, saltwater intrusion would threaten the quality and reliability of the State's major fresh water supply that is pumped from the southern portion of the Sacramento/San Joaquin River Delta. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

(4) Ecosystems and Wildlife

Increases in global temperatures and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. In 2004, the Pew Center on Global Climate Change released a report examining the possible impacts of climate change on ecosystems and wildlife.[30] The report outlines four major ways in which it is thought that climate change could affect plants and animals: (1) timing of ecological events, (2) geographic range, (3) species' composition within communities, and (4) ecosystem processes such as carbon cycling and storage.

f. Regulatory Setting

Global climate change is addressed through the efforts of various federal, state, regional and local government agencies as well as national and international scientific and governmental conventions and programs. These agencies work jointly, as well as individually to understand and regulate the effects of GHG emissions and resulting climate change through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies, conventions and programs focused on global climate change are discussed below.

[30] Parmesan, C. and H. Galbraith, 2004. Observed Impacts of Global Climate Change in the U.S., Arlington, VA: Pew Center on Global Climate Change, November.

(1) Federal

The United States has historically had a voluntary approach to reducing GHG emissions. Several national and international voluntary climate change initiatives are discussed below. There are currently no federal regulations that apply to GHG emissions from construction or operation of the project other than those that apply generally, such as regulations requiring low emission engines and fuels. However, on April 2, 2007, the U.S. Supreme Court ruled that the USEPA has the authority to regulate CO_2 emissions under the federal Clean Air Act (CAA), discussed below.

Kyoto Protocol

The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions and was adopted on December 11, 1997. The first commitment period of the Protocol, between 2008 and 2012, aimed to reduce GHG emissions from the group of industrialized countries (i.e., the Annex I countries excluding the U.S.) by 4.2 percent relative to the base year, which in most cases is 1990. According to Olivier *et al.* (2011), the Kyoto Parties met their collective target, with a projected average reduction of 16 percent for 2008-2012.[31] The Doha Amendment of the Kyoto Protocol was adopted on December 8, 2012 and negotiations are currently underway to agree on post-Kyoto legal framework that would obligate all major polluters to pay for CO_2 emissions. It should be noted that although the United States is a signatory to the Kyoto Protocol, Congress has not ratified the Protocol and the United States is not bound by the Protocol's commitments.

Copenhagen Summit

The 2009 United Nations Climate Change Conference (Copenhagen Summit) was held in Denmark in December 2009. The conference included the 15 Conference of the Parties to the United Nations Framework Convention on Climate Change, and the fifth meeting of the Parties to the Kyoto Protocol. A framework for climate change mitigation beyond 2012 was to be agreed there. The Copenhagen Accord was drafted by the US, China, India, Brazil, and South Africa on December 18, and judged to be a "meaningful agreement" by the United Stated government. It was "taken note of" but not "adopted" in a debate of all the participating countries the next day, and it was not passed unanimously. The document recognized that climate change is one of the greatest challenges of the present day and that actions should be taken to keep any temperature increases to below 2 degrees Celsius. The document is not legally binding and does not contain any legally binding commitments for reducing CO_2 emissions.

[31] Olivier, J.G.J., et al. 2011. Long-term trend in global CO_2 emissions; 2011 report (PDF). PBL Netherlands Environmental Assessment Agency; Institute for Environment and Sustainability (IES) of the European Commission's Joint Research Centre (JRC).

Climate Change Technology Program

The United States has opted for a voluntary and incentive-based approach toward emissions reductions in lieu of the Kyoto Protocol's mandatory framework. The Climate Change Technology Program (CCTP) is a multi-agency research and development coordination effort (which is led by the Secretaries of Energy and Commerce) that is charged with carrying out the President's National Climate Change Technology Initiative.[32]

Federal Clean Air Act

The federal Clean Air Act (CAA), enacted in 1970 and amended in 1977 and 1990, establishes the framework for federal air pollution control. The CAA does not identify GHGs as air pollutants subject to regulation. However, in April 2007, in *Massachusetts* v. *U.S. Environmental Protection Agency,*[33] the U.S. Supreme Court held that CO_2 is an "air pollutant" as defined under the federal Clean Air Act, and that the U.S. Environmental Protection Agency (USEPA) must follow the pertinent Clean Air Act criteria in determining whether to regulate emissions of CO_2 and other GHGs. In response to that decision, and as directed by the Court, USEPA announced initiation of an effort to determine whether to propose an "endangerment finding" with regard to the impacts of GHG emissions from new motor vehicles. In December 2009, USEPA issued an endangerment finding that GHGs from new motor vehicles contribute to air pollution and may endanger public health or welfare. The endangerment finding classified six GHGs as pollutants that threaten health: CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. USEPA found that the combined emissions of GHGs from new motor vehicles contribute to GHG pollution, which threatens public health and welfare.

During the George W. Bush Administration, USEPA rejected California's application for a Clean Air Act preemption waiver needed by California to implement the State's GHG standards for new motor vehicles. In January 2009, President Obama directed USEPA to re-assess whether it should grant California's waiver application. On February 12, 2009, USEPA published a Federal Register notice proposing to approve the California waiver. In March 2009, USEPA held public hearings on the matter. On June 30, 2009, USEPA granted California's waiver request.

On June 25, 2013, President Obama announced his Climate Action Plan (CAP) consisting of a set of executive actions. This plan will cut carbon pollution, prepare for the impacts of climate change, and lead international efforts to address climate

[32] Climate Change Technology Program (CCTP), 2008. About the U.S. Climate Change Technology Program. http://www.climatetechnology.gov/about/index.htm, accessed December 21, 2014.

[33] *U.S. Supreme Court, Massachusetts et. al. v. USEPA et. al* (No. 05-1120, 415F 3d 50), April 2, 2007.

change.[34,35] Also on June 25, 2013, President Obama issued a Presidential Memorandum directing USEPA to issue a new draft regulation for standards of performance for new power plants and a second draft regulation for existing power plants.[36] On June 24, 2014, the White House released a report detailing progress under the Climate Action Plan.[37] On September 20, 2013 and June 2, 2014, USEPA issued proposed draft rules for new power plants[38] and existing power plants,[39] respectively.

(2) State Regulations

California Environmental Quality Act

CEQA applies to all discretionary projects undertaken or subject to approval by the State's public agencies.[40] CEQA states that it is the policy of the State of California to "ensure the long-term protection of the environment.[41] Under the provisions of CEQA, a public agency should assess the significance of impacts from the GHG emissions of a project based on the following factors:[42]

- The extent to which a project may increase or decrease GHG emissions as compared to the existing environmental conditions;
- Whether emissions resulting from the project exceed a threshold of significance that the public agency determines applies to the project; and
- The extent to which the project complies with regulations or requirements adopted to implement State, regional, or local plans for the reduction or mitigation of GHG emissions.

[34] Fact Sheet: President Obama's Climate Action Plan, 2014. http://www.whitehouse.gov/the-press-office/2013/06/25/fact-sheet-president-obama-s-climate-action-plan, accessed December 21, 2014.

[35] Climate Change and President Obama's Action Plan. 2013. http://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf, accessed December 21, 2014.

[36] Presidential Memorandum – Power Sector Carbon Pollution Standards, 2013. http://www.whitehouse.gov/the-press-office/2013/06/25/presidential-memorandum-power-sector-carbon-pollution-standards, accessed December 21, 2014.

[37] President Obama's Climate Action Plan Progress Report, 2014. http://www.whitehouse.gov/sites/default/files/docs/cap_progress_report_update_062514_final.pdf, accessed December 21, 2014.

[38] U.S. Environmental Protection Agency (U.S. EPA), 2013a. Clean Power Plan Proposed Rule. http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule, accessed December 21, 2014.

[39] Ibid.

[40] California Environmental Quality Act (CEQA) Guidelines Section 15002(i).

[41] Public Resources Code Section 21001(d).

[42] California Environmental Quality Act (CEQA) Guidelines Section 15064.4(b).

In January 2009, Office Planning and Research (OPR) released preliminary proposed amendments to the CEQA Guidelines regarding GHG emissions. No significance threshold was included in the draft and the guidelines afforded the customary deference provided to lead agencies in their analysis and methodologies. The introductory preface to the amendments recommended that CARB set state-wide thresholds of significance. OPR emphasized the necessity of having a consistent threshold available to analyze projects, and the analyses should be performed based on the best available information. The proposed revisions included a new section specifically addressing the significance of GHG emissions, building upon OPR's 2008 technical advisory. Like the advisory, the proposed Guidelines section calls for quantification of GHG emissions. The proposed section states that the significance of GHG impacts should include consideration of the extent to which the project would result in the following:

- help or hinder compliance with AB 32 goals (as discussed below);
- increase energy use, especially energy use generated by fossil fuel combustion;
- improve energy efficiency; and
- result in emissions that would exceed any applicable significance threshold.

In April 2009, OPR forwarded the draft revisions to the California Natural Resources Agency for review and proposed adoption. On July 3, 2009, the California Natural Resources Agency began the formal rulemaking process for adopting the CEQA Guidelines. As directed by Senate Bill (SB) 97, the Natural Resources Agency adopted Amendments to the CEQA Guidelines for GHG emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010. Among the changes included in these recent CEQA Guidelines amendments are guidance for determining the significance of impacts from GHG emissions (CEQA Guidelines Section 15064.4). These guidelines indicate that "The determination of the significance of GHG emissions calls for a careful judgment by the lead agency … A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project." A lead agency shall have discretion to determine, in the context of a particular project, whether to use a model or other methodology to quantify GHG emissions resulting from a project, and which model or methodology to use, or whether to rely on a qualitative analysis or performance based standard.

These Guidelines also indicate that a lead agency should consider the following factors, among others, when assessing the significance of impacts from GHG emissions on the environment:

- 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.
- 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 GHG emissions.

In determining thresholds of significance for GHG emissions, Section 15064.7 indicates that:

> *"Each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant. Thresholds of significance to be adopted for general use as part of the lead agency's environmental review process must be adopted by ordinance, resolution, rule, or regulation, and developed through a public review process and be supported by substantial evidence. When adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."*

Finally, in considering mitigation measures related to GHG emissions, Section 15126.4 indicates that:

> *"Lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of GHG emissions. Measures to mitigate the significant effects of GHG emissions may include, among others:*
>
> - *Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;*
> - *Reductions in emissions resulting from a project through implementation of project features, project design, or other measures;*
> - *Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions; and*
> - *Measures that sequester GHGs.*
>
> *In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of GHG emissions, mitigation may*

include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions."

Title 24, Part 6 of the California Code of Regulations (1978)

The Energy Efficiency Standards for Residential and Nonresidential Buildings were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

Assembly Bill (AB) 1493

AB 1493 (the "Pavley Standard"), enacted in 2002, directs CARB to develop and implement regulations that achieve the "maximum feasible reduction" of GHG emissions from passenger vehicles, light-duty trucks, and other noncommercial vehicles. Pursuant to AB 1493, in 2004 CARB approved regulations limiting the amount of GHGs released from motor vehicles. On March 6, 2008, USEPA published a Federal Register notice of its decision denying California's request for Clean Air Act preemption waiver needed to allow California to implement its state motor vehicle GHG emission standards. California sued USEPA seeking reversal of that decision. As noted above, on February 12, 2009, USEPA published a Federal Register notice proposing to approve the California waiver, and in March 2009, it held public hearings on the matter. On June 30, 2009, USEPA granted California's waiver request.

Executive Order S-01-07

Executive Order S-01-07 (the Low Carbon Fuel Standard, January 18, 2007) establishes a statewide goal of a 10 percent or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by CARB. CARB identified the LCFS as a Discrete Early Action item under AB 32, and the final resolution (09-31) was issued on April 23, 2009.[43] In 2009, CARB approved for adoption the LCFS regulation, which became fully effective in April 2010 and is codified at Title 17, CCR, Sections 95480-95490. The LCFS will reduce GHG emissions by reducing the carbon intensity of transportation fuels used in California by at least 10 percent by 2020. (Carbon intensity is a measure of the GHG emissions associated with the various production, distribution, and use steps in the "lifecycle" of a transportation fuel.)

On December 29, 2011, the US District Court for the Eastern District of California issued several rulings in the federal lawsuits challenging the LCFS. One of the district

[43] California Air Resources Board (CARB), 2009a. Initial Statement of Reason for Proposed Regulation for the Management of High Global Warming Potential Refrigerant for Stationary Sources, October 23. http://www.arb.ca.gov/regact/2009/gwprmp09/isorref.pdf, accessed May 2014.

court's rulings preliminarily enjoined the CARB from enforcing the regulation. In January 2012, CARB appealed that decision to the Ninth Circuit Court of Appeals. On September 18, 2013, the Ninth Circuit concluded that the LCFS ethanol and initial crude-oil provisions are not facially discriminatory, but remanded the case to the district court to determine whether the LCFS ethanol provisions are discriminatory in purpose and effect. Additionally, the Ninth Circuit remanded to the District Court with instructions to vacate the preliminary injunction against CARB's enforcement of the regulation.

A case was also filed in state court. In a mostly-published 95-page opinion filed July 15, 2013, the Fifth District Court of Appeal reversed a trial court's judgment and directed issuance of a writ of mandate setting aside Resolution 09-31 and two executive orders of the CARB approving LCFS regulations promulgated to reduce GHG emissions (*POET, LLC v. CARB* (2013) 217 Cal.App.4th 1214). However, despite its finding that CARB's actions "ran afoul of several procedural requirements imposed by CEQA and the APA" and that "these procedural violations are not trivial," the Court tailored its remedy to protect the public interest by "allow[ing] the LCFS regulations to remain operative while [C]ARB complies with the procedural requirements it failed to satisfy." It stated: "In other words, we will avoid the irony of violations of an environmental protection statute being used to set aside a regulation that restricts the release of pollutants into the environment."

Executive Order S-3-05

On June 1, 2005, Governor Schwarzenegger signed Executive Order S-3-05 which established the following GHG emission reduction targets:

- By 2010, reduce GHG emissions to 2000 emission levels,
- By 2020, reduce GHG emissions to 1990 emission levels, and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

A Climate Action Team (CAT) was formed to implement GHG emission reduction programs and to report on progress made to meet the emission reduction targets. CAT is led by the Secretary of California Environmental Protection Agency and consists of representatives from several state agencies. A progress report on meeting the targets is issued every two years starting with the report issued in March 2006. The most recent report was issued in 2010.[44]

AB 32, California Global Warming Solutions Act (2006)

In 2006, the California Global Warming Solutions Act of 2006 (AB 32), was signed into law by Governor Schwarzenegger. The law codified the State's goal to reduce statewide GHG emissions to 1990 levels by the year 2020. This reduction is being

[44] Climate Action Team Reports. 2013. http://www.climatechange.ca.gov/climate_action_team/reports/index.html#2010, accessed December 21, 2014.

accomplished using several approaches, including a statewide cap on GHG emissions. AB 32 directs CARB to develop GHG regulations and establish a mandatory reporting system to track and monitor global warming emissions.

Under AB 32, GHGs are defined as CO_2, CH_4, N_2O, HFCs, PFCs, and CF_6. The regulatory steps established in AB 32 require CARB to adopt early action measures to reduce GHGs; adopt mandatory reporting rules for significant sources of GHGs; and adopt a scoping plan indicating how emission reductions will be achieved via regulations, market mechanisms, and other actions.

AB 32 requires that CARB complete a GHG emissions inventory showing California's 1990 GHG emissions. On December 6, 2007, CARB approved this inventory, which showed 1990 emissions of 427 MMT of carbon dioxide equivalent (CO_2e). CARB estimated that without any reduction measures (business as usual scenario), 2020 emission levels would be 596 MMT of carbon dioxide. Based on these estimates, CARB concluded that California's GHG emissions needed to be reduced by 173 MMT of CO_2e (28 percent reduction) to meet the 427 MMT cap.[45]

To help achieve these reductions, CARB evaluated over 100 possible measures. On April 20, 2007, CARB published *Proposed Early Actions to Mitigate Climate Change in California,*[46] including 36 measures for CARB to pursue during the years 2007-2009. These measures are expected to reduce GHGs by 42 MMT of carbon dioxide equivalent by 2020, which is about 25 percent of the needed reduction.

AB 32 also required that CARB adopt a Scoping Plan by January 1, 2009. That plan shows how emissions reductions will be achieved using regulations, voluntary actions, monetary and nonmonetary incentives, market mechanisms, and other actions. CARB adopted the final Scoping Plan in December 2008. The Scoping Plan contains the main strategies California will implement to reduce CO_2e emissions by 174 MMT, or approximately 30 percent, from the State's projected 2020 emissions level of 596 MMT of CO_2e under a business-as-usual scenario. The Scoping Plan also breaks down the amount of GHG emissions reductions CARB recommends for each emissions sector of the State's GHG inventory. While CARB has identified a GHG reduction target of 15 percent for local governments themselves, it has not yet determined what amount of GHG emissions reductions it recommends from local government land use decisions. However, the Scoping Plan does state that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit

[45] California Air Resources Board (CARB), 2014a. California 1990 Greenhouse Gas Emissions Level and 2020 Limit. http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm, accessed December.

[46] California Environmental Protection Act (Cal/EPA) and California Air Resources Board (CARB), 2007. Proposed Early Actions to Mitigate Climate Change in California, April.

land development to accommodate population growth and the changing needs of their jurisdictions. CARB further acknowledges that decisions on how land is used will have large effects on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors.

In August 2011, the Scoping Plan was re-approved by the CARB Board, and included a Final Supplement to the Scoping Plan Functional Equivalent Document (FED). The FED included an updated business as usual estimate of 507 MMT of CO_2e by 2020. Consequently, a 16 percent reduction below the estimated BAU levels would be necessary to return to 1990 levels by 2020.

In early 2013, CARB initiated activities to update the AB 32 Scoping Plan. The Board approved the First Update to the Climate Change Scoping Plan on May 22, 2014. The First Update describes California's progress towards AB32 goals, stating that "California is on track to meet the near-term 2020 GHG limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32." Specifically, "if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts [MW] of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80 percent below 1990 levels by 2050." The first update recalculates 1990 GHG emissions using IPCC AR4 released in 2007. Using the AR4 global warming potentials GWPs, the 427 $MTCO_2e$ 1990 emissions level and 2020 GHG emissions limit would be slightly higher, at 431 $MTCO_2e$. Based on the revised estimates of expected 2020 emissions identified in the first update to the Scoping Plan, which take into account reductions from measures currently in place, achieving the 1990 emission level would require a reduction of 78 $MTCO_2e$ or a reduction of approximately 15 percent to achieve in 2020 emissions levels in the BAU or NAT condition.[47,48,49,50]

[47] For comparison, the 2008 Scoping Plan calculation of the emissions reductions required by 2020 compared to the BAU scenario was169 $MTCO_2e$ or 28.5%, calculated using GWPs from the IPCC Second Assessment Report SAR and assuming no reductions in the BAU scenario. This was updated to 118 $MTCO_2e$, or a reduction of 21.7% taking into account the effects of the economic recession. An estimate which takes into account the reductions due to measures currently in place, including Pavley 1 and the Renewable Portfolios Standard was published in the Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document (FED 2011). The necessary reduction calculated in the FED was 80 $MTCO_2e$ or approximately 16%.

[48] California Air Resources Board (CARB), 2011f. Status of Scoping Plan Recommended Measures. July. http://www.arb.ca.gov/cc/scopingplan/status_of_scoping_plan_measures.pdf, accessed December 2014.

Senate Bill (SB) 97

SB 97, signed in August 2007, acknowledges that climate change is an important environmental issue that requires analysis under CEQA. This bill required the Governor's Office of Planning and Research (OPR) to prepare and develop guidelines for the feasible mitigation of GHG emissions. The California Natural Resources Agency adopted these amendments on December 30, 2009. They took effect on March 18, 2010, after review by the Office of Administrative Law and filing with the Secretary of State for inclusion in the California Code or Regulations.

2008 OPR Technical Advisory

On June 19, 2008, OPR published a technical advisory on CEQA and climate change. The advisory provided OPR's perspective on the emerging role of CEQA in addressing climate change and GHG emissions, while recognizing that approaches and methodologies for calculating GHG emissions and addressing environmental impacts through CEQA review are rapidly evolving. The advisory recognized that OPR will develop, and the Resources Agency will adopt, amendments to the CEQA Guidelines pursuant to SB 97. In the interim, the technical advisory "offers informal guidance regarding the steps lead agencies should take to address climate change in their CEQA documents."

The technical advisory pointed out that neither CEQA nor the CEQA Guidelines prescribe thresholds of significance or particular methodologies for performing an impact analysis. The advisory stated, "This is left to lead agency judgment and discretion, based upon factual data and guidance from regulatory agencies and other sources where available and applicable." OPR recommended that, "the global nature of climate change warrants investigation of a statewide threshold of significance for GHG emissions." Until such a standard is established, OPR advises that each lead agency should develop its own approach to performing an analysis for projects that generate GHG emissions. OPR set out the following process for evaluating GHG emissions.

- First, agencies should determine whether GHG emissions may be generated by a proposed project, and if so, quantify or estimate the emissions by type or source. Calculation, modeling, or estimation of GHG emissions should include the emissions associated with vehicular traffic, energy consumption, water usage, and construction activities.

[49] California Air Resources Board (CARB), 2011d. Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document, August. http://www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf, accessed December 2014.

[50] California Air Resources Board (CARB), 2014d. First Update to the Climate Change Scoping Plan, May. http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf, accessed December 2014.

- Lead agencies should then assess whether the emissions are cumulatively considerable even though a project's GHG emissions may be individually limited. OPR states, although climate change is ultimately a cumulative impact, not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment. Individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice.
- Finally, if the lead agency determines emissions are a cumulatively considerable contribution to a significant cumulative impact, the lead agency must investigate and implement ways to mitigate the emissions. OPR states, mitigation measures will vary with the type of project being contemplated, but may include alternative project designs or locations that conserve energy and water, measures that reduce vehicle miles traveled (VMT) by fossil-fueled vehicles, measures that contribute to established regional or programmatic mitigation strategies, and measures that sequester carbon to offset the emissions from the project. OPR concludes that, a lead agency is not responsible for wholly eliminating all GHG emissions from a project; the CEQA standard is to mitigate to a level that is less than significant. The technical advisory includes a list of mitigation measures that can be applied on a project-by-project basis.

2008 California Air Pollution Control Officers Association White Paper

In January 2008, the California Air Pollution Control Officers Association (CAPCOA) issued a white paper on evaluating and addressing GHGs under CEQA. This resource guide was prepared to support local governments as they develop their programs and policies around climate change issues. The paper was not a guidance document. It was not intended to dictate or direct how any agency chooses to address GHG emissions. Rather, it was intended to provide a common platform of information about key elements of CEQA as they pertain to GHG, including an analysis of different approaches to setting significance thresholds.

The paper noted that for a variety of reasons local agencies may decide not to have a CEQA threshold. Local agencies may also decide to assess projects on a case-by-case basis when the projects come forward. The paper also discussed a range of GHG emission thresholds that could be used. The range of thresholds discussed includes a GHG threshold of zero and several non-zero thresholds. Non-zero thresholds include percentage reductions for new projects that would allow the State to meet its goals for GHG emissions reductions by 2020 and perhaps 2050. These would be determined by a comparison of new emissions versus business as usual emissions and the reductions required would be approximately 30 percent to achieve 2020 goals and 90 percent (effectively immediately) to achieve the more aggressive 2050 goals. These goals could be varied to apply differently to new projects, by economic sector, or by region in the State.

SB 375, California's Regional Transportation and Land Use Planning Efforts (2008)

The transportation sector contributes approximately 40 percent of the GHG emissions in California, with automobiles and light trucks alone contributing almost 30 percent. While substantial reductions to GHG emissions from automobiles and light trucks can be achieved through new vehicle technology and by the increased use of low carbon fuel, the legislature determined that these reductions will not be enough to achieve the State's AB 32 GHG emission reduction goals and that it will therefore be necessary, "to achieve additional significant GHG reductions from changed land use patterns and improved transportation." To implement this concept, on September 30, 2008, Governor Schwarzenegger signed into law SB 375. SB 375 melds regional transportation and local land use planning in an effort to achieve GHG emission reductions from automobiles and light trucks by using transportation and land use planning to implement "smart growth" principles, thereby reducing vehicle trips and the resulting GHG emissions.

SB 375 creates a new regional planning mechanism—referred to as the sustainable communities strategy (SCS)—which promotes high density, transit-oriented development, and creates incentives for specifically defined, high-density development projects. The bill requires multiple State and regional agencies to work cooperatively to establish regional GHG emission reduction targets for the years 2020 and 2035. CARB approved the final targets on February 15, 2011.[51] The primary means by which the GHG reduction targets are to be met is through adoption of an SCS as an element of the regional transportation plans adopted by California's 18 metropolitan planning organizations. Each SCS must analyze existing land use conditions; forecast expected population and employment growth; identify sufficient areas to accommodate the affected region's housing needs; and identify a transportation network to service the transportation needs of the region (California Government Code, Section 65080(b)(2)). Most importantly, the SCS must "set forth a forecasted development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, will reduce GHG emissions from automobile and light trucks to achieve, if there is a feasible way to do so, the GHG emission reduction targets approved by" the CARB (California Government Code, Section 65080(b)(2)(B)(vii)).

On July 18, 2013, the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) adopted Plan Bay Area, an integrated transportation and land use-use strategy through 2040 that marks the nine-county Bay Area region's first long-range plan to meet the requirements of SB 375.

[51] California Air Resources Board (CARB), 2011a. Executive Order No. G-11-024, Relating to Adoption of Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to SB 375. http://www.arb.ca.gov/cc/sb375/executive_order_g11024.pdf, accessed December 21, 2014.

SB 1078

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, Governor Schwarzenegger signed Executive Order S-14-08, which expands the State's Renewables Energy Standard to 33 percent renewable power by 2020. In April 2011, Governor Jerry Brown signed SB 2X, that created a legislative mandate codifying the 33 percent Renewables Portfolio Standard into law.

Electricity service is provided within the Bay Area by Pacific Gas and Electric (PG&E). Approximately 19 percent of PG&E's 2012 energy mix came from renewable energy sources that included wind, solar, biomass, small hydropower and geothermal sources.[52]

Advanced Clean Cars Program

On January 27, 2012, the CARB adopted a package of new emissions rules for cars and light trucks through 2025. The Advanced Clean Cars (ACC) program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The new rules are intended to reduce emissions from gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. The package is also designed to ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California. The package includes four separate, related components: GHG standard for cars and light trucks for model years 2017-2025, Reducing Smog-Forming Emissions (referred to together as the Low Emission Vehicle (LEV) III Regulations), Zero Emissions Vehicle (ZEV) Regulation, and the Clean Fuels Outlet program. While regulatory activity on the Clean Fuels Outlet program was suspended in December 2012, the remaining regulations comprising the ACC program were adopted by the Board in 2012.[53,54,55]

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[52] California Public Utilities Commission (CPUC), 2013. Current Renewable Procurement Status, Pacific Gas and Electric. http://www.cpuc.ca.gov/PUC/energy/Renewables/index.htm, accessed December 21, 2014.

[53] California Air Resources Board (CARB), 2014c. Clean Fuels Outlet Regulation Activity. http://www.arb.ca.gov/fuels/altfuels/cf-outlets/cf-outlets.htm, accessed December.

[54] California Air Resources Board (CARB), 2014g. Low-Emissions Vehicles and GHG 2012 Regulatory Activity. http://www.arb.ca.gov/regact/2012/leviiighg2012/leviiighg2012.htm, accessed December.

[55] California Air Resources Board (CARB), 2014j. Zero Emission Vehicles 2012 Regulatory Activity. http://www.arb.ca.gov/
regact/2012/zev2012/zev2012.htm, accessed December 2014.

Executive Order S-13-08 (2008)

This Executive Order directed California agencies to assess and reduce the vulnerability of future construction projects to impacts associated with sea-level rise.

(3) Regional Regulations

Bay Area Air Quality Management District

The BAAQMD is the public agency entrusted with regulating stationary sources of air pollution in the nine counties that surround San Francisco Bay: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma counties. BAAQMD attains and maintains air quality conditions in the San Francisco Bay Area Air Basin through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues.

BAAQMD CEQA Air Quality Guidelines

The BAAQMD developed guidelines to assist local jurisdictions and lead agencies in complying with CEQA. The BAAQMD CEQA Air Quality Guidelines include thresholds of significance for GHG emissions.[56] The guidelines were updated in June 2010 from the prior 1999 version to include the thresholds of significance adopted by the District in June 2010.[57]

Regional Clean Air Plans

BAAQMD and other air districts prepare clean air plans in accordance with the State and federal Clean Air Acts. The most recently adopted air quality plan for the Bay Area is the 2010 Clean Air Plan (CAP), which is an update to the BAAQMD's 2005 Ozone Strategy to comply with State air quality planning requirements. In addition, the 2010 CAP serves as a multi-pollutant air quality plan to protect public health and the climate. The 2010 CAP control strategy includes revised, updated, and new measures in the three traditional control measure categories: stationary sources measures, mobile source measures, and transportation control measures. In addition, the 2010 CAP identifies two new categories of control measures, including land use and local impact measures and energy and climate measures.[58] The Energy and Climate Measures (ECMs) include:

- ECM 1: Energy Efficiency

[56] Scientific information supporting the thresholds was documented in BAAQMD's proposed thresholds of significance analysis and was not challenged or overturned in this decision. This analysis uses the thresholds because they are supported by substantial evidence. Accordingly, this report uses the thresholds and methodologies from BAAQMD's May 2011 CEQA Air Quality Guidelines to determine whether there would be any project impacts.

[57] Please see page 1 for a discussion of litigation concerning these thresholds.

[58] Bay Area Air Quality Management District (BAAQMD), 2010a. Bay Area 2010 Clean Air Plan, adopted September.

- ECM 2: Renewable Energy
- ECM 3: Urban Heat Island Mitigation
- ECM 4: Shade Tree Planting

BAAQMD Climate Protection Program

The BAAQMD established a climate protection program in 2005 to reduce pollutants that contribute to global climate change and affect air quality in the SFBAAB. The climate protection program includes measures that promote energy efficiency, reduce VMT, and develop alternative sources of energy all of which assist in reducing emissions of GHG and in reducing air pollutants that affect the health of residents.[59] BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

(4) Local Policies

While the Foster City General Plan does not include policies that specifically address global climate change, the following goals and policies would tend to reduce GHG emissions.[60] Foster City is preparing an update the Land Use and Circulation Element of the City's General Plan.[61] In addition, the Foster City Recommended Sustainability Action Plan was published in 2009 and, once adopted, will implement GHG reduction measures on a community-wide scale through goals and recommendations within the following sectors: energy, solid waste, air quality/transportation, and water. Foster City is preparing a Climate Action Plan, the draft of which was made available for public review on September 25, 2014.[62]

- *Goal LUC-B: Promote Proper Site Planning, Architectural Design and Property Maintenance.* Ensure high quality site planning and architectural design for all new development, renovation or remodeling and require property maintenance to maintain the long-term health, safety and welfare of the community.

[59] Bay Area Air Quality Management District (BAAQMD), 2014d. Climate Protection Program. http://www.baaqmd.gov/?sc_itemid=83004271-3753-4519-8B09-D85F3FC7AE70, accessed December 21.

[60] City of Foster City, 1993a. General Plan, adopted May. http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/General-Plan.cfm, accessed December 2014.

[61] City of Foster City, 2014f. Land Use and Circulation Update, http://www.fostercity.org/departmentsanddivisions/communitydevelopment/Features/Land-Use-and-Circulation-Update.cfm, accessed December 5.

[62] City of Foster City, 2014g. Notice of Study Session. Foster City General Plan Update. http://www.fostercity.org/departmentsanddivisions/communitydevelopment/Notices/upload/100214-SS-Notice.pdf, accessed December 2014.

- *Goal LUC-H: Encourage Mixed-Use Projects*. Encourage mixed use projects, with the residential portion of mixed use projects built at the maximum allowed densities to reduce trips to, from and within the City.
- *Goal LUC-I: Provide for Diversified Transportation Needs.* Develop, improve and maintain a circulation system which provides efficient and safe access for private vehicles, commercial vehicles, public transit, emergency vehicles, bicycles and pedestrians.
- *Goal LUC-J: Maintain Acceptable Operating Conditions on the City's Road Network.* Maintain acceptable operating conditions on the City's road network at or above Level of Service D and encourage the maximum effective use of public and private vehicles, reduce the growth in peak hour traffic volumes and reduce single passenger trips.
- *Policy LUC-6: Planned Development Zoning.* The Planned Development zoning designation may be applied to any designated multi-family, commercial or industrial site to allow a mixed-use project, subject to the following standards: …(c) advertising or identification signs are limited in size and number, and regulated by a project-specific sign program; (d) any residences located in the development can be protected by landscaping, open spaces, and other design features from the noise and traffic generated by commercial establishments; …(e) off-street parking for residents, employees, and customers is provides in accordance with the Municipal Code; and (f) an adequate amount of open space for use by any residents of the project is provided. Such an open space area should be protected to provide a private area for residents.
- *Policy LUC-18: Mixed-Use Residential/Commercial Projects.* The City will encourage the housing production by allowing mixed use residential/commercial projects to be built with the residential portion of mixed use projects built at the maximum allowed densities to reduce trips to and from and within the City. In allowing higher residential densities for mixed use projects, the project must comply with the goals and policies of the General Plan, including Policies LUC-15 and LUC-16.
- *Policy LUC-50: Traffic Level of Service Standards.* The City shall seek to achieve a traffic service level of "C" or better on City streets and level of "D" or better during peak traffic hours through the following means: (a) Traffic Systems Management (TSM); (b) Street maintenance; (c) Capital Improvement Program and coordination with federal, State, county, and district funding programs for street and other transportation improvements; and (d) Developer payment of pro rata fair share of traffic improvement costs for new developments.
- *Policy LUC-53: Bicycle Routes and Pedestrian Paths.* Maintain a system of bicycle routes and pedestrian paths, which will include separate bicycle lanes and posted bicycle routes. Pedestrian pathways and easements shall be maintained, either by the City, or, in the case of private ownership, according to a maintenance agreement or landscaping district agreement applicable to the pathway/easement.
- *Policy LUC-54: Coordination with SamTrans.* The City shall work with SamTrans in defining new routes and improving the public transit and transportation system
- *Policy LUC-59: Bicycle Parking.* Secured bicycle parking shall be encouraged for all commercial and industrial buildings. The City will continue to allow required parking to be reduced by one space for every eight bicycle parking spaces provided, per Chapter 17.62 of the Municipal Code.

- *Policy H-A-4-a: Air Quality Impacts.* When site-specific development is proposed and/or a Rezoning application is processed, potential air quality impacts from project traffic shall be studied, and mitigation measures to ensure compliance with the Bay Area Air Quality Management District standards in effect at the time shall be recommended if necessary.
- *Policy H-B-e: Encourage Energy Conservation in Housing.* Encourage adoption of energy conservation measures and promote energy conservation programs that provide assistance for energy conservation improvements.
- *Policy H-B-3-a: Energy Conservation Assistance.* The City will use Community Development Block Grant funds or other funds, as available, to assist lower-income residents to weatherize their homes to make other energy-conservation home repairs.
- *Policy H-B-e-b: Increased Energy Conservation.* The City will continue to enforce Title 24 Energy requirements and will review its development ordinances to determine if zoning, building, subdivision and others discourage the use of energy conservation measures (placement of solar panels, energy conserving architectural designs, building orientation, etc.).
- *Goal PC-C: Maintain and Improve the City's Pedway and Bikeway System.* Maintain and improve the pedway system that surrounds that city and the walkway system that provides safe access to parks, schools and other streets.
- *Goal PC-F: Provide Adequate Open Space to Serve Existing and New Development.* Assure the provision of adequate open space to serve existing and new development and preserve existing open spaces with public access easements within private commercial developments.
- *Goal PC-C: Protect and Conserve Natural Resources.* Protect and conserve wildlife habitat, energy resources, land resources, air quality, and the quality and quantity of water resources.
- *Policy PC-9: Bike Path System.* Develop a Foster City bike path system to connect major work, shopping, school, civic and recreational destinations throughout the city.
- *Policy PC-11: Pedway and Bikeway System Maintenance and Improvement.* Continue to maintain, expand and improve the existing walkway and pedway system.
- *Policy PC-28: Air Quality.* Reduce the impact of development on local air quality.
- *Policy PC-29: Energy Conservation.* Promote energy conservation in new and existing development.

(5) Foster City Standard Conditions of Approval

Foster City has adopted Standard Conditions of Approval (SCOAs) for large new and redevelopment projects. The following SCOAs related to greenhouse gas emissions would apply to the proposed project.

- **SCOA 7.2.** The applicant shall provide a letter describing the sustainable practices that are included in the project and referencing the sheets in the building permit drawings that demonstrate the inclusion of the sustainable practices, conforming to the "Sustainable Design Features" list dated received _____, on file in the Community

Development Department, for review and approval by the Community Development Director.

2. Impacts and Standard Conditions of Approval

This section evaluates the potential for the project to have a cumulatively considerable contribution to global climate change. Because it is not possible to tie specific GHG emissions to actual changes in climate, this evaluation focuses on the project's emission of GHGs, consistent with the BAAQMD CEQA Air Quality Guidelines, as described below.

a. Criteria of Significance

The 2010 BAAQMD CEQA Air Quality Guidelines contain methodology and thresholds of significance for evaluating GHG emissions from land use projects.[63] The BAAQMD thresholds were developed specifically for the Bay Area after considering the latest Bay Area GHG inventory and the effects of AB 32 scoping plan measures that would reduce regional emissions. The thresholds rely upon the technical and scientific basis which was not rejected by the court cases described above. Use of these thresholds is consistent with and authorized by CEQA Guidelines section 15064. The methodology used for assessing GHG / global climate change impacts of the project was based on the BAAQMD CEQA Air Quality Guidelines and guidelines published by other regional, state, and federal regulatory agencies. BAAQMD provides guidance to achieve GHG reductions from new land use developments to close the gap between projected regional emissions with AB 32 scoping plan measures and the AB 32 targets. Therefore it can be assumed that projects that do not exceed BAAQMD thresholds are also in compliance with AB 32 goals, since these goals are the basis of the significance thresholds developed by BAAQMD.[64]

The proposed project would have a significant impact on the environment if it would:[65]

1. Fundamentally conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing GHG emissions.
2. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, specifically:
    a. For a project involving a stationary source, produce total emissions of more than 10,000 MT of CO_2e annually.

[63] Land use developments are projects that do not require a BAAQMD permit to operate.

[64] Bay Area Air Quality Management District (BAAQMD), 2010c. *CEQA Air Quality Guidelines Update – Thresholds of Significance,* May.

[65] Bay Area Air Quality Management District (BAAQMD), 2012a. *CEQA Air Quality Guidelines*, May.

b. For a project involving a land use development, produce total emissions of more than 1,100 MT of CO_2e annually **AND** more than 4.6 MT of CO_2e per service population annually.[66]

Although the City has policies and actions to reduce GHG emissions, the City has not adopted a qualified GHG reduction strategy. There are no other quantified thresholds adopted by other agencies or the City to evaluate GHG emissions from land use projects. Land Use projects that have emissions below 1,100 MT of CO_2e per year, or an emission efficiency metric of 4.6 MT of CO_2e per year per capita or less, are considered to have less-than-significant GHG emissions

b. Less-Than-Significant Greenhouse Gas Emissions Impacts

Less-than-significant impacts of the proposed project are described below.

(1) Plans or Policies

The proposed project would not conflict with plans or policies related to the reduction of GHG emissions. The adopted AB 32 Scoping Plan includes proposed GHG reductions from direct regulations, alternative compliance mechanisms, monetary and nonmonetary incentives, voluntary actions, and market-based mechanisms such as cap-and-trade systems. The project would be subject to all applicable permit and planning requirements in place or adopted by the City of Foster City or State of California; therefore, the proposed project would not conflict with plans or policies related to the reduction of GHG emissions.

Additionally, the proposed project would not result in wasteful, inefficient and unnecessary use of energy. Through the City's administration of the requirements of the California Building Standards Code, energy conservation requirements in Title 24, Part 6, California Code of Regulations, for non-residential buildings would be applied. The California Energy Commission adopted new Energy Efficiency Standards for Residential and Nonresidential Buildings that went into effect on January 1, 2014. Among the reasons that the Energy Commission adopted the 2013 changes to the Building Energy Efficiency Standards was to respond to AB32 and climate change concerns. The Commission also wanted to emphasize energy efficiency measures that save energy at peak periods and seasons and to improve the quality of installation of energy efficiency measures. Projects that apply for a building permit on or after January 1, 2014, must comply with the 2013 standards. The 2013 Standards will use roughly 30 percent less energy for lighting, heating, cooling, ventilation, and water heating than the previous 2008 Standards. The proposed project also represents in-fill development within close proximity to the regional transit network and will be developing well defined transportation demand management plan, which reduces overall energy use. Electrical and gas services for the proposed project would be

[66] Service population is the sum of full time equivalent workers.

provided by PG&E. No deficiencies in electric and gas service in the proposed project vicinity, or that would be caused by the Project, have been identified by PG&E.

(2) Greenhouse Gas Emissions

Implementation of the project would not generate GHG emissions that could exceed BAAQMD thresholds.

Project-Related Emissions Methodology

Construction and operation of the project would generate GHG emissions. Overall, the following activities associated with development of the project could contribute to the generation of GHG emissions:

- **Traffic.** Transportation associated with project operation would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips.
- **Building Energy Consumption.** Natural gas use results in the emissions of three GHGs: $CH_{4,}$, CO_2, and N_2O. CH_4 is released prior to initiation of the natural gas combustion (as before a flame on a stove is sparked), and from the small amount of CH_4 that is uncombusted in a natural gas flame. Electricity use generated by combusting fossil fuel can result in GHG emissions.
- **Water Use and Wastewater Treatment.** Energy is expended in the conveyance of water throughout the State. California's water conveyance system is energy intensive.[67] In addition, energy is also used for treatment and transportation of wastewater. Indirect emissions also occur during wastewater treatment processes.
- **Solid Waste.** GHG emissions are created by the disposal of solid waste, depending on waste disposal method. Landfills emit anthropogenic CH_4 and CO_2 from the anaerobic breakdown of material. The amount of CH_4 and CO_2 emitted depends on characteristics of the landfill and the gas capture system, if one is used.
- **Area Sources (Landscaping).** Natural gas is combusted in equipment such as fireplaces or landscape maintenance equipment, which in turn creates GHGs such as CO_2, CH_4, and N_2O.
- **Removal of Vegetation.** The net removal of vegetation for construction results in a loss of the carbon sequestration in plants. However, planting of additional vegetation would result in additional carbon sequestration and lower the carbon footprint of a project.
- **Construction Activities.** Construction equipment and mobile typically uses fossil fuels to operate. The combustion of these fuels creates GHGs such as CO_2, CH_4

[67] California Energy Commission (CEC), 2005. California's Water-Energy Relationship. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.pdf, accessed December 20, 2014.

and N_2O. Furthermore, CH_4 is emitted during the fueling of heavy equipment, the resting of the mobile, and through leakage from the hot engine.

GHG emissions from construction and operation of the project were calculated using the latest version of the California Emissions Estimator Model (CalEEMod®). CalEEMod® is a statewide 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. The mobile source emission factors used in the model (EMFAC2011 and the 2011 Off-Road Inventory Model) include the Pavley standards, the Low Carbon Fuel standards, and the In-use Off-road Diesel Vehicle Regulation. Further, the model identifies mitigation measures to reduce GHG emissions along with calculating the benefits achieved from measures chosen by the user. The model was developed in collaboration with the air districts of California. Default data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various air districts to account for local requirements and conditions.[68] The use of CalEEMod® is consistent with guidance issued by BAAQMD on July 31, 2013, indicating that BAAQMD will no longer support the use of URBEMIS.[69]

The project land use types and size, trip generation rate and other project-specific information were input to the model. Unless otherwise noted below, the CalEEMod® model defaults for San Mateo County were used. CalEEMod® calculates emissions for transportation, areas sources, electricity consumption, natural gas combustion, electricity usage and indirect emissions associated with water usage and wastewater discharge, and solid waste land filling and transport. CalEEMod® also calculates construction emissions.

CalEEMod® input and output worksheets are included in Appendix D.2.

Year of Analysis

Emissions associated with vehicle travel depend on the year of analysis. The earlier the year, the higher the emission rates as CalEEMod® uses the CARB's EMFAC2011 motor vehicle emissions model. This model assumes reduced emission rates as newer vehicles with lower emission rates replace older, more polluting vehicles through attrition of the overall vehicle fleet. The earliest possible year in which the project will become operational is 2017. Thus, the year 2017 was conservatively used for project

[68] California Emissions Estimator Model (CalEEMod®). http://www.caleemod.com/, accessed November 2014.

[69] Bay Area Air Quality Management District (BAAQMD), 2014c. CEQA Guidelines. http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx, accessed December 15.

operational emissions. The project-specific construction schedule indicated that construction would occur in the year of 2016.

Land Use Descriptions

Based on CalEEMod®'s general land use categories, the project was categorized into three land uses: "Commercial (Research and Development)" (555,000 square feet (square feet)), "Educational (Daycare Center)" (40,000 square feet), and "Parking" (597,667 square feet). The Parking was further subdivided into the "Parking Lot (surface) (200 spaces, 66,667 square feet) and "Unenclosed Parking with Elevator" (1593 spaces, 531,000 square feet). The site was previously occupied by 280,000 square feet building which had already been demolished. Therefore the baseline GHG emissions were conservatively not subtracted from the project GHG emissions in this analysis.

Trip Generation Rates

Mobile on-road emissions are direct emissions from mobile sources including automobiles, trucks, motorcycles, and buses. CalEEMod® allows the user to enter specific trip generation rates. Fehr & Peers provided the weekday trip generation rates in the project Transportation Impact Study for the project by land use type, which were entered into the model.[70] Weekend trip rates were scaled based on the CalEEMod® default ratio between weekday and weekend trip generation rates for the research and development land use category. No separate trips were assumed for the Daycare Center, since it is for employee use only.

Area Sources

CalEEMod® default emission factors and assumptions were used for area sources. The model assumed no wood-burning stoves or fireplaces.

Energy

Emissions rates associated with electricity consumption were adjusted to account for PG&E's projected 2017 CO_2 intensity rate, as provided by PG&E.[71] This 2017 rate is based on the California Public Utilities Commission (CPUC) GHG Calculator.[72] CalEEMod® default rate is 641.35 pounds of CO_2 per megawatt of electricity

[70] Provided via e-mail from UPP to ENVIRON November 13, 2014. Trip generation rates were provided for two land use categories: general office and laboratory. Because CalEEMod® does not contain a general land use category corresponding to laboratory, the trip generation rates for these two categories were summed and applied to the "Commercial (Research and Development)" category.

[71] Pacific Gas and Electric, Greenhouse Gas Emission Factors: Guidance for PG&E Customers, 2013. http://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf. Accessed November 2014.

[72] E3, GHG Calculator Version 3c. Available at: http://www.ethree.com/documents/GHG%20update/GHG%20Calculator%20version%203c_Oct2010.zip.

produced. The 2017 rate for PG&E was 349.0 pounds of CO_2 per megawatt of electricity delivered. In addition, it was assumed that all buildings will comply with the 2013 Title 24 energy efficiency standard. Because the 2013 Title 24 will be 25 percent more efficient than the 2008 Title 24 for residential construction and 30 percent better for nonresidential construction, these percentage reductions were applied to the relevant CalEEMod® default energy intensity factors to estimate the energy demand for the project.

Other CalEEMod® Inputs

Default model assumptions for GHG emissions associated with solid waste generation and water/wastewater use were applied to the project.

Per Capita Computations

The service population was estimated at 1,594 employees, based on an estimate of 3.0 employees per 1,000 square feet of office area, and 2.57 employees per 2,000 square feet of laboratory area.[73] This service population conservatively does not include employees for the Amenities Building.

Emission sources that are not included in the BAAQMD Guidelines or relevant to the project are not included in the GHG emissions inventory. These sources include emission associated with vegetation sequestration change, fugitives from refrigeration, life cycle of materials, agricultural, and off-road equipment.

Construction Emissions

The project's construction GHG emissions were also analyzed using CalEEMod® consistent with the analyses of operational emissions described above.

Construction of the project was assumed to occur over an approximate 12-month period beginning January 1, 2016 with completion on December 15, 2016. This period would include non-consecutive phases of approximately 2 months of site preparation and grading, 8.5 months of building construction, 5 months of architectural coating, and one month of paving. No demolition of existing buildings is included in the project since the 280,000 square feet building previously located at the site has already been demolished.

Unmitigated GHG emissions associated with construction were estimated to be 1,935 MT CO_2e, with all emissions occurring in 2016. These are the emissions from on-site operation of construction equipment, hauling truck trips, vendor truck trips, and worker trips. The BAAQMD does not have an adopted threshold of significance for

[73] Estimate provided via e-mail from UPP to ENVIRON December 12, 2014. The split between office and laboratory used to calculate total employee is consistent with that in the Transportation Impact Study.

construction-related GHG emissions. The BAAQMD recommends quantifying emissions and disclosing that GHG emissions would occur during construction.

In addition, three measures would be implemented during project construction as part of Mitigation Measure AIR-1:

- Idling time of off-road equipment will be less than two minutes; and
- Tier 3 engines will be used for three cranes during the building construction phase.
- As an alternative to the two measures above, the project shall achieve a performance standard of not exceeding the BAAQMD daily NOx emission threshold of 54 pounds per day, which shall be demonstrated to the satisfaction of the City by a qualified air quality consultant. Alternative means of achieving this Performance Standard include use of Tier 3 engines on different pieces of equipment; use of Tier 4 equipment; use of Level 3 selective catalytic reduction (SCR) on Tier 3 equipment; and use of alternative fuels (biodiesel/biofuel, hybrid-electric, and/or electrification).

These measures would further reduce GHG emissions during project construction, but were not quantified in this analysis. Since there are no significance threshold established for construction GHG emissions and the impacts would be temporary and not long-lasting enough to create any substantial contribution to climate change, this impact would be considered less than significant.

Operational Emissions

The CalEEMod® model, along with the project vehicle trip generation rates, was used to predict annual emissions associated with operation of the project. All project buildings were assumed to confirm to the 2013 Title 24 energy efficiency standards. As shown in Table V.F-1, in 2017 the per capita emissions rate of 4.1 MT of CO_2e/yr/capita would not exceed the BAAQMD threshold of 4.6 MT CO_2e/yr/capita. As a result, this impact would be considered less than significant.

Stationary Source Emissions

The development of the project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment specifically involving a stationary source that produces total emissions of more than 10,000 MT of CO_2e annually.

As discussed in the *Section V.D, Air Quality*, the proposed project includes one or multiple emergency generators (EGs) of unknown size and at unknown locations. These generators require permits to operate from the BAAQMD and qualify as

TABLE V.F-1 ANNUAL PROJECT GREENHOUSE GAS EMISSIONS IN METRIC TONS

Source Category	2017 Unmitigated Emissions (MT CO_2e/year)
Area	0.05
Energy Consumption	1,595
Mobile	4,337
Solid Waste Generation	43
Water Usage	580
Total Annual Emissions	6,555
Per Capita Emissions* (MT CO_2e/year/capita)	4.1
BAAQMD Threshold (MT CO_2e/year/capita)	*4.6*

Note: Based on a service population of 1,594. The service population conservatively excludes employees at the amenity building.

stationary sources. Though the size of the generators is unknown, a screening analysis was performed to estimate the emissions from testing of two EGs for up to 50 hours a year per generator. As shown in Table V.F-2 below, the screening emissions from the generators are less than 2 percent of the stationary source threshold. Consequently, the cumulative GHG emissions from emergency generators would not exceed the stationary source threshold of 10,000 MT CO_2e per year. The impact would be less than significant.

c. Significant Greenhouse Gas Emissions Impacts and Mitigation Measures

Implementation of the proposed project would not result in any GHG emissions impacts; all impacts would be less than significant as discussed above.

TABLE V.F-2 SCREENING GREENHOUSE GAS EMISSIONS FOR TWO EMERGENCY GENERATORS

Pollutant	Emission Factors[a]	Units	Annual Fuel Usage[b] (MMBtu/yr)	Emissions (kg/yr)	Global Warming Potential[c]	GHG Emissions (MT CO2e/year)
CO_2	3,836	/	2,234	173,998	1	175.1
CH_4	3.00E-03	kg/MMBtu	2,234	13.4	21	
N_2O	6.00E-04	kg/MMBtu	2,234	2.7	310	
BAAQMD Stationary Source GHG Threshold						10,000
Percent of Threshold						1.75

[a] CO_2 emission factors are based on engine manufacturer data. Caterpillar engines were used as representative of typical emergency generators. Emission factors for methane and nitrous oxide are from 40 CFR Part 98.38 Table C-2.
[b] Calculated based on the fuel use at 100% load with fan (173.5 gallons per hour), using the low heat value of diesel (18,390 BTU per pound) and density of diesel (7.001 pounds per gallon), all from Caterpillar diesel engine manufacturer data. The calculation assumes 50 hours per year of operation each for two generators.
[c] CO_2, CH_4, and N_2O emissions calculated by multiplying the emission factors by the annual fuel usage. Global warming potential values from 40 CFR Part 98 Table A-1 were used to convert emissions to MT of carbon dioxide equivalents (CO2e) in accordance with 40 CFR Part 98.2.
Source: ENVIRON, 2014.

d. Cumulative Greenhouse Gas Emissions Impacts

Cumulative impacts are the collective impacts of one or more past, present, or future projects, that, when combined, result in adverse changes to the environment. The adverse consequences of GHGs is a global environmental problem in which: (a) any given development project contributes only a small portion of any net increase in GHGs and (b) global growth is continuing to contribute large amounts of GHGs across the world. No individual project would result in a significant impact on global climate change, or an environmental impact resulting from global climate change. Therefore, this section addresses GHG emissions primarily as a cumulative impact. As noted above, the proposed project would not conflict with plans or policies related to the reduction of GHG emissions nor would the project generate GHG emissions that could exceed BAAQMD thresholds. Therefore, the proposed project would not have a significant cumulative impact related to GHG emissions.

G. HAZARDS AND HAZARDOUS MATERIALS

This section evaluates the potential effects of the proposed project related to exposure of people to hazards and hazardous materials during and following construction of the proposed project. The evaluation was based on a review of available information included with the application, review of previous environmental assessments, site reconnaissance conducted in December 2014, and a review of other published materials. Potential public health and safety impacts that would result from implementation of the proposed project are described, and SCOAs are recommended where appropriate.

The California Health and Safety Code defines a hazardous material as, "...any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety, or to the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, radioactive materials, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment" (California Health and Safety Code Section 25501).

1. Setting

This section describes the historic and current use and storage of hazardous materials at the project site. Findings of recent studies regarding potential health effects from exposure to electromagnetic fields (EMFs) are also described. EMFs are a potential concern on the project site because transmission lines traverse the northwestern portion of the site. A summary of the regulatory framework is also provided for hazardous materials and hazardous waste; lead, asbestos, and other hazardous building materials; and applicable worker health and safety requirements.

a. Hazardous Materials Existing Conditions

Several environmental investigations have been completed for the project site. The findings of these investigations are summarized briefly below.

(1) 2014 Updated Phase I Environmental Site Assessment (ESA)

Potential hazardous materials issues at and near the project site were evaluated in an Updated Phase I ESA conducted in November 2014 by Langan Treadwell Rollo (Langan).[1] The scope of the Updated Phase I ESA included a field reconnaissance, a review of historical land use information and regulatory agency databases, and

[1] Langan Treadwell Rollo, 2014. *Updated Phase I Environmental Site Assessment, Lincoln Center Campus, Foster City, Californi*a, November 21.

interviews with persons knowledgeable about the past and present uses of the project site.

Previous Reports

The 2014 Updated Phase I ESA summarized the findings of a previous Phase I ESA prepared for the project site by AEI Consultants (AEI) in March 2013[2], and includes information from previous subsurface investigations performed at the project site by EnviroMatrix, Co. (EnviroMatrix) in 1996 and by Green Environmental Inc. (GEI) in 2001 to 2002.

The 2013 Phase I ESA identified the following significant findings:

- According to historical sources, the project site had been occupied by various laboratory and manufacturing tenants since at least 1981. According to DTSC records, the project site had generated various hazardous materials since at least 1983 through 2013, including laboratory wastes, liquids containing metals, PCBs, and halogenated solvent wastes. The hazardous wastes generated on-Site were reportedly stored within designated storage areas at the former buildings Building 500 and Building 300. The project site was equipped with two underground storage tanks (USTs), located within a lined concrete vault between former buildings Building 500 and Building 300 that were used to collect fire sprinkler runoff water in the areas of hazardous material/waste storage. In addition, storm drains in this area were equipped with sumps so that any runoff associated with a potential release was contained before it enters the main municipal storm drain system. Although a subsurface investigation conducted in 2002 revealed no residual impact of volatile organic compounds (VOCs) to soil or groundwater in this area, since that time, the integrity of the drainage system and USTs was unknown. Handling and use of large quantities of hazardous materials (especially halogenated solvents) at the project site for over 30 years coupled with subsurface features potentially acting as conduits to the subsurface represents evidence .of a Recognized Environmental Condition (REC).[3]
- In 2001, a water line at the project site between former Buildings 500 and 300 broke, resulting in the release of water and ethyl acetate into a nearby storm drain. During excavation activities to repair the water line, a solvent odor was reportedly detected. The location of the incident was on the east side of Building 500 near the former hazardous waste shed and which had empty drums that formerly contained hazardous materials. Concentrations of ethyl acetate were

[2] AEI Consultants, 2013. *Phase I Environmental Site Assessment,* March 18.

[3] RECs are defined by the American Society for Testing and Materials (ASTM) Standard Practice E1527-05 as the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property.

detected in soil and water in the area around surrounding the leaky pipe. The results of further investigation indicated that the extent of soil impact was limited to the soils already excavated from the location of the broken water line and it appeared that groundwater had not been impacted; therefore, no further investigation was recommended. The release incident subsequently received a Case Closed status from the SMCEHD and San Mateo County's Groundwater Protection Program (GPP) on November 14, 2002, and October 3, 2002, respectively.[4]

The 2013 Phase I ESA indicated that if the project site is redeveloped, it may be prudent to conduct additional investigations to evaluate potential subsurface impacts in the following areas:

- A portion of storm drains located in the parking/yard areas of the project site are equipped with sumps designed to catch potential contaminants before they were able to enter the main municipal storm drain system to prevent adverse impact to the environment.[5]
- One aboveground storage tank (AST) containing gray water (generated during laboratory container washing activities) was observed within the covered yard area of the former Building 500. The AST was equipped with a concrete secondary containment structure.[6]

Regulatory Agency Database Review

A review of regulatory agency databases was completed as part of the 2013 Phase I ESA and 2014 Updated Phase I ESA. According to the 2014 Updated Phase I ESA, several neighboring properties were identified on environmental regulatory agency lists and records that identify potential sources of activities involving hazardous substances or petroleum products that might affect the soil and groundwater quality at the project site. However, the potential for previously documented nearby sources of chemical constituents to affect environmental conditions at the project site were judged to be unlikely in the 2013 Phase I ESA, and were judged to remain unlikely in the 2014 Updated Phase I ESA. In addition, no new properties in the vicinity of the project site were identified since March 2013.[7] The 2014 Updated Phase I ESA summarized the following information from two addresses encompassed by the project site:

- **400 Lincoln Centre Drive**. This address was listed in several regulatory databases that track facilities which generate, store, and use various hazardous substances.

[4] AEI Consultants, 2013. *Phase I Environmental Site Assessment,* March 18.

[5] Ibid.

[6] Ibid.

[7] Langan Treadwell Rollo, 2014. *Updated Phase I Environmental Site Assessment, Lincoln Center Campus, Foster City, Californi*a, November 21.

Online databases operated by the DTSC and State Water Board were researched and no files were available for this address. The regulatory database listings and the significant findings of 2013 Phase I ESA are based on the generation, use, and storage of various hazardous substances and hazardous wastes directly associated with the former industrial park campus facilities. According to the 2014 Updated Phase I ESA, the previously identified significant findings associated with this address no longer represent current conditions at the project site, since the industrial park campus buildings were all demolished and the project site is currently vacant.[8]

- **850 Lincoln Centre Drive**. This address was listed in several regulatory databases that track facilities which generate, store, and use various hazardous substances. This address was also listed in other regulatory databases including: a listing of National Pollutant Discharge Elimination System (NPDES) permits, including stormwater; the Emissions Inventory Data (EMI) which lists toxics and criteria pollutant emissions data collected by the Air Resources Board (ARB) and local air pollution agencies; the Spills, Leaks, Investigations, and Cleanup (SLIC) and Leaking Underground Storage Tank (LUST) databases maintained by the State Water Board; the DTSC's ENVIROSTOR database which identifies sites that have known contamination or sites for which there may be reasons to investigate further; and the Waste Discharge System (WDS) list of properties which have been issued waste discharge requirements.[9]

  In 1996 a preliminary subsurface assessment was performed by EnviroMatrix in Stock Room No. 7 of Building 500, which was located within the project site. Soil sample analytical results detected concentrations of phenol ranging from 0.6 to 12 milligrams per kilogram (mg/kg) and trace amounts of polynuclear aromatic hydrocarbons (PAHs) in shallow fill beneath the concrete floor slab which EnviroMatrix indicated was likely a result of chemical storage and various other activities within the facility. Trace concentrations of VOCs and semi-volatile organic compounds (SVOCs) were detected in groundwater; however, EnviroMatrix concluded that the groundwater analytical results did not indicate an environmental impact.[10]

  No documentation was found in reference to the removal of the USTs, so it is likely that they are still present beneath the project site.[11]

[8] Langan Treadwell Rollo, 2014. *Updated Phase I Environmental Site Assessment, Lincoln Center Campus, Foster City, Californi*a, November 21.

[9] Ibid.

[10] Ibid.

[11] Ibid.

Historical Land Uses

Historical land use information indicates that the project site was undeveloped wetlands in 1899 and 1915. By 1943, the project site and surrounding vicinity had been reclaimed through placement of artificial fill materials, as depicted on an aerial photograph. The existing overhead high-voltage electrical power transmission lines, which traverse the northwestern portion of the project site, were first noted on an aerial photograph and topographic map from 1956. The 1968 aerial photograph indicates that the project site was still vacant, but the adjacent Foster City Lagoon had been developed and SR 92 was present adjacent to the south and east of the project site. The project site appears to have remained unchanged through 1980, and a 1982 aerial photograph shows that construction of the industrial park campus on the project site had begun. The project site was occupied by the industrial park campus from the early 1980's through 2012 and used for research and development, laboratory, and manufacturing facility purposes, and occupied by various tenants.[12] The industrial park buildings were recently demolished and the project site is currently vacant.

Subsurface Conditions

The project site is relatively flat with a gentle slope down towards the north and existing ground surface elevation of approximately 4 to 7 feet National Geodetic Vertical Datum 1929 (NGVD).[13,14,15] The project site is underlain by approximately 3.5 to 8.5 feet of artificial fill over Bay Mud deposits and groundwater was encountered between 3 to 5 feet below ground surface (bgs) during a geotechnical investigation.[16] Given the proximity of the project site to the San Francisco Bay, groundwater levels underlying the project site are expected to fluctuate due to tidal influences, seasonal changes, and infiltration of precipitation.

Current Hazardous Materials Uses

During the site reconnaissance performed for the 2014 Updated Phase I ESA, reinforced concrete floor slabs that once supported the seven, one- and two-story industrial park campus buildings were observed. The concrete slabs were interconnected by asphalt parking lots and driveways, and planter boxes and trees

[12] Langan Treadwell Rollo, 2014. *Updated Phase I Environmental Site Assessment, Lincoln Center Campus, Foster City, Californi*a, November 21.

[13] The NGVD 1929 is a vertical control datum established to measure vertical positions or elevations based on mean sea level measurements circa 1929. For most purposes, NGVD is equivalent to mean sea level.

[14] The Foster City Datum is equal to the National Geodetic Vertical Datum of 1929 plus 100 feet. Source: Towne, Ray, 2012. Director of Public Works, Foster City, California, personal communication with BASELINE, August 29.

[15] Langan Treadwell Rollo, 2014. *Updated Phase I Environmental Site Assessment, Lincoln Center Campus, Foster City, Californi*a, November 21.

[16] Ibid.

were situated around the concrete slabs and parking areas. The project site was surrounded by a locked fence and the concrete sidewalks surrounding the project site were in good condition with no observed fill-ports or vent pipes (no observed USTs). No wells or significant repairs were observed in the streets that adjoined the project site. No environmental concerns were observed on the exterior of the project site.[17]

The preparers of this DEIR section, BASELINE Environmental Consulting (BASELINE), conducted a site reconnaissance in December 2014. The observations made during the BASELINE 2014 reconnaissance were similar to those reported in the 2014 Updated Phase I ESA. BASELINE observed a storm drain equipped with a sump in the parking lot between former Buildings 700 and 800, which appeared similar to storm drain sumps located in the area between former Buildings 300 and 500 (see Figure V.G-1). No drums, tanks, or other hazardous materials containers were observed on the project site. No evidence of staining on the pavement, distressed vegetation, or odors that would indicate a potential hazardous materials concern was noted at the project site.

Conclusions and Recommendations of the 2014 Updated Phase I ESA

No evidence of any REC(s) in connection with the project site were noted by Langan. Langan recommended that if project site redevelopment activities involve any excavation of shallow soils, it may be necessary to conduct a subsurface investigation to assess subsurface soil, and groundwater (if needed), for the purpose of off-site disposal.[18]

(2) 1996 Preliminary Subsurface Assessment

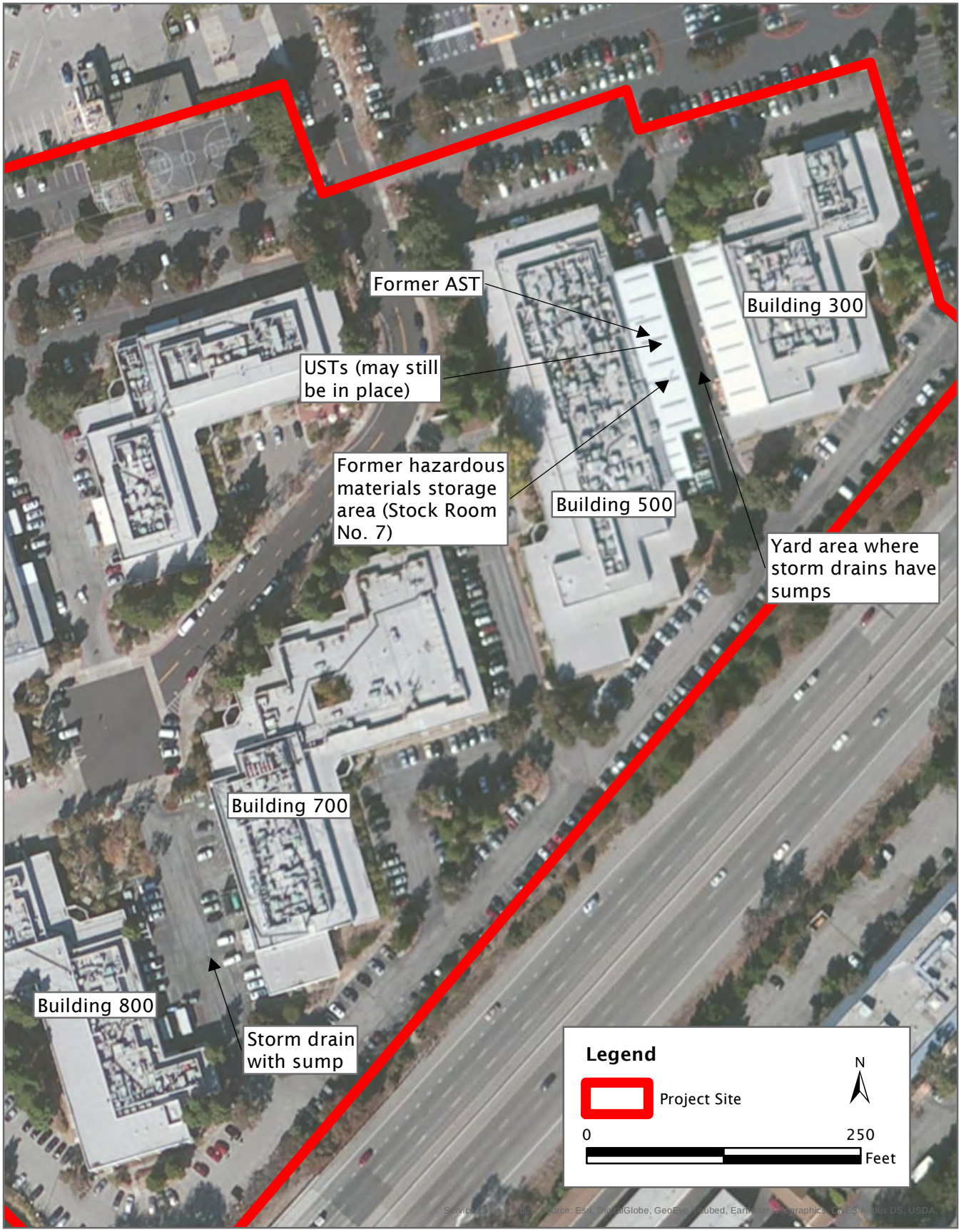
A Preliminary Subsurface Assessment (PSA) was performed at the project site in 1996 by EnviroMatrix.[19] The PSA was performed to evaluate potential chemical impacts beneath the concrete floor slab of Stock Room No. 7 of Former Building 500 of the project site (see Figure IV.G-1). This PSA was performed prior to upgrading the concrete flooring because Stock Room No. 7 had been used for receiving, storage, and dispensing of chemicals including a variety of VOCs and SVOCs, and was located adjacent to manufacturing and liquid packaging operations for a variety of reagents and solvents.[20] The scope of the PSA initially included collection and analysis of soil

[17] Langan Treadwell Rollo, 2014. *Updated Phase I Environmental Site Assessment, Lincoln Center Campus, Foster City, Californi*a, November 21.

[18] Ibid.

[19] EnviroMatrix, 1996. *Preliminary Subsurface Assessment, Building 500 – Stock Room No. 7,* July 15.

[20] Ibid.



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Source: BASELINE Environmental Consulting, 2014; Urban Planning Partners, Inc. 2015

Figure V.G-1
Lincoln Centre Life Sciences Research Campus Project EIR
Hazardous Materials Locations

samples from five shallow borings advanced in March 1996. In May 1996, five additional borings (up to 15 feet deep) were advanced to assess the lateral and vertical extent of soil and groundwater contamination based on the initial sampling results which revealed concentrations of phenol ranging from 1.3 to 12 mg/kg in shallow soil.[21] Concentrations of phenol ranging from 0.6 to 3.7 mg/kg were detected in soil samples from the additional borings, and concentrations of PAHs were detected in one sample collected at a depth of 4 feet bgs from a boring which was located just outside the main entrance to Stock Room No. 7. EnviroMatrix concluded that the sources of impacts from phenol and PAHs in the subsurface were unknown. EnviroMatrix indicated that the impacts may be related to imported fill material at the project site and not necessarily related to chemicals stored at the project site, and that further investigation would be required to determine the origins of the chemicals.[22]

Langan indicated in the 2014 Updated Phase I ESA that only trace concentration of PAHs were detected during the 1996 PSA, however detected concentrations of some PAHs exceed the ESLs for commercial/industrial and construction/trench worker direct exposure. These PAHs were benzo(a)anthracene (16 mg/kg), benzo(b)fluoranthene (11 mg/kg), benzo(k)fluoranthene (43 mg/kg), and benzo(a)pyrene (9.2 mg/kg).[23] The detected concentrations of phenol do not exceed the above referenced ESLs.

(3) 2005 Phase II Environmental Site Assessment

A Phase II ESA was prepared for the project site by GEI in March 2005.[24] The Phase II ESA was conducted to evaluate potential domestic water contamination with lead and asbestos because historic documentation suggested that domestic water piping at the project site was constructed of asbestos-cement (AC) pipes and asbestos rope joints with lead caulking.[25] The scope of the Phase II ESA included collection and analysis of domestic water samples from faucet and spigots.

Based on the results of the water sampling, water quality data provided by the City of Foster City, and an assessment of health risk performed as part of the Phase II ESA, GEI concluded that asbestos was not leaching at detectable concentrations from the

[21] EnviroMatrix, 1996. *Preliminary Subsurface Assessment, Building 500 – Stock Room No. 7,* July 15.

[22] Ibid.

[23] Ibid.

[24] Green Environmental Inc., 2005. *Phase II Environmental Site Assessment, Applied Biosystems, 850 Lincoln Center Drive, Buildings 200, 300, 400, 500, 600, 700 & 800, Foster City, Californi*a, March 28.

[25] Ibid.

AC water supply piping on the project site, and that lead was not leaching at levels of concern from AC water supply piping or faucets with the exception of two faucets.[26]

b. Electrical Transmission Lines/Electromagnetic Fields (EMFs)

A transmission tower is located in the northwestern portion of the project site. High-voltage electrical transmission lines running northeast to southwest across the northwestern portion of the project site are suspended by this tower. Power lines in Foster City are contained in easements that preclude the development of permanent structures beneath them.[27]

Occupants of properties adjacent to the high-voltage electrical transmission lines are exposed to EMFs generated by these power lines, in addition to EMFs from electrical distribution lines, building wiring, appliances, and natural phenomena, including lightning or static electricity. The overall strength of EMFs dissipates quickly with distance from the source. In addition, there is a low, but measurable "background" level of EMFs in the environment that is not related to any particular human-made source. Typically, EMFs are measured at "background" levels about 3 to 4 feet away from an electrical appliance, 60 to 200 feet from an electrical distribution line, and about 300 to 1,000 feet from a transmission line.[28]

There has been public concern about the potential health effects associated with EMFs from human-made sources, such as transmission lines. Human cells have their own electric fields, and some laboratory studies have shown that these internal fields can be disrupted by exposure to even low-energy EMFs. However, determining what effects, if any, EMFs may have on living tissue over long periods of time has proved to be a difficult scientific challenge.

A 1999 review of the literature, prepared by the National Institute of Environmental Health Science (NIEHS), concluded that "the NIEHS believes that there is weak evidence for possible health effects from EMF exposures, and until stronger evidence changes this opinion, inexpensive and safe reductions in exposure should be encouraged."[29]

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[26] Green Environmental Inc., 2005. *Phase II Environmental Site Assessment, Applied Biosystems, 850 Lincoln Center Drive, Buildings 200, 300, 400, 500, 600, 700 & 800, Foster City, Californi*a, March 28

[27] City of Foster City, 1995. *General Plan, Ch.7, Safety Element*, adopted October. Available at: http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/General-Plan.cfm.

[28] California Department of Public Health Services (CDPH), 1999. *Short Fact Sheet on EMF*, California EMF Program.

[29] National Institute of Environmental Health Science (NIEHS), 1999. *Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields, Prepared in response to the 1992 Energy Policy Act*. NIH Publication No. 99-4493, pp. 38. Available at:

The California EMF Program, developed by the California Public Utilities Commission (PUC), California Department of Health Services (DHS), and the Public Health Institute, completed a risk evaluation of EMFs in June 2002. Three DHS scientists evaluated existing EMF study data, in coordination with DHS toxicologists, physicians, and epidemiologists. Due to the lack of clear association between EMFs and health risks in the available data, the California EMF Program did not identify any specific policy measures to address potential risks of EMFs, and DHS made no policy recommendations. However, the PUC advocates "no and low cost" EMF avoidance measures; this means minimizing EMF exposure when it is easy and inexpensive to do so.[30]

As no specific health effects of EMFs have been conclusively demonstrated, there are no health-based or regulatory risk standards for EMF exposure. The assessment of effects of EMFs in this DEIR is therefore limited to the qualitative discussion in this subsection, and no impacts related to EMFs are identified.

c. Surrounding Airports

The project site is located approximately 3.5 miles northwest of the San Carlos Airport and approximately 5.5 miles southeast of the San Francisco International Airport (SFO), and is located within the Airport Influence Area (AIA) of both airports. The project site is not located near any private use airstrips.[31] The project site is located within Area A of the AIA Boundary for the San Carlos Airport, where requirements for real estate disclosure are mandatory due to potential noise issues. Formal review of proposed projects for potential obstruction issues is limited to Area B of the AIA, within a 9,000-foot radius of San Carlos Airport.[32] The proposed project is not located within Area B, and proposed structures at the project site would not be considered a potential obstruction hazard for aircraft using the San Carlos Airport.

The project site is located within the outer boundary of the Terminal Procedures (TERPS) approach and One-Engine Inoperative (OEI) departure surfaces to SFO, and the

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http://www.niehs.nih.gov/health/assets/docs_f_o/health_effects_from_exposure_to_powerline_frequency_electric_and_magnetic_fields.pdf.

[30] California Department of Public Health (CDPH),2002. *An Evaluation of the Possible Risks from Electric and Magnetic Fields from Power Lines, Internal Wiring, Electrical Occupations, and Appliances*, Final Report, California EMF Program. June. Available at: http://www.ehib.org/emf/RiskEvaluation/riskeval.html.

[31] Skyvector, 2014. *San Francisco Sectional Chart*., www.skyvector.com, accessed December 16.

[32] City/County Association of Governments of San Mateo County (C/CAG), 2004, CCAG Land Use Committee Recommendation: Revised Airport Influence Area Boundary for San Carlos Airport – Areas A & B. Adopted October 2004. Available at: http://ccag.ca.gov/plansreportslibrary/airport-land-use/.

entire project site is designated as part of SFO AIA B.[33] The highest obstruction permitted within SFO AIA B is 210 feet.[34]

d. Regulatory Considerations

The following section provides the federal, state, and local regulatory framework for hazardous materials and hazardous waste, hazardous building materials that could be encountered during building demolition activities, worker health and safety, biotechnology research and development (R&D) wastes, medical waste management, and medical and R&D laboratory construction requirements.

(1) Federal, State, and Regional

Hazardous Materials and Hazardous Waste

The use, storage, and disposal of hazardous materials, including management of contaminated soils and groundwater, is regulated by numerous local, state, and federal laws and regulations. The US Environmental Protection Agency (EPA) is the federal agency that administers hazardous materials and hazardous waste regulations. State agencies include the California EPA (Cal/EPA), which includes the California Department of Toxic Substances Control (DTSC), the State Water Resources Control Board (State Water Board), the California Air Resources Board (CARB), and other agencies. The San Francisco Bay Regional Water Quality Control Board (Regional Water Board), the Bay Area Air Quality Management District (BAAQMD), and San Mateo County Health Department, Environmental Health Division (SMCEHD) have jurisdiction on a regional or local level.

A description of each federal, state, and regional/local agency's jurisdiction and involvement in the management of hazardous materials and wastes is provided below.

Federal

The EPA is the federal agency responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials and hazardous waste. The federal regulations are primarily codified in Title 40 of the Code of Federal Regulations (40 CFR). The legislation includes the Resource Conservation and Recovery Act of 1976 (RCRA), the Superfund Amendments and Reauthorization Acts of 1986 (SARA), and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The EPA provides oversight for site investigation and

[33] City/County Association of Governments of San Mateo County, 2012. *Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport*, November. Available at: http://ccag.ca.gov/plansreportslibrary/airport-land-use/.

[34] Ibid.

remediation projects, and has developed protocols for sampling, testing, and evaluation of solid wastes.[35]

State

Three state agencies, described below, regulate hazardous materials and waste that may occur on or around the project site.

- **Department of Toxic Substances Control.** In California, DTSC is authorized by the EPA to enforce and implement federal hazardous materials laws and regulations. California regulations pertaining to hazardous materials are equal to or exceed the federal regulation requirements. Most state hazardous materials regulations are contained in Title 22 of the California Code of Regulations (CCR). DTSC generally acts as the lead agency for soil and groundwater cleanup projects that affect public health, and establishes cleanup levels for subsurface contamination that are equal to, or more restrictive than, federal levels. DTSC has also developed land disposal restrictions and treatment standards for hazardous waste disposal in California.
- **State Water Resources Control Board.** The State Water Board enforces regulations on how to implement underground storage tank (UST) programs. It also allocates monies to eligible parties who request reimbursement of funds to clean up soil and groundwater pollution from UST leaks. The State Water Board also enforces the Porter-Cologne Water Quality Act through its nine regional boards, including the Regional Water Board, described below.
- **California Air Resources Board.** This agency is responsible for coordination and oversight of state and local air pollution control programs in California, including implementation of the California Clean Air Act of 1988. CARB has developed state air quality standards, and is responsible for monitoring air quality in conjunction with the local air districts.

Regional

The following regional agencies have regulatory authority over the proposed project's management of hazardous materials and waste.

- **San Francisco Bay Regional Water Quality Control Board.** The nine RWQCBs, including the Regional Water Board, provide for protection of state waters in accordance with the Porter-Cologne Water Quality Act of 1969. The Regional Water Board can act as lead agency to provide oversight of sites where the quality of groundwater or surface waters is threatened, and has the authority to require

[35] U.S. Environmental Protection Agency (U.S. EPA), 2007. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846 On-Line*, updated September 4, 2013. http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm, accessed December 8, 2014.

investigations and remedial actions. The Regional Water Board has also developed Environmental Screening Levels (ESLs) to help expedite the preparation of environmental risk assessments at sites where contaminated soil and groundwater have been identified.[36]

- **Bay Area Air Quality Management District.** The BAAQMD has primary responsibility for control of air pollution from sources other than motor vehicles and consumer products (which are the responsibility of the EPA and CARB). BAAQMD is responsible for preparing attainment plans for non-attainment criteria pollutants, control of stationary air pollutant sources, and the issuance of permits for activities including asbestos demolition and renovation activities (District Regulation 11, Rule 2).
- **San Mateo County Health Department, Environmental Health Division.** The San Mateo County Health Department, Environmental Health Division (SMCEHD) is the primary agency responsible for local enforcement of state and federal laws pertaining to hazardous materials management. In Foster City, SMCEHD is a Certified Unified Program Agency (CUPA), responsible for coordination of the Hazardous Materials Business Plan Program (HMBP), local hazardous waste generator program, UST management, investigation of leaking USTs, oversight of remediation of contaminated sites, and California Accidental Release Program for highly toxic, flammable, or explosive materials.[37] SMCEHD also administers a County Household Hazardous Waste Program to educate the public about the dangers of toxic household wastes and to provide for proper disposal of household hazardous wastes.

Lead, Asbestos, and Other Hazardous Building Materials

Prior to 1978, lead compounds were commonly used in exterior and interior paints. Lead is a suspected human carcinogen (i.e., may cause cancer), a known teratogen (i.e., causes birth defects), and a reproductive toxin (i.e., can cause sterility). Prior to the 1980s, building materials often contained asbestos fibers, which are a known human carcinogen. Asbestos, used to provide strength and fire resistance, was frequently incorporated into insulation, roofing, and siding, textured paint and patching compounds used on wall and ceiling joints, vinyl floor tiles and adhesives, and water and steam pipes.

Polychlorinated biphenyls (PCBs) have been used as coolants and lubricants in transformers, capacitors, heating/cooling equipment, and other electrical equipment. PCBs have not been manufactured in the United States since 1977, but may still be

[36] San Francisco Bay Regional Water Quality Control Board (Regional Water Board), 2013. *Environmental Screening Levels*, Interim Final, December. Accessed December 8, 2014, http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml.

[37] San Mateo County Environmental Health Department (SMCEHD), 2012. *Environmental Health – Toxic Programs*. http://smchealth.org/environ/toxic, accessed December 8, 2014.

found in older electrical equipment and other building materials, like light ballasts. PCBs have been associated with acne-like skin conditions in adults and changes in the nervous and immune system in children. PCBs are also known to cause cancer in laboratory animals and are probable human carcinogens.[38] PCB or PCB-contaminated items require proper off-site transport and disposal at a facility that can accept such wastes.

Fluorescent lighting tubes and ballasts, computer displays, and several other common items containing hazardous materials (including mercury, a heavy metal) are regulated as "universal wastes" by the State of California. Universal waste regulations allow common, low-hazard wastes to be managed under less stringent requirements than other hazardous wastes. Management of other hazardous wastes is governed by DTSC hazardous waste rules.

Worker Health and Safety

Worker health and safety is regulated at the federal level by the US Department of Labor, Occupational Safety and Health Administration (OSHA). The Federal Occupational Safety and Health Act of 1970 authorizes states to establish their own safety and health programs with OSHA approval. Worker health and safety protections in California are regulated by the California Department of Industrial Relations (DIR). The DIR includes the Division of Occupational Safety and Health (DOSH), which acts to protect workers from safety hazards through its California OSHA (Cal/OSHA) program, and provides consultant assistance to employers. California standards for workers dealing with hazardous materials are contained in CCR Title 8 and include practices for all industries (General Industrial Safety Orders), and specific practices for construction, and other industries. Workers at hazardous waste sites (or workers who may be exposed to hazardous wastes that might be encountered during excavation of contaminated soils) must receive specialized training and medical supervision according to the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations.[39] Additional regulations have been developed for construction workers potentially exposed to lead[40] and asbestos.[41] Cal/OSHA enforcement units conduct on-site evaluations and issue notices of violation to enforce necessary improvements to health and safety practices.

[38] Agency for Toxic Substances and Disease Registry (ATSDR), 2001. *Toxic FAQs for Polychlorinated Biphenyls*, February. Accessed December 8, 2014, http://www.atsdr.cdc.gov/tfacts17.pdf.

[39] California Code of Regulations, Title 8, CCR Section 5192.

[40] California Code of Regulations, Title 8, CCR Section 1532.1.

[41] California Code of Regulations, Title 8, CCR Section 1529.

Biotechnology Research and Development Wastes

Wastes generated during the course of biotechnology R&D may include radioactive materials/waste and bio hazardous waste. At the federal level, the Food and Drug Administration, EPA, and the US Department of Agriculture regulate biotechnology research and product development, including genetically modified organisms that could affect the environment upon release. The US Nuclear Regulatory Commission (NRC) has adopted a waste classification system for low-level radioactive wastes (LLRW) that could be generated during biotechnology R&D uses and requirements for disposal. The classification of LLRW is found in Title 10, Code of Federal Regulations, Part 61.55. There are also specific requirements for transport of radioactive wastes. The California Department of Public Health tracks LLRW under the CA Health and Safety Code, section 115000.1.

Medical Waste Management

Medical wastes are generated or produced as a result of diagnosis, treatment, or immunization of humans, and/or the production or testing of biological materials, and are either considered bio hazardous waste or sharps waste (e.g., used syringes). Cultures, blood and blood products, tissues, and body parts are considered medical wastes. The transportation and disposal of medical wastes at the project site are closely regulated under the California Department of Public Health Medical Waste Management Program (CMWMP), with regulatory oversight by the SMCEHD.[42] The CMWMP includes requirements for facilities that generate large quantities of medical waste, waste haulers, containment and storage of medical waste, and enforcement.[43]

Pharmaceutical wastes may be classified as medical waste, hazardous waste or solid waste, and it is the responsibility of the generator to classify waste properly and dispose of it in accordance with applicable regulations. Generators of pharmaceutical medical waste must develop and implement a plan and procedure for properly managing and disposing of medical waste pharmaceuticals. This plan must be included as part of the facility's Medical Waste Management Plan. The plan is required to be used as a tool to assist the facility in communicating, with the medical waste enforcement agency, the status of the facility's compliance with the CMWMP.

[42] California Department of Public Health (CDPH), 2013a. *Medical Waste Management Program, Local Enforcement Agency Contacts*, February 15. http://www.cdph.ca.gov/certlic/medicalwaste/Documents/MedicalWaste/L%20E%20A.pdf, accessed December 12, 2014.

[43] California Department of Public Health (CDPH), 2013b. The Medical Waste Management Act (California Health and Safety Code, Sections 117600 – 118360), January. http://www.cdph.ca.gov/certlic/medicalwaste/Pages/LawsRegs.aspx, accessed December 12, 2014.

Medical and Research and Development Laboratory Construction Requirements

Design and construction requirements for laboratory environments, including hazardous or flammable materials use and storage, and hazardous or flammable fumes and exhaust systems, are specifically addressed by the California Building Code and the National Fire Code. Foster City has adopted the following codes, which are enforced by either the Building Division or the Fire Marshall:

- National Fire Code, National Fire Protection Association (NFPA)
- Uniform Fire Code (UFC), International Fire Code Institute (IFCI)
- California Fire Code (CFC) Title 24 Part 9, California Building Standards Commission
- California Code of Regulations Title 19, California Building Standards Commission
- Uniform Building Code (UBC), International Conference of Building Officials (ICBO)
- California Building Code (CBC) Title 24, California Building Standards Commission

The CFC requires that hazardous materials exhaust systems incorporate fire suppression systems, and impose use restrictions on the ducting of incompatible chemicals through a single system. A hazardous exhaust system is required wherever the handling of hazardous materials has the potential to create a vapor, gas, fume, mist or dust resulting in exposure to a material classified as a severe health hazard (life-threatening from a single short exposure), or exposure to materials classified as slight, moderate, or serious hazards in concentrations exceeding 1 percent of the median lethal concentration of the substance for acute inhalation toxicity.

Title 8 of the California Code of Regulations addresses occupational health and safety, and specifically addresses laboratory environments in Article 107 of Group 16 regulations, section 5139-5155, *Control of Hazardous Substances*. Subsection 5154.1 discusses requirements for the ventilation of laboratory fumes, including hood design and operation, air volume movement, and exhaust stack design. In addition, circumstances under which air dilution or air cleaning is required (such as scrubbing or air incineration), and decontamination procedures are described.[44]

(2) Local Regulatory Considerations

Foster City General Plan

The 1995 Safety Element of the Foster City General Plan[45] contains the following safety goals, policies, and programs related to hazardous materials, fire, emergency preparedness, and EMFs.

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[44] California Code of Regulations, 2014. Occupational Health and Safety Codes. Available at: www.dir.ca.gov.

[45] City of Foster City, 1995. *General Plan, Ch. 7, Safety Element*, adopted October. Available at: http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/General-Plan.cfm.

- *Goal S-C: Protect from Fire and Dangerous Conditions.* Protect the community from unreasonable risk to life and property caused by fires and dangerous conditions.
- *Goal S-D: Prepare to Respond to Emergencies*. Minimize potential damage to life, environment and property through timely, well-prepared and well-coordinated emergency preparedness, response plans, and programs.
- *Policy* S-6: *Minimize Loss of Life, Injuries, and Property Damage Due to Fires.* The City will minimize loss of life, injuries, and property damage due to fires through review of development proposals, public education, and maintenance of well-trained fire suppression personnel.
- *Policy S-7: Hazardous Materials.* The City will protect the community from unreasonable risks associated with hazardous materials.
- *Policy S-8: Electromagnetic Fields*. The City will monitor available information regarding possible health hazards of electromagnetic fields.
- *Policy S-9: Emergency Response.* The City will prepare to respond to emergencies through the City's Emergency Plan, training, and other measures.
- *Policy S-10: Water Supply.* The City will provide an adequate supply of water for daily use and emergency situations.
- *Program S-i: Use of Uniform Codes.* The City will adopt and enforce the most current uniform codes with additional local requirements as necessary tailored to Foster City. (Responsible Agency, Building Division and Fire Department)
- *Program S-j: Development Review for Fire Safety.* The City will review proposals for new and modified buildings to ensure that fire safety provisions are included as required by the most current uniform codes and local regulations. (Responsible Agency, Fire Department, Building Department)
- *Program S-k: Fire Education/Prevention.* The City will provide a fire education/prevention program to schools, businesses and the community through publications, training classes, and other means. (Responsible agency, Fire Department)
- *Program S-l: Annual Inspections for Fire Safety and Hazardous Materials.* The City will conduct annual inspections of businesses and multi-family dwellings in order to ensure compliance with fire safety and hazardous materials requirements. (Responsible Agency, Fire Department)
- *Program S-m: Water Supply and Delivery.* The City will maintain a water supply and delivery system that can meet potential firefighting demands through annual exercising of fire hydrants and periodic review of storage needs. (Responsible agency, Public Works Department)
- *Program S-o: Electromagnetic Fields.* The City will monitor available information regarding possible health hazards of electromagnetic fields. (Responsible Agency, Community Development Department)
- *Program S-p: Emergency Response.* The City will prepare to respond to emergencies through the use of established procedures, programs of on-going training, periodic

exercises of the City's Emergency Plan, and mutual aid agreements. (Responsible Agency, All Departments)

- *Program S-q: Emergency Plan.* The city will maintain the City's Emergency Plan indicating responsibilities and procedures for responding to an emergency. (Response Agency, Fire Department)

Emergency Evacuation Plans

The City Council adopted the City Multi-Hazard Functional Plan (MFP) as the City's Emergency Plan.[46] The MFP uses the Emergency Management System, which provides a framework for standardizing emergency response procedures in California. The MFP identifies emergency functions and responsibilities of different departments and evacuation routes for the orderly removal of people during various types of emergency situations. In the event of a local emergency confined to Foster City, in accordance with the Community Evacuation Plan, the following steps would be taken to safely and expeditiously evacuate vehicles and pedestrians.

- Mutual aid would be requested from the California Highway Patrol, Caltrans, and neighboring agencies to stop all incoming traffic and provide assistance with traffic and crowd control.
- All arterial streets would be restricted to egress only, with all lanes traveling in the same direction (to effectively double the normal capacity of these streets): 1) East Hillsdale Boulevard (westbound); 2) Foster City Boulevard (northbound; 3) Shell Boulevard (northbound); 4) Edgewater Boulevard, north of Pitcairn (northbound); and 5) Edgewater Boulevard, south of Pitcairn Drive (southbound).
- Beach Park Boulevard would circulate in a clockwise direction in an effort to avoid cross traffic conflicts.
- Foster City Boulevard traffic would be directed to either Third Avenue west or SR 92 west.
- Shell Boulevard traffic would be directed via Metro Center east to SR 92 East, or west on East Hillsdale Boulevard to north on Edgewater Boulevard.
- Northbound Edgewater Boulevard traffic would be directed to East Hillsdale Boulevard westbound, SR 92 East, or Third Avenue.
- Southbound Edgewater Boulevard traffic (south of Pitcairn Drive) would be directed to Baffin Court and across the Belmont Slough fire road to Belmont/Redwood Shores.
- Traffic from the business areas north of SR 92 would be directed to either Third Avenue west or Fashion Island Boulevard west.

[46] City of Foster City, 1995. *General Plan, Ch. 7, Safety Element*, adopted October. Available at: http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/General-Plan.cfm.

As available, equipment (such as portable barricades, vehicles and other traffic diversionary devices) would be used to help direct traffic in the manner specified above. In addition, traffic signals may be controlled to facilitate the smooth movement of traffic. Under the MFP, consideration would also be given to normalizing traffic patterns once vehicles are outside the City limits and are operated on roadways controlled by other agencies.

The MFP also anticipates and plans for emergency evacuation on a regional scale. To that effect, Foster City executed a Memorandum of Understanding (MOU) for the San Mateo County Smart Corridors Project on November 3, 2008.[47] The Smart Corridors Project would allow agencies within San Mateo County to work collaboratively to promote safe and effective transportation management and operations on local arterials and highways within San Mateo County during major traffic incidents. Although the MOU is intended to address the objectives and institutional framework of the Smart Corridors Project, it does not commit any agency to funding, or maintenance/operations responsibilities. The Smart Corridor Project is funded by state grants.

The expected benefits of the Smart Corridor Project for involved agencies include the ability to: 1) quickly identify the location of major traffic incidents in the County; 2) share real-time traveler information among agencies; 3) share cross-jurisdictional signal timing and operations data to better manage major traffic incidents on El Camino Real and local streets; 4) promote the safe and orderly flow of traffic through intelligent transportation systems; 5) coordinate traffic management plans among emergency service providers, cities, the County, and state agencies; and 6) safely direct the public and emergency responders on local streets and highways during major traffic incidents. The Smart Corridor Project is currently on-going.[48]

Foster City Standard Conditions of Approval

Foster City has adopted SCOAs for large new and redevelopment projects. The following SCOAs related to hazards and hazardous materials would apply to the proposed project.

- **SCOA 1.22:** The applicant shall prepare a project-specific Construction Risk Management Plan (CRMP) to protect construction workers, the general public, and the environment from subsurface hazardous materials previously identified and to address the possibility of encountering unknown contamination or hazards in the subsurface. The CRMP shall:

  1) Provide procedures for evaluating, handling, storing, testing and disposing of soil and groundwater during project excavation and dewatering activities, respectively;

[47] City of Foster City, 2008. City Council Resolution No. 2008-99.

[48] City of San Mateo, 2014. *Smart Corridor.* http://www.cityofsanmateo.org/index.aspx?NID=2186, accessed December 16.

2) Require the preparation of a project specific Health and Safety Plan that identifies hazardous materials present, describes required health and safety provisions and training for all workers potentially exposed to hazardous materials in accordance with state and federal worker safety regulations, and designates the personnel responsible for Health and Safety Plan implementation;

3) Require the preparation of a contingency plan that shall be applied should previously unknown hazardous materials be encountered during construction activities. The contingency plan shall be developed by the contractor(s), with the approval of the City and/or appropriate regulatory agency, prior to demolition or issuance of the first building permit. The contingency plan shall include provisions that require collection of soil and/or groundwater samples in the newly discovered affected area by a qualified environmental professional prior to further work, as appropriate. The samples shall be submitted for laboratory analysis by a state-certified laboratory under chain-of-custody procedures. The analytical methods shall be selected by the environmental professional. The analytical results of the sampling shall be reviewed by the qualified environmental professional and submitted to the appropriate regulatory agency, if appropriate. The environmental professional shall provide recommendations, as applicable, regarding soil/waste management, worker health and safety training, and regulatory agency notifications, in accordance with local, state, and federal requirements. Work shall not resume in the area(s) affected until these recommendations have been implemented under the oversight of the City of regulatory agency, as appropriate; and

4) Designate personnel responsible for implementation of the CRMP. The CRMP shall be submitted to the Fire Department for review and approval prior to construction activities.

- **SCOA 1.23:** The contractor(s) shall designate storage areas suitable for material delivery, storage, and waste collection. These locations must be as far away from catch basins, gutters, drainage courses, and water bodies as possible. All hazardous materials and wastes used or generated during project site development activities shall be labeled and stored in accordance with applicable local, state, and federal regulations. In addition, an accurate up-to-date inventory, including Material Safety Data Sheets, shall be maintained on-site to assist emergency response personnel in the event of a hazardous materials incident.

  All maintenance and fueling of vehicles and equipment shall be performed in a designated, bermed area, or over a drip pan that will not allow run-off of spills. Vehicles and equipment shall be regularly checked and have leaks repaired promptly at an off-site location. Secondary containment shall be used to catch leaks or spills any time that vehicle or equipment fluids are dispensed, changed, or poured.

- **SCOA 1.24:** Emergency Preparedness and Response Procedures shall be developed by the contractor(s) for emergency notification in the event of an accidental spill or other hazardous materials emergency during project site preparation and development activities. These Procedures shall include evacuation procedures, spill containment procedures, required personal protective equipment, as appropriate, in responding to the emergency. The contractor(s) shall submit these procedures to the City prior to demolition or development activities.

- **SCOA 9.22:** If the presence of hazardous materials is found on site, site remediation may be required by the applicable state or local regulatory agencies. Specific remedies would depend on the extent and magnitude of contamination and requirements of the regulatory agency(ies). Under the direction of the regulatory agency(ies) and the City, a Site Remediation Plan shall be prepared, as required, by the applicant. The Plan shall: 1) specify measures to be taken to protect workers and the public from exposure to the potential hazards and, 2) certify that the proposed remediation would protect the public health in accordance with local, state, and federal requirements, considering the land use proposed. Excavation and earthworking activities associated with the proposed project shall not proceed until the Site Remediation Plan has been reviewed and approved by the regulatory oversight agency and is on file with the City.
- **SCOA 9.23:** Engineering fill brought on-site shall be demonstrated, by analytical testing, not to pose an unacceptable risk to human health or the environment. Threshold criteria for acceptance of engineered fill shall be selected based on screening levels and protocols developed by regulatory agencies for protection of human health and leaching to groundwater (e.g., Water Board ESLs[49]). The engineered fill shall be characterized by representative sampling in accordance with U.S. EPA's SW-846 Test Methods, by a qualified environmental professional and demonstrated to meet the threshold criteria above. The results of the sampling and waste characterization shall be submitted by the contractor(s) to the City and SMCEHD prior to construction.
- **SCOA 9.24:** The contractor shall prepare a Waste Disposal and Hazardous Materials Transportation Plan prior to construction activities where hazardous materials or materials requiring off-site disposal would be generated. The Plan shall include a description of analytical methods for characterizing wastes, handling methods required to minimize the potential for exposure, and shall establish procedures for the safe storage of contaminated materials, stockpiling of soils, and storage of dewatered groundwater. The required disposal method for contaminated materials (including any lead-based paint, asbestos, or other hazardous building materials requiring disposal, see SCOA 9.25, below), the approved disposal site, and specific routes used for transport of wastes to and from the project site shall be indicated. The Plan shall be prepared prior to demolition or development activities and submitted to the City. The Waste Disposal and Hazardous Materials Transportation Plan may be prepared as an addendum to the Waste Management Plan required by Chapter 15.44 (Ordinance 523) of the Foster City Municipal Code.
- **SCOA 9.25:** Hazardous materials and wastes generated during demolition activities, such as fluorescent light tubes, mercury switches, lead based paint, asbestos containing materials, and PCB wastes, and subsurface hazardous building materials generated during grading and trenching activities, such as asbestos-cement piping, shall be managed and disposed of in accordance with the applicable universal waste and hazardous waste regulations. Federal and state construction worker health and safety regulations shall apply to the removal of hazardous building materials and demolition activities, and any required worker health and safety procedures shall be incorporated into the contractor's specifications for the project. The disposition of hazardous building material wastes shall also be considered in the preparation of the Waste Management Plan required pursuant to the City's Ordinance 523.

[49] San Francisco Bay Regional Water Quality Control Board (Regional Water Board), 2013. *Environmental Screening Levels*, Interim Final, December.

Documentation of the surveys and abatement activities shall be provided to the City prior to the demolition of structures located at the project site.

2. Impacts and Standard Conditions of Approval

This section analyzes the impacts related to hazardous materials and public health and safety that could result from implementation of the proposed project. Criteria of significance are defined and establish the thresholds for determining whether a project impact is significant. Potential hazardous materials and public health and safety impacts from the proposed project are then presented, with SCOAs to reduce potential impacts to less-than-significant levels.

a. Criteria of Significance

A significant hazardous materials or public health and safety impact would occur if the project would:

- Create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼-mile of an existing or proposed school.
- 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 result in a safety hazard for people residing or working in the area.
- Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.
- Result in an increased risk of exposure to wildland or urban fire hazards.
- Result in a safety hazard for people residing or working within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport.
- Result in a safety hazard for people residing or working within the vicinity of a private airstrip.

b. Less-Than-Significant Hazards and Hazardous Materials Impacts

The following discussion examines potential less-than-significant impacts of the proposed project.

(1) Routine Transport, Storage, Use, and Disposal of Hazardous Materials

Based on the proposed land use as a biomedical R&D facility, the operational phase of the proposed project would be expected to store and use hazardous materials (e.g., radioactive materials/waste, pharmaceutical wastes, and medical/bio hazardous waste) on the project site. In addition, equipment installed at the project site, such as hydraulic elevator systems and backup generators, may involve the storage of significant quantities of hydraulic fluid, fuels, and other hazardous materials. All future uses would be subject to existing regulatory programs for hazardous materials (see Regulatory Framework, above). The Fire Department and Building Inspection Division of the Community Development Department coordinate the review of building permits to ensure that hazardous materials requirements are met prior to construction, including required separation between hazardous materials and sensitive land uses, and proper hazardous materials storage facilities. Any businesses that transport, generate, use, and/or dispose of hazardous materials within the project site would also be subject to existing hazardous materials regulations, such as those implemented by SMCEHD and hazardous materials permits from the Fire Department. The Fire Department also conducts annual inspections for fire safety and hazardous materials management of businesses and multi-family dwellings, in accordance with the General Plan.[50] These measures would ensure that the proposed project would not result in significant impacts to health and safety from the routine transport, use, storage, or disposal of hazardous materials following construction.

Hazardous materials would also be transported and used on-site for proposed construction activities. On-site construction vehicles could accidentally release hazardous materials, such as oils, grease, or fuels. It is likely that the construction contractor(s) would store these hazardous materials and vehicles on-site during the duration of construction activities. Accidental releases of hazardous materials could affect soil and/or groundwater quality, or could result in adverse health effects to construction workers, the public, and the environment. However, adherence to the SCOA 1.23, requiring designated storage areas suitable for material delivery, storage and waste collection and SCOA 1.24, developing Emergency Preparedness and Response Procedures, would ensure that these impacts would be less than significant:

(2) Hazardous Material Sites and Hazards Exposure

Evidence of the following two hazardous materials releases at the project site has been documented: 1) in 1996 concentrations of phenol and PAHs were detected in soil in the area of Stock Room No. 7 of former Building 500; and 2) in 2001 a release of water and ethyl acetate from a leaking pipeline occurred between former Buildings

[50] City of Foster City, 1995. *General Plan, Ch. 7, Safety Element*, adopted October. Available at: http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/General-Plan.cfm.

500 and 300.[51] Based on the information from the 2014 Updated Phase I ESA presented above, the potential for exposure to residual contamination from the 2001 release of ethyl acetate is considered less than significant. Based on the information from 1996 PSA presented above, potential exposure to PAHs detected in soil in the area of Stock Room No. 7 of former Building 500 could pose significant impact if not mitigated. Although concentration of phenol detected in soil in the area of Stock Room No. 7 of former Building 500 did not exceed applicable ESLs, the origin of the phenol was not determined and therefore higher concentration of phenol may potentially be present in soil in the area.

Because of the 30-year history of hazardous materials storage and use at the project site, previously unknown areas of contaminated soil and groundwater may be encountered during development of the proposed project. If soils and groundwater are not properly managed during construction, exposure to contaminants in soil and groundwater could pose a health hazard to construction/utility workers and nearby members of the general public during project construction and operation. Exposure to contaminants in soil and groundwater could occur through inhalation of fugitive dust, incidental ingestion, or dermal contact with contaminated material. Potential impacts to future site occupants could also occur if soil or groundwater that is impacted with VOCs or SVOCs is left in place as these compounds could volatilize to indoor air spaces in the buildings if they were present in the subsurface.

Historic documentation suggested that domestic water piping at the project site was constructed of AC pipes.[52] The proposed project would include the installation of new domestic, fire protection, and irrigation water lines for the entire proposed project. Sections of the abandoned AC pipes would be removed as necessary during project construction to accommodate grading and trenching activities. Removal of subsurface asbestos-cement (AC) water lines during project construction could result in the accidental release of asbestos fibers into the environment.

Exposure of construction workers, the general public, or future site occupants to identified or previously unknown contamination in soil and groundwater and other hazardous materials during project construction and operation could result in adverse health effects. However, adherence to SCOAs 1.22, 9.22, 9.23, 9.24, and 9.25, detailed in full above, would ensure that these impacts would be less than significant: SCOA 1.22 requires a CRMP to protect construction workers, the general public, and the environment from subsurface hazardous materials previously identified in

[51] Langan Treadwell Rollo, 2014. *Updated Phase I Environmental Site Assessment, Lincoln Center Campus, Foster City, Californi*a, November 21.

[52] Green Environmental Inc., 2005. *Phase II Environmental Site Assessment, Applied Biosystems, 850 Lincoln Center Drive, Buildings 200, 300, 400, 500, 600, 700 & 800, Foster City, Californi*a, March 28

addition to unknown contamination or hazards in the subsurface. SCOA 9.22 requires a Site Remediation Plan if the presence of hazardous materials are detected at the project site. SCOA 9.23 requires that engineering fill brought on site is safe to human health and the environment. SCOA 9.24 requires the contractor to prepare a Waste Disposal and Hazardous Materials Transportation Plan prior to construction activities, and SCOA 9.25 requires hazardous materials and wastes generated during demolition activities, be managed and disposed of in accordance with the applicable universal waste and hazardous waste regulations.

(3) Emit Hazardous or Acutely Hazardous Materials within ¼-Mile of a School

The project site is located within ¼-mile of several schools. These schools include the Kids Connection Elementary and Preschool, and Lakeview Montessori Preschool and daycare. The operation of the proposed project would likely involve hazardous and acutely hazardous materials for biomedical R&D, which would require transport and disposal of hazardous materials. Compliance with existing regulations will prevent hazardous and acutely hazardous emissions during both the construction and operational phase of the project, and will thereby prevent a significant risk of sensitive receptor exposure to hazardous and acutely hazardous materials, substances, or waste. Therefore, the risks associated with emissions of hazardous or acutely hazardous materials within ¼-mile of a school are considered a less-than-significant impact.

(4) Emergency Response/Evacuation Plan

The proposed project would not be expected to impair implementation of or interfere with any emergency response or evacuation plans in the vicinity of the project site. The proposed project involves redevelopment of a previously developed parcel in an urbanized area. The project would not interfere with the MFP, which the City has established as the basis for all emergency response actions for City departments.[53] The MFP and Community Evacuation Plan identify arterial streets in the vicinity of the project site that would be used for egress only, with all lanes traveling in the same direction (effectively doubling evacuation capacity), including northbound Foster City Boulevard, westbound East Hillsdale Boulevard, and northbound Shell Boulevard. Additionally, Foster City Boulevard traffic would be directed to either East Third Avenue westbound or SR 92 westbound, and Shell Boulevard traffic would be directed via Metro Center east to SR 92 East, or west on East Hillsdale Boulevard to north on Edgewater Boulevard. Potential impacts to emergency evacuation routes or emergency response plans from the proposed project are therefore considered less than significant.

[53] City of Foster City, 1995. *General Plan, Ch. 7, Safety Element*, adopted October. Available at: http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/General-Plan.cfm.

(5) Wildland/Urban Fires

The project site, which is surrounded by urbanized uses, has not been identified as having a significant potential for wildland fires.[54] The proposed project would be required to conform to the California Fire Code and Uniform Building Code, and requirements of the Foster City Fire Department to reduce the potential for structural fires. Compliance with City requirements and building codes would reduce potential impacts from fire hazards, including wildland fires, to a less-than-significant level.

(6) Aviation Hazards

The building heights for the proposed project are well below this maximum permitted height in SFO AIA B of 210 feet,[55] therefore, the proposed project would not be expected to interfere with aircraft, and would therefore not be expected to pose a hazard to persons occupying structures. Further, the proposed project is not expected to include any land uses that would cause a hazard to air navigation within the vicinity of SFO.[56] Additionally the site is not in the vicinity of any private air strips. Impacts from the proposed project on aviation are therefore considered less than significant.

c. Significant Hazards and Hazardous Materials Impacts and Mitigation Measures

Implementation of the proposed project would result in the following significant hazard and hazardous materials impacts.

Impact HAZ-1: Encountering abandoned subsurface asbestos-cement (AC) water lines during subsurface maintenance activities performed during the operational phase of the project could result in the accidental release of asbestos fibers into the environment. (S)

Sections of the abandoned AC pipes that do not need to be removed to accommodate project construction activities will be plugged and left in place. Because sections of the AC pipe will be left in place, future construction or maintenance activities that

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[54] City of Foster City, 1995. *General Plan, Ch. 7, Safety Element*, adopted October. Available at: http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/General-Plan.cfm.

[55] City/County Association of Governments of San Mateo County (C/CAG), 2012. *Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport*, November. Available at: http://ccag.ca.gov/plansreportslibrary/airport-land-use/.

[56] Land uses that could cause a hazard to air navigation within SFO AIA B include: 1) sources of glare; 2) distracting lights that could be mistaken for airport identification lighting; 3) sources of dust, smoke, or water vapor; 4) sources of electrical interference; 5) sources of significant thermal plumes; and 5) any land use that would attract large concentrations of wildlife, particularly flocks of birds. Ibid.

disturb the subsurface at the project site could potentially encounter and damage remaining AC pipes.

Various methods of AC pipe removal have been developed that minimize the potential for AC pipe to release asbestos fibers and become a regulated asbestos containing material (RACM). For example, wetting and cutting the pipe with manual-powered snap cutters or carbide-tipped blade cutters do not produce significant amounts of airborne asbestos and the clean cut maintains the integrity of the non-friable ACM. However, the current structural integrity of the AC pipe is not known and excavation and removal activities could potentially damage the integrity of the pipe and result in releases of asbestos fibers into the environment. Compliance with applicable regulations as discussed in SCOA 9.25 would minimize the potential for a release of asbestos fibers and protect construction workers; however, the following mitigation measure shall be implemented to ensure that future maintenance workers do not inadvertently encounter and damage AC pipes.

> Mitigation Measure HAZ-1: During the operational phase of the proposed project, any contractors or maintenance personnel that may perform excavation activities on the project site shall be informed that AC pipes may be encountered in the subsurface. The contractors or maintenance personnel shall be informed that if AC pipes are encountered which must be removed to accommodate the construction or maintenance activities, the removal of the AC pipes must be performed by a qualified contractor in accordance with applicable Federal, state, and local regulations. The contractors or maintenance personnel shall be informed that if AC pipes are damaged, work must be stopped in the area of the damaged AC pipe, and the area must be cordoned off until removal of the damaged AC pipe can be performed by a qualified contractor in accordance with applicable regulations. (LTS)

d. Cumulative Hazards and Hazardous Materials Impacts

As discussed above, upsets and accidents involving hazardous materials releases, transport, and use during construction activities could result in adverse effects to public health or the environment. Also, development of the project site could expose construction workers and/or the public to hazardous materials in the soil and groundwater, potentially causing adverse health effects. Cumulative projects within the vicinity may result in similar adverse effects. However, the implementation of the SCOAs 1.22, 1.23, 1.24, 9.22, 9.23, 9.24, and 9.25, and Mitigation Measure HAZ-1 regulating construction practices and asbestos removal, and the requirements for individual site assessments and abatement activities, where necessary, would ensure that hazardous materials releases occurring during construction periods do not combine to create a cumulatively considerable effect.

H. HYDROLOGY AND WATER QUALITY

This section describes the existing hydrological setting for the project site, including runoff, drainage, and water quality characteristics, based on information obtained from: 1) a review of a draft geotechnical report prepared for the proposed project; 2) a reconnaissance of the project site conducted on December 10, 2014; 3) and a review of the information provided as part of the project application and other published materials. This section also identifies potentially significant impacts that could result from implementation of the proposed project and recommends SCOAs to reduce identified impacts to a less-than-significant level, where appropriate.

1. Setting

This subsection provides a brief description of the existing hydrological setting at and near the project site; the regulations affecting water resources at the federal, state, and local level; and local policies and programs related to hydrology and water quality.

a. Climate

The climate of the Foster City area is characterized as dry-summer subtropical (often referred to as Mediterranean), with cool wet winters and relatively warmer dry summers. The approximate annualized average high temperature is 71 degrees Fahrenheit (ºF); the average low is 47 ºF.[1] The mean annual rainfall in the vicinity of the project site, for the period between 1906 and 2013, was approximately 19 inches, and primarily occurred from November through April.[2] During the period of record, annual rainfall has varied from 8 inches (1976) to 43 inches (1983), with a 1-day high of 4.9 inches of precipitation on October 13, 1962.[3] Analysis of long-term precipitation records indicates that wetter and drier cycles lasting several years are common in the region. Severe, damaging rainstorms occur at a frequency of about once every 3 years.[4]

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[1] Western Regional Climate Center, 2013. *Period of Record Monthly Climate Summary - Redwood City, California,* March 31. http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7339, accessed October 7, 2014.

[2] Ibid.

[3] Western Regional Climate Center, 2012. *General Climate Summary Tables-Precipitation, Redwood City, California,* October 31. http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7339, accessed October 7, 2014.

[4] Brown, William M. III, 1988. Historical Setting of the Storm: Perspectives on Population, Development, and Damaging Rainstorms in the San Francisco Bay Region, in *Landslides, Floods, and Marine Effects of the Storm of January 3-5, 1982, in the San Francisco Bay Region, California,* eds. Stephen D. Ellen and Gerald F. Wieczorek, US Geological Survey Professional Paper1434. http://pubs.usgs.gov/pp/1988/1434/pp1434.pdf, accessed October 7, 2014.

b. Runoff and Drainage

The project site is relatively flat with an existing ground surface elevation of approximately 104 to 107 feet referenced to the Foster City Datum,[5] which is equal to approximately 4 to 7 feet referenced to the National Geodetic Vertical Datum 1929 (NGVD).[6,7] The project site is vacant, with building pads, surface parking, driveways, and access roadways left from previous uses. Most of the site (approximately 14.9 acres) is covered with impervious surfaces, and approximately 4.1 acres have pervious surfaces consisting primarily of landscaping planter areas. The 1-acre street area that is proposed to be vacated and incorporated into the proposed project area is entirely paved.

Since the project site is largely covered by hardscape, the infiltration capacity of the site is relatively low. When the limited infiltration capacity on the site is exceeded during rainfall events, water flows toward storm drain inlets located on the property and on curbs and gutters of streets surrounding the property.

There is a single public storm drain system that serves the majority of the project site that conveys stormwater northward beneath Lincoln Centre Drive, then westward beneath the northwest portion of the project site, then drains into the Foster City Lagoon.[8] Six other separate storm drain inlets located near the western boundary of the project site discharge directly to the adjacent Foster City Lagoon.[9]

c. Flooding

Based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) for the vicinity of the project site, the site is mapped as Zone X.[10] The Zone X designation indicates that the properties within this area are protected by levees from a 100-year flood.[11]

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[5] Langan Treadwell Rollo, 2014, *Draft Geotechnical Investigation, Lincoln Center Campus*, Foster City, California. No. 731622001, December 19.

[6] The NGVD 1929 is a vertical control datum established to measure vertical positions or elevations based on mean sea level measurements circa 1929.

[7] The Foster City Datum is equal to the National Geodetic Vertical Datum of 1929 plus 100 feet. Source: Shu, Allan, 2015. Senior Engineer, Foster City, California. Personal communication with BASELINE, January 15.

[8] City of Foster City, 2010b, *Underground Infrastructure*, December 16, 2014.

[9] Ibid.

[10] Federal Emergency Management Agency (FEMA), 2012. *Flood Insurance Rate Map (FIRM), San Mateo County, California, Community Panel Number 060318 0159 E*. www.msc.fema.gov, accessed October 6, 2014.

[11] Foster City regulates its floodplains using the FIRM dated October 16, 2012. FEMA has begun studies in the San Francisco Bay that will be used to update the FIRM. FEMA recently (July 2014) completed an engineering study of San Francisco Bay including detailed analyses of coastal hazards as part of the California Coastal Analysis and Mapping Project (CCAMP). This

The Foster City Lagoon is part of the Foster City stormwater management system and is used by the city as a retention basin and to buffer the flooding effects of large storms. The Foster City Lagoon is located adjacent to the southwest and west of the project site. Two diesel-powered pumps, each capable of moving approximately 125,000 to 140,000 gallons per minute, depending on tidal conditions, lower the water level of the lagoon in anticipation of large storms, and/or the wet weather season.[12] The capacity of the each pump is enough to prevent flooding during a 100-year storm.[13] Foster City usually maintains the lagoon with a surface elevation of minus 1 to 2 feet NGVD and routinely lowers the water level in Mid-November to provide reserve storage capacity for frequent winter storms.[14] The minimum elevation of the lowest living floor level within Foster City is several feet higher than the levee bulkhead elevation.[15] The pumps that regulate water levels in the lagoon are maintained and operated on a regular basis to ensure their performance during an emergency.

The Lower Crystal Springs Dam (LCSD) is located approximately 5.7 miles west-southwest of the project site. The LCSD is owned by the City and County of San Francisco, and has a capacity of 57,910 acre-feet.[16] If LCSD should fail, water would flow through San Mateo Creek, spread out over portions of the City of San Mateo, and flow into Marina Lagoon without reaching Foster City.[17] The Foster City Public Works

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study will revise and update flood and wave data included in the National Flood Insurance Program (NFIP), Flood Insurance Study (FIS) reports, and Flood Insurance Rate Map (FIRM) panels. The timetable issued by FEMA indicates the preliminary FIRM maps will become available in July 2015. The draft San Mateo Flood Plain developed by FEMA indicates that the project site will remain mapped as Zone X (protected by levees from a 100-year flood).

Sources:

FEMA, 2014. San Francisco Bay Area Coastal Study, San Mateo County, California. http://www.r9map.org/Docs/SantaMateo_Fema_Factsheet.pdf, accessed April 15, 2015.

FEMA, 2015. San Francisco Bay Coastal Study, San Mateo, California. http://www.r9map.org/Pages/ProjectDetailsPage.aspx?choLoco=41&choProj=267, accessed April 15, 2015.

[12] Towne, Ray, 2012. Director of Public Works, Foster City, California. Personal communication with BASELINE Environmental Consulting, August 29.

[13] Ibid.

[14] City of Foster City, 2014d. *Lagoon System.* http://www.fostercity.org/publicworks/lagoonandlevee/Lagoon-Information.cfm, accessed October 21.

[15] Towne, Ray, 2012. Director of Public Works, Foster City, California. Personal communication with BASELINE Environmental Consulting, August 29.

[16] California Department of Water Resources (DWR), 2010. *California Data Exchange Center: Lower Crystal Springs Reservoir*. http://cdec.water.ca.gov/cgi-progs/profile?s=CRY&type=dam, accessed October 21, 2014.

[17] City of Foster City, 1995. *General Plan, Ch. 7, Safety Element*, adopted October. Available at: http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/upload/GP-Chapter-7-Safety-Element.pdf.

Department estimates that a failure of LCSD would result in a maximum flood height of about 2 feet at the County Fair Grounds in the City of San Mateo, located approximately one mile west of the City of Foster City.[18] This flood height is below the crest height (6 feet) of a levee along Marina Lagoon in Foster City, and therefore it is highly improbable that Lower Crystal Springs Dam failure would cause an inundation of Foster City.[19]

d. Coastal Hazards

The location of the project site (near San Francisco Bay) and the elevation of the site (approximately 4 to 7 feet NGVD) may expose the site to coastal hazards, such as sea level rise, seiche, tsunami, or extreme high tides. The City of Foster City completed a Levee Improvement Program during 1993 and raised the City's Bay-facing levees to a crest height of approximately 10.0 feet NGVD.[20] In a letter dated July 23, 2007, FEMA notified the City of Foster City that it had certified the Foster City Levee, identified as levee P771, as meeting the criteria outlined in Title 44, Code of Federal Regulations Section 65.10.[21] As such, the area protected by the levee was classified as Zone X, protected by a levee from the 100-year flood.

(1) Sea Level Rise

The earth has gone through several cycles of cooling and warming over recent geologic time, resulting in periods of glaciation with an associated sea level reduction, and warming with associated sea level rise. The most recent cycle of global climate change (GCC) may be attributable to a warming trend of the earth's atmosphere (an increase of approximately 1.33˚F from 1906 to 2005[22]) which has resulted in, and is expected to continue to cause, sea level rise. The release of greenhouse gases through human activities is a major cause of current GCC.[23] Refer to *Section V.F, Greenhouse Gas Emissions*, for additional information about global climate change.

Based on long-term monitoring of stationary tidal gauges around the world, it is estimated that the current background rate of sea level rise is 0.07 to 0.08 inches per

[18] Ibid.

[19] Ibid.

[20] Towne, Ray, 2012. Director of Public Works, Foster City, California. Personal communication with BASELINE Environmental Consulting, August 29.

[21] U.S. Department of Homeland Security, 2007. *Letter to Mr. Ray Towne, Director of Public Works, City of Foster City, CA: Letter of Levee Certification for Levee P771, FEMA*, July 23.

[22] International Panel on Climate Change (IPCC), 2007. *Climate Change 2007: Synthesis Report – Summary for Policy Makers.* Core Writing Team, Pachauri, R.K and Reisinger, A. (Eds). IPCC, Geneva, Switzerland, 104 pp. Available at: http://www.ipcc.ch/publications_and_data/ar4/syr/en/contents.html.

[23] U.S. Environmental Protection Agency (U.S. EPA), 2014a. *Climate Change Basics*. http://www.epa.gov/climatechange/basics/, accessed October 21, 2014.

year.[24] Rates of sea level rise may vary at specific locations, as local subsidence or uplift affects the relative change in sea level between land masses and the ocean. In the San Francisco Bay area, the background rate of sea level rise has been estimated to be approximately 0.076 inches per year from 1900 to 2008.[25] Between 2000 and 2050, sea level rise in the San Francisco Bay area is projected to range between 5 to 24 inches.[26]

(2) Seiche

A seiche is the oscillation of a body of water. Seiches occur most frequently in enclosed or semi-enclosed basins such as lakes, bays or harbors. They can be triggered in an otherwise still body of water by strong winds, changes in atmospheric pressure, earthquakes, tsunami, or tides. Triggering forces that set off a seiche are most effective if they operate at specific frequencies relative to the size of an enclosed basin. Coastal measurements of sea level often show seiches with amplitudes of a few centimeters and periods of a few minutes due to oscillations of the local harbor, estuary, or bay, superimposed on the normal tidal changes. To produce significant seiching in a body of water, the forcing periods must be close to the natural period of the bay or one of the overtones.[27] Seiches are not considered a hazard in the San Francisco Bay because of the long periods and overtones of the Bay.[28] The Upper and Lower Crystal Springs Reservoirs are believed to be large enough to pose significant seiche potential; however, inundation from a seiche that overtops the LCSD would not reach Foster City, as it would first enter Marina Lagoon.[29]

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[24] Titus, James G. and Narayanan, Vijay, 1995. *The Probability of Sea Level Rise,* US Environmental Protection Agency, September. http://repositories.tdl.org/tamug-ir/bitstream/handle/1969.3/25952/ 8881-Probability%20of%20Sea%20Level%20Rise.pdf?sequence=1, accessed October 21, 2014.

[25] National Academy of Sciences, 2012. *Chapter 4, Sea-Level Variability and Change off the California, Oregon, and Washington Coasts*, in: Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future. http://www.nap.edu/openbook.php?record_id=13389&page=R1, accessed October 21, 2014.

[26] San Francisco Bay Conservation and Development Commission (SFBCDC), 2011. *Staff Report, Living with a Rising Bay: Vulnerability and Adaptations in San Francisco Bay and on its Shoreline,* October 6.

[27] Borrero, J., Dengler, L., Uslu, B., Synolakis, C., 2006. *Numerical Modeling of Tsunami Effects at Marine Oil Terminals in San Francisco Bay*, June 8. Report prepared for: Marine Facilities Division of the California State Lands Commission.

[28] Sea Level Rise Committee of SF Adapt. Guidance for Incorporating Sea Level Rise into Capital Planning in San Francisco. 2014. http://www.acfloodcontrol.org/SFBayCHARG/pdf/sf_slr_guidance.pdf

[29] City of Foster City, 2014d. *Lagoon System*. http://www.fostercity.org/publicworks/lagoonandlevee/Lagoon-Information.cfm, accessed October 2.

(3) Tsunami

Tsunamis are long period water waves caused by underwater seismic events, volcanic eruptions, or undersea landslides. Tsunamis affecting the San Francisco Bay region would originate west of the Bay, in the Pacific Ocean. Areas that are highly susceptible to tsunami inundation tend to be low-lying coastal areas, such as tidal flats, marshlands, and former bay margins that have been artificially filled. Inundation or damage caused by a tsunami may disrupt highway traffic in those low-lying areas. Although the project site is located on artificial fill, it is not located within a tsunami inundation area.[30] Tsunamis entering San Francisco Bay through the relatively narrow Golden Gate would tend to dissipate as the energy of the wave spreads out as the Bay becomes wider and shallower.[31] The predicted maximum credible tsunami amplitude at the Potrero District of San Francisco (just north of the project site) is estimated to be 5.9 feet[32] and the levees protecting Foster City are at 10 feet NGVD.

(4) Extreme High Tides

Extreme high tides in San Francisco Bay result from the combined effects of astronomical high tides (related to the lunar cycle) and other factors, including winds, barometric pressure, ocean temperatures, and freshwater runoff. In California, the highest astronomical tides occur in the summer and winter, and therefore extreme high tides are most likely to occur during these times. Based on the 129-year record of daily high tides, the US Army Corps of Engineers (Corps) has developed an estimated 100-year high tide elevation for various locations in the Bay (an extreme high tide with a probability of occurrence every 100 years). The elevation of the estimated 100-year tide at Foster City is approximately 7.1 feet.[33]

e. Groundwater

The project site is within the San Mateo Plain sub-basin, which is located within the Santa Clara Valley Groundwater Basin, and is bounded by San Francisco Bay to the east, Westside Basin to the north (also referred to as Merced Valley Basin), the Santa Cruz Mountains to the west, and San Francisquito Creek to the south. The basin is composed of alluvial fan deposits formed by tributaries to San Francisco Bay. The water-bearing formations comprise two groups: the Santa Clara Formation of the older

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[30] California Emergency Management Agency (CEMA), 2009, *Tsunami Inundation Map for Emergency Planning, San Mateo Quadrangle*, June 15. http://www.consrv.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/SanMateo/Documents/Tsunami_Inundation_SanMateo_Quad_SanMateo.pdf, accessed October 21, 2014.

[31] Borrero, J., Dengler, L., Uslu, B., Synolakis, C., 2006. *Numerical Modeling of Tsunami Effects at Marine Oil Terminals in San Francisco Bay*, June 8. Report prepared for: Marine Facilities Division of the California State Lands Commission.

[32] Ibid.

[33] U.S. Army Corps of Engineers (Corps), 1984. *San Francisco Bay Tidal Stage vs. Frequency Study*.

Plio-Pleistocene age and the Quaternary age alluvial deposits. The alluvial deposits overlie the Santa Clara Formation and have a maximum depth of about 1,250 feet. The alluvial deposits thin out in the upland areas rising into the Santa Cruz Mountains. The recent geotechnical investigation conducted on the project site encountered groundwater as shallow as 3 feet below ground surface (bgs) and depth to groundwater ranges from 3 to 4.5 feet bgs.[34] Given the proximity of the project site to the San Francisco Bay, groundwater levels underlying the project site are expected to fluctuate due to tidal influences, seasonal changes, and infiltration of precipitation.

f. Water Quality

The quality of surface water and groundwater in the vicinity of the project site is affected by past and current land uses at the site and site vicinity, and by the quality of San Francisco Bay water in areas where groundwater is affected by tides. Water quality is also affected by the composition of local geologic materials. Water quality in surface and groundwater bodies is regulated by the State Water Resources Control Board and Regional Water Quality Control Boards. The project site is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (Regional Water Board), which is responsible for implementation of state and federal water quality protection statutes, regulations, and policies in the vicinity of the project site.

The Regional Water Board implements the Water Quality Control Plan (Basin Plan),[35] a master policy document for managing water quality in the region. The Basin Plan establishes beneficial water uses for waterways and water bodies within the region. The San Mateo Plain groundwater sub-basin which underlies the project site is listed in the Basin Plan as providing the beneficial uses of municipal and domestic water supply, industrial process water supply, industrial service water supply, and agricultural water supply. At its closest, the Lower San Francisco Bay is located approximately 300-feet north of the project site and is listed as providing the beneficial uses of industrial service supply, commercial and sport fishing, shellfish harvesting, estuarine habitat, fish migration, preservation of rare and endangered species, fish spawning, wildlife habitat, water contact and noncontact recreation, and navigation. The Foster City Lagoon, which receives runoff from the project site, is listed as providing the beneficial uses of estuarine habitat, wildlife habitat, and water contact and noncontact recreation.

[34] Langan Treadwell Rollo, 2014, *Draft Geotechnical Investigation, Lincoln Center Campus,* December 19.

[35] San Francisco Bay Regional Water Quality Control Board (Regional Water Board), 1995 as appended through 2011. *Water Quality Control Plan for the San Francisco Bay Basin*. Available at: www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml.

(1) Stormwater Quality

Pursuant to Section 402 of the Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act, municipal stormwater discharges in the City of Foster City (the City is part of the San Mateo Countywide Stormwater Pollution Prevention Program) are regulated under the San Francisco Bay Region Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit, Order No. R2-2009-0074, NPDES Permit No. CAS612008, adopted October 14, 2009 (MRP). The MRP is overseen by the Regional Water Board. MRP Provision C.3 addresses post-construction stormwater management requirements for new development and redevelopment projects that add and/or replace 10,000 square feet or more of impervious area. Provision C.3 requires the City to require incorporation of site design, source control, and stormwater treatment measures into development projects, to minimize the discharge of pollutants in stormwater runoff and non-stormwater discharges, and to prevent increases in runoff flows. The MRP requires that Low Impact Development (LID) methods are to be the primary mechanism for implementing such controls.

MRP Provision C.3.g pertains to hydromodification management. This MRP provision requires that stormwater discharges shall not cause an increase in the erosion potential of the receiving stream over the existing condition. Increases in runoff flow and volume shall be managed so that the post-project runoff shall not exceed estimated pre-project rates and durations, where such increased flow and/or volume is likely to cause increased potential for erosion of creek beds and banks, silt pollutant generation, or other adverse impacts on beneficial uses due to increased erosive force. The project site is within an area explicitly exempted from the hydromodification management requirements due to close proximity to the Bay and the predominance of engineered hardened drainage conveyances.[36]

In addition, projects disturbing more than 1 acre of land during construction are required to comply with the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, NPDES No. CAS000002 (Construction General Permit).

To obtain coverage under the Construction General Permit, the project applicant must provide via electronic submittal, a Notice of Intent, a Storm Water Pollution Prevention Plan (SWPPP), and other documents required by Attachment B of the Construction General Permit. Activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as grubbing or excavation. The permit also covers linear underground and overhead projects such as pipeline installations.

[36] San Mateo Countywide Water Pollution Prevention Program, 2013, *C.3 Stormwater Technical Guidance*, January 4. http://www.flowstobay.org/files/newdevelopment/C3techguide/C3TechGuidanceJan2013.pdf, accessed October 21, 2014.

Construction General Permit activities are regulated at a local level by the Regional Water Board.

The Construction General Permit uses a risk-based permitting approach and mandates certain requirements based on the project risk level (i.e., Level 1, Level 2, or Level 3). The project risk level is based on the risk of sediment discharge and the receiving water risk. The sediment discharge risk depends on the project location and timing (i.e., wet season versus dry season activities). The receiving water risk depends on whether the project would discharge to a sediment-sensitive receiving water. The determination of the project risk level would be made by the project applicant when the Notice of Intent is filed (and more details of the timing of the construction activity are known).

The performance standard in the Construction General Permit is that dischargers shall minimize or prevent pollutants in stormwater discharges and authorized non-stormwater discharges through the use of controls, structures, and best management practices (BMPs) that achieve Best Available Technology (BAT) for treatment of toxic and non-conventional pollutants and Best Conventional Technology (BCT) for treatment of conventional pollutants. A SWPPP must be prepared by a Qualified SWPPP Developer that meets the certification requirements in the Construction General Permit. The purpose of the SWPPP is (1) to help identify the sources of sediment and other pollutants that could affect the quality of stormwater discharges; and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges resulting from construction activity. Operation of BMPs must be overseen by a Qualified SWPPP Practitioner (QSP) that meets the requirements outlined in the permit.

The SWPPP must also include a construction site monitoring program. The monitoring program includes, depending on the project risk level, visual observations of site discharges, water quality monitoring of site discharges (pH, turbidity, and non-visible pollutants, if applicable), and receiving water monitoring (pH, turbidity, suspended sediment concentration, and bioassessment).

(2) Groundwater Quality

Groundwater quality in the project area is characterized as slightly alkaline (average pH of 7.3) with a hardness of 471 milligrams per liter (mg/L) of calcium carbonate ($CaCO_3$), classifying it as "very hard." In some areas, water quality may be impaired due to high concentrations of sodium, as a result of tidal influence.[37]

[37] California Department of Water Resources (DWR), 2004. *California's Groundwater: Santa Clara Valley Groundwater Basin, San Mateo Subbasin, Bulletin 118*, February 27.

g. Local Regulatory Considerations

Applicable local regulations and programs related to hydrology and water quality are described below.

(1) Foster City General Plan

The following goals, policies, and programs from the Foster City General Plan Safety Element related to hydrology and water quality pertain to the proposed project.

- *Safety Goal S-B Protect From Flood Waters*. Protect the community from unreasonable risk to life and property caused by flood hazards.
- *Policy S-4 Flood Protection.* The City will maintain the City's levees and lagoon system for flood protection.
- *Policy S-5 Flood Plain Regulations*. The City will control development to minimize risks to person and property within any special flood hazards area through flood plain regulations.
- *Program* S-*G Maintain Levees and Lagoon for Flood Protection.* The City (Public Works) will maintain the City's levees and lagoon for flood protection pursuant to the "Operation and Maintenance Manual, Foster City Levees and Pump Station" and the "Lagoon Management Plan".
- *Program S-H Flood Plain Regulations.* The City (Community Development Department) will evaluate any proposed development with in special flood hazard areas for conformance with the City's flood plain regulations as contained in Chapter 15.36 of the Foster City Municipal Code.

(2) Foster City Standard Conditions of Approval

Foster City has adopted SCOAs for large new and redevelopment projects. The following SCOAs related to stormwater drainage and infrastructure would apply to the proposed project.

- **SCOA 1.13:** Prior to issuance of a building permit, the plans shall demonstrate compliance with the San Mateo Countywide Water Pollution Prevention Program, (see http://flowstobay.org/bs_new_development.php) including, but not limited to, submittal of checklists related to impervious surface and stormwater:
  - 1.13.1 C.3 and C.6 Data Collection Form
  - 1.13.2 Project Applicant Checklist for NPDES Permit Requirements
  - 1.13.3 Stormwater Requirements Checklist
  - 1.13.4 Stormwater Control Plan: A Stormwater Control Plan (SWCP) shall be required and approved by the City prior to issuance of the first building permit. Any improvements identified in the SWCP shall be constructed prior to first occupancy to the satisfaction of the Public Works Director/City Engineer.
- **SCOA 2.4:** Prior to issuance of a building permit, the Construction Best Management Practices (BMPs) related to stormwater prevention shall be included as notes on the building permit drawings (see http://www.fostercity.org/Services/permits/List-of-Forms.cfm).

- **SCOA 2.6:** Prior to issuance of a building permit, any development involving one or more acres of total land area must obtain a General Permit from the State Water Resources Control Board. This permit requires the owner/developer to do the following:

    a) Along with the project applicant, attend a pre-construction meeting with the Community Development Director, Chief Building Official and other departments the Community Development Director invites to discuss the project conditions of approval, working hours, site maintenance and other construction matters;

    b) Acknowledge in writing that they have read and understand the project conditions of approval, particularly those pertaining to construction practices and site safety, and will make certain that all project sub-contractors have read and understand them prior to commencing work and that a copy of the project conditions of approval will be posted on site at all times during construction.

- **SCOA 2.7:** The applicant shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential adverse impacts to surface water quality during the construction period. The SWPPP shall be prepared by a Qualified SWPPP Developer (QSD). The SWPPP shall include the minimum BMPs required for the identified Risk level. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association Stormwater Best Management Handbook-Construction. The SWPPP shall be designed to address the following objectives:

    1) All pollutants and their sources, including sources of sediment associated with construction activity are controlled;

    2) Where not otherwise required to be under a Regional Water Board permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated;

    3) Site Best Management Practices (BMPs) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the Best Available Technology and Best Conventional Technology (BAT/BCT) standard; and

    4) Stabilization BMPs installed to reduce or eliminate pollutants after construction are completed.

    5) Best Management Practices (BMPs) shall be designed to mitigate construction-related pollutants and at a minimum, include the following:

        a. Practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The SWPPP shall specify properly-designed centralized storage areas that keep these materials out of the rain.

        b. Reduce erosion of exposed soil which may include, but are not limited to: soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins. The potential for erosion is generally increased if grading is performed during the rainy season because disturbed soil can be exposed to rainfall and storm runoff.

        c. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control (i.e. keeping sediment on the site). End-of-pipe sediment control measures (e.g. basins and traps) shall be used only as

secondary measures. Ingress and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment wash-down facilities shall be designed to be accessible and functional during both dry and wet conditions.

6) The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and shall include both dry and wet weather inspections. In addition, in accordance with State Water Resources Control Board Resolution No. 2001-046, monitoring shall be required during the construction period for pollutants that may be present in the runoff that are "not visually detectable in runoff."

   To educate on-site personnel and maintain awareness of the importance of stormwater quality protection, site supervisors shall conduct regular tailgate meetings to discuss pollution prevention. The frequency of the meetings and required personnel attendance list shall be specified in the SWPPP.

   A QSD shall be responsible for implementing BMPs at the site. The QSD shall also be responsible for performing all required monitoring, and BMP inspection, maintenance and repair activities. The developer shall retain an independent monitor to conduct weekly inspections and provide written monthly reports to the City of Foster City Public Works Department to ensure compliance with the SWPPP. Water Board personnel, who may make unannounced site inspections, are empowered to levy considerable fines if it is determined that the SWPPP has not been properly prepared and implemented.

- **SCOA 2.8:** The applicant shall fully comply with the C.3 provisions of the Municipal Regional Stormwater NPDES Permit (MRP). Responsibilities include, but are not limited to, designing Best Management Practices (BMPs) into the project features and operation to reduce potential impacts to surface water quality associated with operation of the project. These features shall be included in the design-level drainage plan and final development drawings. Specifically, the final design shall include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development.

  All Stormwater control measures outlined in the San Mateo Countywide Water Pollution Prevention Program's January 2013 C.3 Stormwater Technical Guidance manual (or updated version) shall be incorporated into the project design. Low Impact Development features, including rainwater harvesting and reuse, and passive, low-maintenance BMPs (e.g., grassy swales, porous pavements) are required under the MRP. Higher-maintenance MBP's may only be used if the development of at-grade treatment systems is not possible, or would not adequately treat runoff. Funding for long-term maintenance for all BMPs must be specified (as the City will not assume maintenance responsibilities for these features).The applicant shall establish a self-perpetuating drainage system maintenance program for the life of the project that includes annual inspections of any stormwater detention devices and drainage inlets. Any accumulation of sediment or other debris would need to be promptly removed. In addition, an annual report documenting the inspection and any remedial action conducted shall be submitted to the Public Works Development for review and approval.

The City of Foster City Public Works Department shall ensure that the SWPPP and drainage plan are prepared and are adequate prior to approval of the first building permit for the site.

- **SCOA 5.13.1:** Prior to issuance of a building permit, the storm water system shall be designed to be capable of handling a 25-year storm with the hydraulic grade line at least one foot below every grate, to the satisfaction of the Engineering Division.
- **SCOA 5.15:** Prior to issuance of a building permit, a complete storm drainage study of the proposed development must be submitted showing the amount of runoff, and existing and proposed drainage structure capacities. This study shall be subject to review and approval by the Engineering Division. All needed construction improvements will be made by the applicants. No overloading of the existing system will be permitted. A hydrology/hydraulic analysis shall be completed on the existing storm drain system to verify it is adequately sized to handle the run-off from the project.
- **SCOA 5.16:** Prior to issuance of a building permit, existing storm drain pipe lines on the project site and downstream thereof shall be televised to verify they have not become filled with sediment and cleaned out concurrently.
- **SCOA 5.17:** Prior to issuance of a building permit, should the City determine that the City's storm drain system or storm drain pumping capacity requires expansion or modification as a result of the applicants' development, the applicants shall pay for all necessary improvement costs. The timing and amount of payment shall be as determined by the City.
- **SCOA 5.18:** Post-construction survey reports shall be completed on the existing storm drain system. Any necessary repairs to restore the facilities shall be an element of the report. If required, the existing storm drains shall be cleaned as necessary during and at the completion of the proposed project.
- **SCOA 9.3:** The applicant or any future owner shall provide and conduct regular maintenance of the site in order to eliminate and control the accumulation of trash, excess/waste materials and debris.
- **SCOA 9.5:** The property owners/tenants are prohibited from discharging any commercial fertilizers, pesticides or herbicides into the lagoon or water features.
- **SCOA 9.9:** The applicant/property owners/tenants shall control accumulations of petroleum wastes and other pollutants in the streets and parking areas by frequent sweeping.

2. Impacts and Standard Conditions of Approval

This section analyzes the impacts related to hydrology and water quality that could result from implementation of the proposed project. The section begins with criteria of significance, which establish the thresholds for determining whether a project impact is significant. The latter part of this section presents the potential hydrology and water quality impacts associated with the proposed project. SCOAs are provided as appropriate and feasible.

a. Significance Criteria

The project would have a significant effect on hydrology or water quality if it would:

- Violate any water quality standards or waste discharge requirements.
- Create or contribute runoff that would be an additional source of water quality degradation.
- Result in substantial erosion or sedimentation on- or off-site that would affect the quality of receiving water.
- Create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems and/or increase upstream or downstream flooding and require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Place housing/structures within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, which would impede or redirect flood flow.
- Expose people or structures to a substantial risk of loss, injury or death involving flooding.
- Expose people or structures to a substantial risk of inundation by seiche, tsunami, extreme high tides, and/or sea level rise.
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a significant net deficit in aquifer volume or a lowering of the local groundwater table level.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.
- Otherwise substantially degrade water quality.

b. Less-Than-Significant Hydrology and Water Quality Impacts

Implementation of the proposed project would result in the less-than-significant impacts described below. Since these impacts would not exceed the significance thresholds described above, no mitigation measures are necessary.

(1) Degradation of Water Quality

Construction-Period Impacts

Demolition, excavation, grading and construction on the project site would require disturbance and exposure of shallow soils through removal of existing building pads,

pavements, and vegetative cover. During the construction period, excavation and grading activities would result in exposure of soil to runoff, potentially causing erosion and entrainment of sediment in the runoff. Soil stockpiles and excavations on the project site would be exposed to runoff and, if not managed properly, the runoff could cause erosion and increased sedimentation in water courses outside of the project site. The accumulation of sediment could result in blockage of flows, potentially causing increased localized ponding or flooding.

The potential for chemical releases is present at most construction sites. Once released, substances such as fuels, oils, paints, and solvents could be transported to nearby surface waterways and/or groundwater in stormwater runoff, wash water, and dust control water, potentially reducing the quality of the receiving waters.

Post-Construction Impacts

New construction and intensified land uses at the project site would result in increased vehicle use and the potential discharge of associated pollutants. Leaks of fuel or lubricants, tire wear, brake dust, and fallout from exhaust contribute petroleum hydrocarbons, heavy metals, and sediment to the pollutant load in runoff being transported to receiving waters. Runoff from the proposed landscaped areas may contain residual pesticides and nutrients. Long-term degradation of runoff water quality from the site could adversely affect water quality in the receiving waters.

Construction period and operation period activities could result in degradation of water quality in Foster City Lagoon and the Bay by reducing the quality of stormwater runoff. However, these impacts would be reduced by the implementation of SCOAs 1.13, 2.6, 2.7, 2.8, 5.16, 9.3, 9.5, and 9.9, which are described in full above. SCOA 1.13 requires a Stormwater Control Plan (SWCP) be approved by the City prior to issuance of the first building permit. Each phase of the project would be required to have a separate SWCP in place and SWCP improvements must stand alone and function independently per phase. SCOA 2.6 requires the owner or developer to submit a Notice of Intent (NOI) to the State Water Resources Control Board and obtain a Construction General Permit prior to commencement of construction activity. SCOA 2.7 requires the project sponsor to prepare a Storm Water Pollution Prevention Plan (SWPPP) prepared by a Qualified SWPPP Developer (QSD) that is designed to reduce potential impacts to surface water quality through the construction period of the project. SCOA 2.8 requires the project sponsor to fully comply with the C.3 provisions of the Municipal Regional Stormwater NPDES Permit (MRP). Responsibilities include, but not limited to, designing Best Management Practices (BMPs) into the project features and operation to reduce potential impacts to surface water quality associated with operation of the project. SCOA 5.16 would require the project sponsor to televise existing storm drain pipe lines on the project site and downstream to verify they have not become filled with sediment. SCOA 9.3 would require regular maintenance of the project site in order to eliminate and control the accumulation of trash, excess/waste

materials and debris. SCOA 9.5 would prohibit discharging any commercial fertilizers, pesticides or herbicides into the lagoon or water features. Lastly, SCOA 9.9 would require the controlling of accumulations of petroleum wastes and other pollutants in the streets and parking areas by frequent sweeping.

(2) Stormwater Drainage Systems

Implementation of the proposed project would involve placement of new impervious surfaces on the project site, including buildings, access roadways, pedestrian pathways, and surface parking lots. Implementation of the proposed project would also involve placement of new landscaped areas, which would result in approximately 9 acres of pervious surfaces. If outdoor ball courts or other hardscape recreational features are included, they would reduce the pervious surface area to approximately 6 acres. There are 4.1 acres of pervious surface in the existing condition of the project site, which means the proposed project would increase pervious area and therefore decrease stormwater runoff to be below pre-project levels. Due to the decrease in impervious surfaces, runoff would not exceed the capacity of the existing storm drain systems and stormwater detention is not currently anticipated to be necessary. The storm drainage system would be located within the grading footprint, and would convey runoff to approximately the same points where it now discharges the project site.

In addition, The City's SCOA 5.16 requires that prior to construction of the project, existing storm drain pipelines on the project site and downstream be televised to verify they have not become filled with sediment and cleaned out concurrently. If the existing storm drain system would be by-passed or replaced, a hydrology/hydraulic analysis for the proposed project would be performed to the satisfaction of the City Engineer in accordance with the City's SCOA 5.15. The analysis would verify whether proposed modifications to the drainage infrastructure would be adequate to receive and convey runoff from the project site. If the findings of the analysis reveal that implementation of the proposed project would create runoff beyond the capacity of the existing storm drain systems, the project would be required to upgrade undersized components in accordance with the City's SCOA 5.17. Prior to project approval, the design drainage plans of the proposed project would be subject to review by the Foster City Public Works Department to ensure that the proposed storm drainage system would be adequate to convey runoff under the proposed setting. The City's SCOA 5.18 also requires that post-construction survey reports be completed on the existing storm drain system. Any necessary repairs to restore the facilities shall be an element of the report. If required, the existing storm drains would be cleaned as necessary during and at the completion of the proposed project in accordance with the City's SCOA 5.18.

(3) Flood Hazard

The project site is located within areas designated as Zone X by FEMA because it is protected from a 100-year flood by FEMA-certified levees. Therefore, the project would not place any structures within a 100-year flood hazard zone and there is a less-than-significant potential for flooding of the site that would substantially threaten human safety or property.

As discussed under the Stormwater Drainage Systems section, above, the proposed project would include installation of a storm drain system designed under Foster City Design Criteria and reviewed and approved by the Public Works Department and/or Building Inspection Division to ensure that the stormwater conveyance system would perform in accordance with City requirements to protect the property from storm flooding. The City of Foster City can require any improvements to the storm drainage system deemed necessary (including improvements to stormwater conveyance pipes and other off-site improvements) to be incorporated into the conditions of approval for the project. Adherence to these requirements would reduce the risk of on- and off-site localized flooding due to potential increases in the rate or amount of surface runoff or changes in site drainage patterns to a less-than-significant level.

The project site is located within a potential dam failure inundation area of the LCSD,[38] which is under the jurisdiction of the California Department of Water Resources, Division of Safety of Dams. Dam failure is a low probability event that can be caused by earthquakes or overflow. Potential failure of the LCSD was further reduced by completion of a seismic retrofit that was completed in May 2012. The seismic retrofit project involved widening the spillway, raising the parapet wall, and replacing the stilling basin with a new, larger facility.[39] Existing dams under state and federal jurisdiction are periodically inspected to ensure that they are adequately maintained and that identified deficiencies are corrected.[40] Regular inspections and required maintenance of the dams substantially reduce the potential for catastrophic failure. The hazard from flooding due to dam failure inundation would be less-than-significant because 1) recent seismic retrofits of the LCSD ensures that dam failure is a low probability event; and 2) as described in the Settings Section above, the estimated 2-

[38] City of Foster City, 1995. *General Plan, Ch. 7, Safety Element*, adopted October. Available at: http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/upload/GP-Chapter-7-Safety-Element.pdf.

[39] San Francisco Public Utilities Commission (SFPUC), 2013. *Lower Crystal Springs Dam Improvements (WSIP)*. http://216.119.104.145/bids/projectDetail.aspx?prj_id=128, accessed October 22, 2014.

[40] California Department of Water Resources (DWR), Division of Safety of Dams, 2012. *Statutes and Regulations Pertaining to Supervision of Dams and Reservoirs*. http://www.water.ca.gov/damsafety/docs/statutes-regulations.pdf, accessed October 22, 2014.

foot inundation level near the project site would be contained by the Marina Lagoon and would not reach the project site.

(4) Coastal Hazard

The 100-year extreme high tide at Foster City (7.1 feet)[41] combined with the highest potential sea level rise by 2050 (17 inches[42] or about 1.5 feet) could crest at 8.6 feet (7.1 feet plus 1.5 feet) NGVD. The existing Foster City levees, with an elevation of approximately 10 feet NGVD or higher, would be expected to provide adequate protection from sea level rise, extreme high tides, seiches, and tsunamis, all of which tend to present hazards for sites at elevations lower than 10 feet NGVD. Coastal hazard threats to the project site are therefore considered less-than-significant.

(5) Groundwater Supplies

Dewatering is expected to occur in the construction phase of the proposed project, however during the operational phase dewatering will not be necessary and no local groundwater supplies will be used. The short-term dewatering of shallow groundwater during construction activities would not contribute to the depletion of local groundwater supplies or reduce the amount or quality of water available for public water supplies. The project will not interfere with groundwater recharge via water infiltration from streams or creeks as none exist in the vicinity of the project site. Additionally, the project site is not located in a groundwater recharge area, as it is underlain by a 34.5- to 39-foot thick marine clay deposit (locally known as Bay Mud).[43] Bay Mud consists of dense clay deposits through which infiltration is minimal. The proposed project would also decrease the amount of impervious surfaces compared to existing conditions at the project site. As a result, the placement of impervious surfaces due to development of the project site would not interfere with groundwater recharge.

(6) Drainage Patterns, Stream and Rivers, and Erosion

The proposed project would change the existing drainage pattern on the project site as the project site is currently vacant. However, the project would not modify streams or rivers as none exist in the vicinity of the project site. Due to both the lack of stream or rivers and the predominance of engineered hardened drainage conveyances on and surrounding the project site, the proposed project is unlikely to result in changes that would generate substantial erosion or siltation, either on or off the project site.

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[41] U.S. Army Corps of Engineers (Corps), 1984. *San Francisco Bay Tidal Stage vs. Frequency Study*.

[42] San Francisco Bay Conservation and Development Commission (SFBCDC), 2011. *Staff Report, Living with a Rising Bay: Vulnerability and Adaptations in San Francisco Bay and on its Shoreline,* October 6.

[43] Langan Treadwell Rollo, 2014. *Draft Geotechnical Investigation, Lincoln Center Campus,* December 19.

c. Significant Hydrology and Water Quality Impacts and Mitigation Measures

Implementation of the proposed project would not result in any hydrology or water quality impacts; all impacts would be less than significant with implementation of the City's SCOAs as discussed above.

d. Cumulative Hydrology and Water Quality Impacts

As described above, implementation of the proposed project would result in less-than-significant impacts related to an increase in impervious surface area and an increase in the amount of storm water runoff generated on the project sites. Construction and operational impacts to storm water that would result from implementation of the proposed project would be minimized through implementation of a Stormwater Pollution Prevention Plan (SWPPP) and SCOAs 9.3, 9.5, and 9.9. However, runoff from the project site, in combination with other sites, could exceed the capacity of conveyance structures. The project sponsor must incorporate design features and show the project's ability to contain and convey storm water on the project site as required by SCOAs 1.13, 2.6, 2.7, 2.8, 5.15, 5.16, 5.17, and 5.18. Other current, pending or foreseeable projects in Foster City would be required to undergo the same water quality maintenance measures, and would not result in cumulative adverse impacts to water quality.

I. NOISE

This section evaluates the potential for noise impacts resulting from the proposed project. This noise assessment considers both construction and operation period effects for 1) potential noise impacts to existing residences in the project vicinity due to an increase in project-related noise, and 2) the potential noise impacts to future occupants of the development due to projected future sound levels.

The existing noise environment and conditions in the project vicinity are described and applicable regulatory criteria are summarized. The significance of potential noise impacts associated with the project has been evaluated. SCOAs have been evaluated that reduce any potentially significant impacts.

Setting

Sound and Noise

Noise is sometimes defined as unwanted sound. This section makes no such distinction, and the terms noise and sound are used more or less synonymously.

The human ear responds to a very wide range of sound intensities. The decibel scale (dB) used to describe sound is a logarithmic rating system which accounts for the large differences in audible sound intensities. This scale accounts for the human perception of a doubling of loudness as an increase of 10 dB. Therefore, a 70-dB sound level will sound about twice as loud as a 60-dB sound level. People generally cannot detect differences of 1 dB. In ideal laboratory situations, differences of 2 or 3 dB can be detected by people, but such a change probably would not be noticed in a typical outdoor environment. A 5-dB change would probably be clearly perceived by most people under normal listening conditions.

On the logarithmic decibel scale used to describe noise, a doubling of sound-generating activity (i.e., a doubling of the sound energy) causes a 3-dB increase in average sound produced by that source, not a doubling of the loudness of the sound (which requires a 10-dB increase). For example, if traffic along a road is causing a 60 dB sound level at some nearby location, twice as much traffic on this same road would cause the sound level at this same location to increase to 63 dB. Such an increase might not be discernible in a complex acoustical environment.

When addressing the effects of noise on people, it is useful to consider the frequency response of the human ear. Sound-measuring instruments are therefore often programmed to “weight” measured sounds based on the way people hear. The frequency-weighting most often used is A-weighting because it approximates the frequency response of human hearing and is highly correlated to the effects of noise on people. Measurements from instruments using this system are reported in

"A-weighted decibels" or dBA. All sound levels in this evaluation are reported in A-weighted decibels.

Relatively long, multi-source “line” sources, such as roads with continuous traffic, emit cylindrical sound waves. Due to the cylindrical spreading of these sound waves, sound levels from such sources decrease with each doubling of distance from the source at a rate of about 3 dBA. Sound waves from discrete events or stationary “point” sources, such as a car horn, spread as a sphere, and sound levels from such sources decrease 6 dBA per doubling of the distance from the source. Conversely, moving half the distance closer to a source increases sound levels by 3 dBA and 6 dBA for line and point sources, respectively.

In addition to distance from the source, the frequency of the sound, the absorbency of the intervening ground, the presence or absence of intervening obstructions, and the duration of the noise-producing event all affect the transmission and perception of noise. The degree of the effect on perception also depends on who is listening (individual physiological and psychological factors) and on existing sound levels (background noise). Typical sound levels of some familiar noise sources and activities are presented in Table V.I-1.

When assessing potential community response to noise, it is helpful to have a metric that averages varying noise exposure over time and quantifies the result in terms of a single number descriptor. Several such metrics have been developed that address community noise levels. Those applicable to this analysis are the Equivalent Noise Level (L_{eq}), the Day-Night Noise Level (L_{dn}), and the Community Noise Equivalent Level (CNEL). The L_{eq} is the level of a constant sound that has the same sound energy as the actual fluctuating sound. As such, it can be considered an energy-average sound level for a given period of time (e.g., 15 minutes, 1 hour, 24 hours, etc.). The 1-hour L_{eq} often is written as $L_{eq\,(1)}$, L_{eq}-hr, or hourly L_{eq}. For the purposes of this assessment, unless otherwise stated, L_{eq} refers to a 1-hour average.

The L_{dn} is a 24-hour L_{eq} with a 10-decibel penalty added to sound levels that occur between 10:00 p.m. and 7:00 a.m. in consideration of potential for sleep disturbance. Foster City primarily applies the L_{dn} when implementing compatibility standards, summarized below in Section 2(b).

The CNEL is similar to the L_{dn} but includes an additional 5-decibel penalty to sound levels that occur between 7:00 p.m. and 10:00 p.m. As a result, this metric is slightly more stringent than the L_{dn}.

TABLE V.I-1 SOUND LEVELS PRODUCED BY COMMON NOISE SOURCES

Thresholds / Noise Sources	Sound Level	Subjective Evaluations	Possible Effects on Humans
Human Threshold of Pain	140	Deafening	Continuous exposure can cause hearing loss
Carrier jet takeoff (50 ft)	130		
Siren (100 ft)	120		
Chain saw Noisy snowmobile	110		
Lawn mower (3 ft) Noisy motorcycle (50 ft)	100	Very Loud	
Heavy truck (50 ft)	90		
Pneumatic drill (50 ft) Busy urban street, daytime	80	Loud	
Normal automobile at 50 mph Vacuum cleaner (3 ft)	70		Speech Interference
Large air conditioning unit (20 ft) Conversation (3 ft)	60	Moderate	
Quiet residential area Light auto traffic (100 ft)	50		Sleep Interference
Library Quiet home	40	Faint	
Soft whisper (15 ft)	30		
Slight Rustling of Leaves	20	Very Faint	
Broadcasting Studio	10		
Threshold of Human Hearing	0		

Note that both the subjective evaluations and the physiological responses are continuums without true threshold boundaries. Consequently, there are overlaps among categories of response that depend on the sensitivity of the noise receivers.
Source: United States Environmental Protection Agency (EPA) and others.

Vibration

In addition to generating noise, heavy construction equipment can generate groundborne vibration. Equipment that results in blows or impacts on the ground surface produces vibrational waves that radiate along the surface of the earth and downward into the earth, potentially resulting in effects that range from annoyance to structural damage.

As vibrations travel outward from the source, they excite the particles of rock and soil through which they pass and cause them to oscillate by a few ten-thousandths to a few thousandths of an inch. Differences in subsurface geologic conditions and distance from the source of vibration will result in different vibration levels characterized by different frequencies and intensities. In all cases, vibration amplitudes will decrease with increasing distance. The maximum rate or velocity of

particle movement is the commonly accepted descriptor of the vibration "strength." This is referred to as the peak particle velocity (ppv) and is typically measured in inches per second.

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High frequency vibrations reduce much more rapidly than low frequencies, so that low frequencies tend to dominate the spectrum at large distances from the source. Discontinuities in the soil strata can also cause diffractions or channeling effects that affect the propagation of vibration over long distances. When vibration encounters a building, a ground-to-foundation coupling loss will usually reduce the overall vibration level, however, under certain circumstances, the ground-to-foundation coupling may also amplify the vibration level due to structural resonances of the floors and walls.

Human response to vibration is difficult to quantify. Vibration can be felt or heard well below the levels that produce any damage to structures. The duration of the event has an effect on human response, as does frequency. Generally, as the duration and vibration frequency increase, the potential for adverse human response increases. While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings caused by construction activities may be perceived as motion of building surfaces or rattling of windows, items on shelves, and pictures hanging on walls. Vibration of building components can also take the form of an audible low-frequency rumbling noise, which is referred to as groundborne noise. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hz), or when the structure and the construction activity are connected by foundations or utilities, such as sewer and water pipes.

Table V.I-2 summarizes the average human response to vibration that may be anticipated when a person is at rest in quiet surroundings. If the person is engaged in any type of physical activity, vibration tolerance increases considerably.

Applicable Noise Regulations

Plans and policies that pertain to the noise conditions affecting and affected by the proposed project include those set by the State of California and Foster City. Both are described below.

California Regulations and Policies

California Government Code Section 65303(f) requires a noise element as part of all city plans that establishes noise exposure contours for use in ensuring compatible land uses for all future land development and to serve as a guideline for the State's noise insulation standards. Title 24, Part 2 of the California Code of Regulations contains requirements for the construction of new hotels, motels, apartment houses,

TABLE V.I-2 EFFECTS OF CONSTRUCTION VIBRATION

Peak Particle Velocity (in/sec)	Effect on Humans	Effect on Buildings
<0.005	Imperceptible	No effect on buildings
0.005 to 0.015	Barely perceptible	No effect on buildings
0.02 to 0.1	Barely to distinctly perceptible	No effect on buildings
0.1 to 0.5	Distinctly perceptible to strongly perceptible; Vibrations considered unacceptable for people exposed to continuous or long term vibration	Minimal potential for damage to weak or sensitive structures
0.5 to 1.0	Strongly perceptible to mildly unpleasant; Vibrations considered bothersome by most people, however tolerable if short-term in length	Threshold at which there is a risk of architectural damage to buildings with plastered ceilings and walls. Some risk to ancient monuments and ruins.
1.0 to 2.0	Mildly unpleasant to distinctly unpleasant; Vibrations considered unpleasant by most people	U.S. Bureau of Mines data indicates that blasting vibration in this range will not harm most buildings. Most construction vibration limits are in this range.
>2.0	Distinctly unpleasant to intolerable	Potential for architectural damage and possible minor structural damage.

and dwellings other than detached single-family dwellings, intended to limit the extent of noise transmitted into habitable spaces from exterior noise sources. These requirements, collectively known as the California Noise Insulation Standards, include quantitative limits for residential uses but do not apply to commercial uses such as offices and laboratories. For commercial uses, appropriate levels of interior noise are dependent on the type of use. Title 24 standards are enforced through the building permit application process in Foster City, as in most jurisdictions.

Foster City General Plan

As required under the California Government Code, Foster City has developed a Noise Element as part of the city's General Plan. The Noise Element provides community noise control objectives and standards. The basic objective of the Noise Element is to protect the citizens of Foster City from excessive noise levels which are annoying to the senses and can be detrimental to health. The primary goals of the Noise Element are summarized as follows:

- *Goal N-A: Assure that the Noise Impacts of the New Development or Redevelopment of Property is Done in a Manner that is Compatible with Existing Land Uses.* Assure the appropriateness of new development with the noise environment of Foster City and establish mitigation measures for any changes in land use as are reasonably necessary to assure compatibility with the surrounding area.
- *Goal N-B: Preserve and Improve the "Quiet Ambience" Within Existing Neighborhoods.* Protect neighborhoods by providing an acceptable noise level throughout the community and by identifying and alleviating or minimizing existing noise problems were possible

As part of the implementation of these goals, Foster City has identified compatible noise levels for various types of land uses in the Noise Element of the General Plan (Table V.I-3). The Foster City General Plan Noise Element also established several policies to modify and/or clarify the methods to be implemented in attainment of these goals. There are several policies identified in the General Plan, however, the following provides a general overview of the policies that are most applicable to this project:

For New Developments, Changes in Use, or Redevelopment of Property

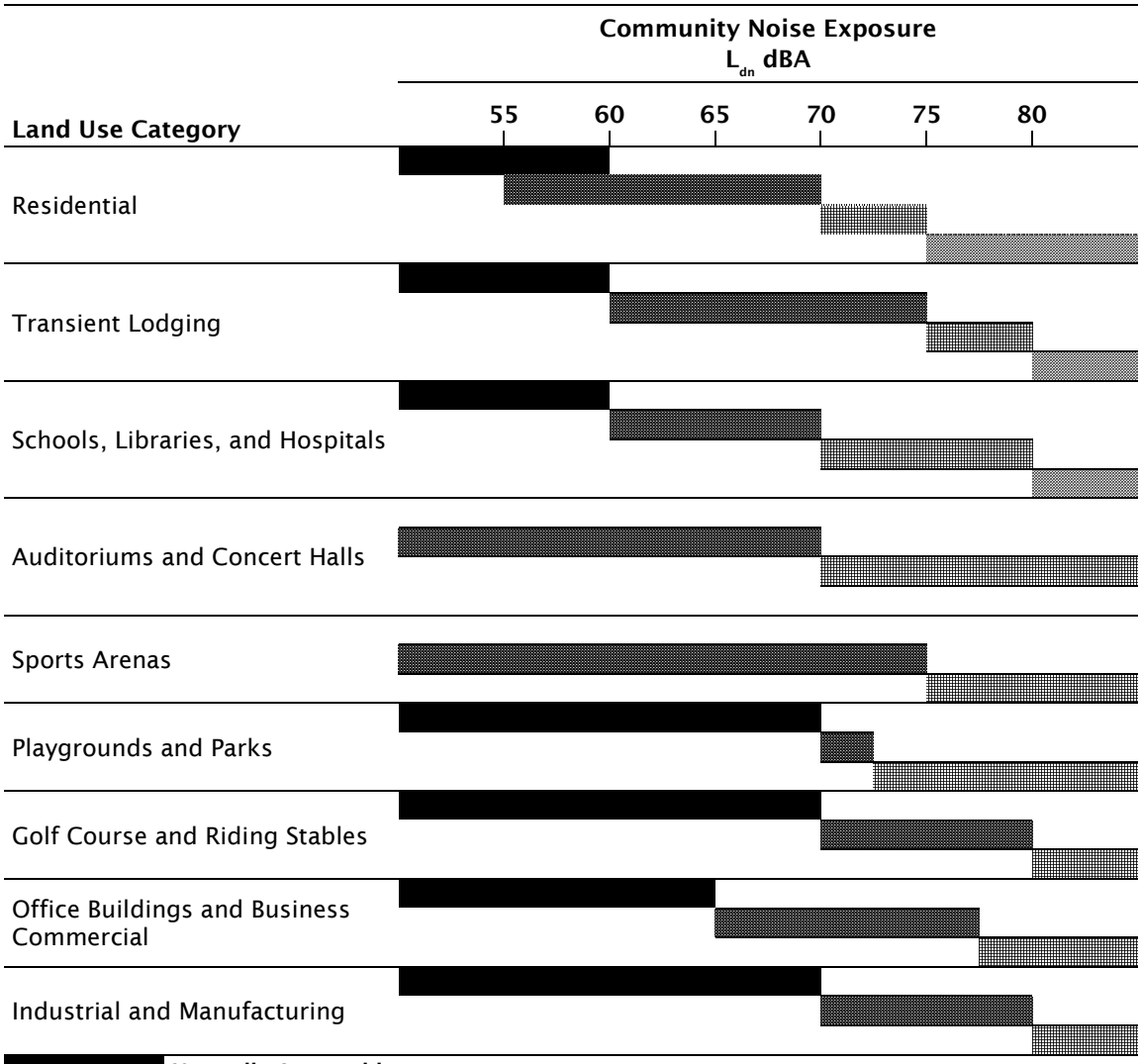
These policies are applicable to the project because the existing site will be redeveloped to accommodate research and development site.

- *Policy N-1: Land Use Compatibility Standards.* The compatibility standards are summarized in Table V.I-3. In accordance with the Noise Element of the Foster City General Plan, a project would be considered to exceed "normally acceptable" noise standards if it would result in any of the following, as applicable to new buildings and uses proposed for project:
  - For new commercial, industrial, and office buildings, the noise levels in private offices are generally quieter than for data processing rooms. Interior levels should be maintained generally at 45 dB L_{eq} or less.
  - Increases in noise levels up to the maximum limit in areas that are currently below the noise standards may not be allowed. Noise increases in these cases will be evaluated in terms of potential for adverse impacts, regardless of the noise compatibility standards.
- *Policy N-2: Noise Contour Map:* The Noise Element of the Foster City General Plan includes a noise contour map that summarizes L_{dn} noise contours around major area roadways. The map ensures consistency among noise studies completed for the city.
- *Policy N-5: Mitigating Impacts on Surrounding Uses.* This policy provides general methods by which to mitigate the potential for noise impacts from on the surrounding community from sources within the new development.

Existing Neighborhoods

- *Policy N-8: Protecting Existing Residential Areas.* This noise policy provides specific protections for existing residential areas and is based on the compatibility standards summarized in Table V.I-3. The city will require the evaluation of mitigation measures for projects that would cause the L_{dn} to increase by 3 dB or more, if the increase would result in an L_{dn} greater than 60 dB or if the L_{dn} already exceeds 60 dB.

TABLE V.I-3 LAND USE COMPATIBILITY STANDARDS



	Normally Acceptable Specified land use is satisfactory, based upon assumption that any buildings involved are of normal construction, without any special noise insulation requirements
	Conditionally Acceptable New construction or development should be undertaken only after a detailed analysis of 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 does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in design
	Clearly Unacceptable New construction or development clearly should not be undertaken.

Source: The City of Foster City, 1993. Noise Element of the *Foster City General Plan*.

- *Policy N-9: Noise Source Control.* The City will work with property owners and will enforce noise standards to control noise at its source to maintain existing noise levels to assure that noise levels do not exceed acceptable noise standards as established in the Noise and Land Use Compatibility Guidelines.

Foster City Municipal Code

In addition to the noise policies defined the City's General Plan, Foster City has established noise limits for stationary sources affecting residential receivers in Chapter 17.68.030 of the Noise Ordinance of the Foster City Municipal Code (FCMC). Table V.I-4, below, summarizes these sound level limits.

As defined in the FCMC, Chapter 17.68.030(F)(7), noise from construction-related activities, including construction and demolition, is exempt from the limits defined in Table V.I-4 are limited to the hours of 7:30 a.m. and 8:00 p.m. weekdays, and between 9:00 a.m. and 8:00 p.m. on weekends and legal holidays in a residential district or within 100 yards (300 feet) of a residential district. This exemption applies only if a construction noise source does not exceed 100 dBA at the property line of the noise producer. If construction noise will exceed this level, prior authorization may be required by the director of planning and development services.

Noise Sensitive Receivers

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication; physiological and psychological stress; and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others. Land uses are considered noise "sensitive receivers" where low noise levels are necessary for these uses in order to preserve their intended goals such as relaxation, recreation, education, health, and general state of well-being. Residential uses are considered most sensitive to noise because people spend extended periods of time and sleep at home. Other noise sensitive receivers typically include hotels/motels, churches, schools, libraries, and hospitals.

Off-site sensitive residential receivers identified for this study include residences in the following areas:

- Approximately 550 feet southeast of the project site, east of State Route 92 (SR 92), east of E. Hillsdale Boulevard. Residences include multi-family residential complexes and single-family homes that potentially may be exposed to construction and operational noise and increases in project-related traffic along E. Hillsdale Boulevard.
- Approximately 3,750 feet west of the project site, along the west side of Mariners Island Boulevard. Residences include multi-family residence complexes and single-family homes that potentially may be exposed to increases in project-related traffic along Mariners Island Boulevard.

TABLE V.I-4 FOSTER CITY MUNICIPAL CODE: NOISE LIMITS

		Noise Level (dBA)	
Receiving Land Use Category	**Time Period**	**Any Time Duration Greater Than 3 Minutes**	**Time Duration Less Than 3 Minutes**
One- or two-family residential[a]	10:00 p.m.—7:30 a.m.	50	55
	7:30 a.m.—10:00 p.m.	60	65
Multiple family, public space	10:00 p.m.—7:30 a.m.	55	60
	7:30 a.m.—10:00 p.m.	60	65
Commercial, office	10:00 p.m.—7:30 a.m.	60	65
	7:30 a.m.—10:00 p.m.	65	70
Light industrial	10:00 p.m.—7:30 a.m.	65	70
	7:30 a.m.—10:00 p.m.	70	75

[a] Air conditioning condenser units placed in side yards in accordance with the provisions of Section 17.54.080 shall not generate noise levels in excess of 82 dBA as measured twelve inches from the source.
Source: Foster City Municipal Code, Chapter 17.68.030 *Noise*

- Approximately 5,000 feet west of the project site, within the Mariner's Island residential community, south of East 3rd Avenue. Residences include multi-family residential complexes and single-family homes that potentially may be exposed to increases in project-related traffic along East 3rd Avenue.

Off-site non-residential receivers identified for this study include the following schools and daycares:

- **Lakeview Montessori School.** The school building is located approximately 760 feet east of the project site, The playground is further from the site, located on the west side of the school building. The school potentially may be exposed to construction and operational noise and to increases in project-related traffic along E. Hillsdale Boulevard.
- **Kids Connection Schools.** Includes a preschool/daycare and elementary school. The school building is located approximately 500 feet southeast the project site, The playground is approximately 610 feet from the project site, located on the west side of the school building. The school potentially may be exposed to increases in project-related traffic along E. Hillsdale Boulevard.

- **Marin Day School.** Located within a commercial development south of East 3rd Avenue, east of Mariners Island Boulevard, approximately 2,600 feet west of the project site. The playground of the day school is located east of the school building. The school potentially may be exposed to increases in project-related traffic along East 3rd Avenue.

Property uses immediate adjacent to the project site include commercial and light industrial, and are located to the west, east, north and south (across SR 92).

Figure V.I-1 illustrates the project site and location of nearby noise-sensitive receivers. The site location also is depicted in this figure for reference. Note that the nearest residential receivers to the southeast are located across SR 92 and there are intervening commercial facilities between the site and the receivers. Similarly, the nearest residential receivers to the west are located beyond intervening commercial and light industrial facilities.

Existing Noise Environment

It is common practice to collect sound level measurement data when documenting existing ambient conditions for the purposes of predicting noise impacts. However, it was concluded that measurements were not warranted for this study because the project is located within an area of existing commercial and light industrial use with no immediately adjacent residential uses. In addition, the nearest residential properties currently are exposed to high levels of traffic noise from SR 92 and other roadways, and because there are no acoustically significant sources of noise proposed as part of the project.

In lieu of sound level measurements, a review was completed of the 2005 sound level contours published in the Foster City General Plan's Noise Element. In addition, simplified noise modeling of existing conditions was completed using project traffic data. Aerial imagery was also consulted to evaluate the locations of major roadways as well as existing land uses.

The Foster City General Plan includes L_{dn} sound level data for conditions that were then predicted for 2005 (the General Plan noise study was completed in 1990). These sound level data are summarized in the General Plan in both tabular format and as sound level contours. Additionally, the Fehr & Peers report includes existing sound level data for some roadways that are not included in the General Plan (i.e., Mariners Island Boulevard). Using sound level data from the General Plan, and using a simplified noise model to evaluate the Fehr & Peers data, the following summarizes the existing noise levels in the vicinity of the noise-sensitive receiver locations identified for this study:

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Source: ENVIRON, 2014; Urban Planning Partners, Inc. 2015

Figure V.I-1
Lincoln Centre Life Sciences Research Campus Project EIR
Noise Sensitive Receiver Locations

- **East of E. Hillsdale Boulevard.** Residences and schools are approximately 50 feet (or less) from E. Hillsdale Road centerline (residences are east of the road, schools are west of the road). Using General Plan sound level data, existing (2005) sound level is 67 dBA L_{dn}. Note that levels may be higher due to the influence of traffic noise from SR 92. This especially true for the schools located along E. Hillsdale Road that are approximately 270 feet east of SR 92. The residences are further from SR 92 (approximately 460 feet) and partially shielded by intervening buildings.
- **West of Mariners Island Boulevard.** Residences are approximately 40 feet west of the centerline of Mariners Island Boulevard. A simplified noise model was created to estimated 24-hour L_{dn} sound levels using estimated Average Annual Daily Traffic (AADT) volumes. AADT volumes were estimated using the peak period traffic data from the Fehr & Peers report, and an assumption that peak period traffic volumes are 10 percent of (AADT) volumes. Note that the ratio between AADT and peak hour volumes was based on review of General Plan AADT data for East 3rd Avenue, compared with Fehr & Peers data for the same roadway, at the intersection of East 3rd Avenue and Mariners Island Boulevard. Based on these data the existing sound level was predicted to be 64 dBA L_{dn}.
- **South of East 3rd Avenue, daycare between Lakeside Drive and Marsh Drive.** Playground is approximately 120 feet south of East 3rd Avenue centerline. Using General Plan sound level data, and adjusting to a distance of 120 feet, the existing (2005) sound level is 67 dBA L_{dn}.
- **South of East 3rd Avenue, within Mariner's Island community.** Residences are approximately 300 feet south of East 3rd Avenue centerline. Using General Plan sound level data, and adjusting to a distance of 300 feet, the existing (2005) sound level is 64 dBA L_{dn}.

Note that traffic noise estimates may understate actual ambient conditions. The Noise Element is based on traffic predictions performed in 1990, projected to 2005. Actual traffic volumes may be higher and therefore ambient sound levels may be higher. Also, the estimated sound levels do not include contributions from other roadways in the project vicinity or other sources (e.g., industrial facilities). Therefore, the sound levels presented in this study provide a conservative basis for evaluating impacts relative to increases over existing conditions (i.e., locations with higher ambient noise levels are less likely to be impacted by new sources of noise).

Foster City Standard Conditions of Approval

Foster City has adopted SCOAs for large new and redevelopment projects. The following SCOAs related to noise would apply to the proposed project.

- **SCOA 2.9:** The construction contractor shall designate a "noise disturbance coordinator" who shall be responsible for responding to any local complaints about construction noise.

The disturbance coordinator shall determine the cause of the noise complaints (e.g., beginning work too early, bad muffler) and institute reasonable measures warranted to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site. The construction contractor shall protect all downstream sanitary sewer lines from construction debris while performing sanitary sewer construction. Means to prevent construction debris must be used and shall be inspected by the construction inspector.

- **SCOA 7.1:** Three (3) sets of an acoustical analysis, including one electronic or pdf version, shall be submitted, prepared by a licensed professional, specifying the manner in which interior noise levels will be reduced to the required Community Noise Equivalency Level (CNEL) per Title 24 of the California Administrative Code. The details of noise attenuation recommended in the report will be subject to the review and approval of the Chief Building Official.
- **SCOA 9.1:** Construction activities shall be limited to the hours of 8 a.m. to 5 p.m. on weekdays unless deviations from this schedule are approved in advance by the City. Nonconstruction activities may take place between the hours of 7 a.m. and 8 a.m. on weekdays and 9 a.m. and 4 p.m. on Saturdays but must be limited to quiet activities and shall not include the use of engine-driven machinery. No actual construction activities may take place between 7 a.m. and 8 a.m., except when post-tension slab foundations are being poured, the concrete pumper may be set up but no concrete may be poured. Forklifts shall be allowed to operate onsite between the hours of 5 p.m. and 6:30 p.m. on weekdays. The Planning Commission reserves the right to rescind this condition and further restrict construction activities in the event that the public health, safety and welfare are not protected due to noise levels emanating from the construction project.
- **SCOA 9.2:** In order to minimize construction noise impacts, all engine-driven construction vehicles, equipment and pneumatic tools shall be required to use effective intake and exhaust mufflers; equipment shall be properly adjusted and maintained; all construction equipment shall be equipped with mufflers in accordance with OSHA standards.
- **SCOA 9.10:** The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.
- **SCOA 9.11:** The construction contractor shall locate equipment staging in areas that will create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.

Impacts and Standard Conditions of Approval

a. This section analyzes the impacts related to noise that could result from implementation of the proposed project. The section begins with criteria of significance, which establish the thresholds for determining whether a project impact is significant. The latter part of this section presents the potential noise impacts associated with the proposed project with SCOAs to reduce potential impacts to less-than-significant levels. Significance Criteria

For the purposes of this Draft EIR and in accordance with Appendix G of the CEQA Guidelines and General Plan, the project would have a significant noise impact if it would:

- Construction related noise would be considered significant when a substantial temporary or periodic noise level increase would occur where:

  1) Noise from construction activities would exceed 60 dBA L_{eq}(h) and the ambient noise environment by at least 5 dBA L_{eq}(h) for a period of 1 year or more at exterior areas of uses sensitive to noise inside and outside (e.g., residences, residential care facilities, schools, and libraries); or

  2) Noise from construction activities would exceed 70 dBA L_{eq}(h) and the ambient noise environment by at least 5 dBA L_{eq}(h) for a period of 1 year or more at the exterior façades of offices or other commercial, retail, or institutional uses with interior spaces sensitive to noise.

- Exposure of persons to, or generation of, noise levels in excess of standards established in the General Plan or noise ordinance, or applicable standards of other agencies (i.e., L_{dn} of 60 dBA for residential uses and L_{dn} of 65 dBA for office and other commercial uses).
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- Expose persons to or generate excessive groundborne vibration or noise.
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels.
- For a project within the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels.

b. Less-Than-Significant Noise Impacts

Implementation of the project would result in less-than-significant impacts described below. Since these impacts would not exceed the significance thresholds described above, no mitigation measures are necessary.

Construction Noise Impacts

While a single phase construction scenario (i.e., onsite receptors are occupied only after the construction is completed) is possible, development of the project may be completed in two (2) phases. Both phases would include grading and preparation of individual commercial unit sites and construction of new commercial facilities and associated infrastructure. Phase 1 would include buildings B, C, and D, as well as parking structures PS-2 and PS-3. Phase 2 would include construction of building A and parking structure PS-1. Project construction during both phases would involve the

use of heavy equipment including dozers, scrapers, auger pile drivers, cranes, paving equipment, and others. Trucks would be used to deliver equipment and building materials and to haul away waste materials. This equipment would generate both steady state and impulsive noise that would be heard both on and off the project site. Noise associated with construction could impact noise sensitive noise receptors in the project vicinity as well as on the project site if the project is constructed in two phases.

Exposure of Off-Site Noise Sensitive Receptors

As noted above, pile driving will be completed using auger pile drivers. Noise emissions from auger pile drivers include noise from the diesel engine that powers the auger unit. Auger piles do not emit high levels of impulse noise, typical of impact-pile driving. Noise from auger pile driving equipment has been included in this assessment. Construction equipment sound levels predicted for this project are presented in Table V.I-5. The sound levels presented in this table are the cumulative sound level of all equipment expected during each phase, and were estimated using the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCMN). RCNM allows the user to select from a list of equipment type, and to determine construction equipment sound levels at specific distances. The sound level data within RCNM are averages from a collection of sound level measurements. Sound level calculations are based on the spherical spreading of sound from a point source (i.e., a 6-dBA reduction per doubling of distance from the sound source).

Note that if the project is developed in two phases, during the second phase of construction (building A and parking structure PS-1), tenants may occupy buildings constructed during the first phase (buildings B, C and D) and may potentially be exposed to high levels of construction noise during the second phase of construction. Sound levels identified in Table V.I-5 also include sound levels 50 feet from the construction source, and have been presented here to provide an estimate of the worst-case noise levels that can be expected at the exterior of building envelopes of Phase 1 buildings during some periods of construction. Note that during most of Phase 2 construction, noise levels likely would be lower as equipment would operate more than 50 feet from the Phase 1 buildings.

TABLE V.I-5 TYPICAL RANGES OF CONSTRUCTION EQUIPMENT SOUND LEVELS (DBA)

Phase	Types of Equipment During Each Phase	Hourly Sound Level By Phase ($L_{\_\_}$)		
		50 Feet[a] (On-Site Buildings B, C, and D)	500 Feet (Schools Along E. Hillsdale Blvd.)	575 Feet (Residences along E. Hillsdale Blvd.)
Site Preparation	Rubber Tired Dozers Tractors/Loaders/Backhoes Hoe Ram	82	62	61
Grading	Excavators Graders Rubber Tired Dozers Scrapers Tractors/Loaders/Backhoes	85	65	64
Building Construction	Cranes Forklifts Concrete Pumps Concrete Trucks JLG Lifts	79	59	58
Paving	Pavers Paving Equipment Rollers	79	59	58

[a] 50 feet represents a worst-case scenario, when construction equipment would operate near proposed Buildings B, C, and D. During most construction of Phase 2 buildings, construction activity would be further than 50 feet, and sound levels at Buildings B, C, and D likely would be lower.
Source: Sound levels from Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM), Version 1.1.

Construction activities would generate an increase in noise levels for off-site receivers; however the increase in cumulative noise levels would be less than perceivable, would not occur during recognized hours of sleep, and would be consistent with the requirements for construction noise that exist in Section 17.68.030 of the Foster City Municipal Code. As a result, construction related noise impacts would be less than significant.

Noise from on-site construction activities may be audible at the residential receivers and schools to the southeast, along E. Hillsdale Boulevard. Construction equipment and activities at the project site may operate as close as 500 feet from the nearest school to the southeast, and approximately 575 feet to the nearest residential receivers. As shown in Table V.I-5, the highest hourly construction noise levels are approximately 65 dBA at 500 feet, due to equipment operating during the grading phase of the project. Residential receivers and schools west of the project site are too distant from the site to be affected by construction activities at the project site.

Existing ambient sound levels at the residential areas and schools along E. Hillsdale Boulevard have been estimated by applying sound level data published in the Foster

City General Plan (summarized earlier in Section 1.d), and adjusted to estimate the lowest existing hourly sound level (L_{eq}). As noted, the acoustic environment at these residences is dominated by traffic noise from E. Hillsdale Boulevard, and also by traffic noise from SR 92. The estimate of existing hourly sound levels was based on the Average Annual Daily Traffic (AADT) traffic volumes published in the Noise Element of the Foster City General Plan for E. Hillsdale Boulevard. It is expected that construction of the project will occur during normal daytime hours, between approximately 8:00 a.m. and 4:00 p.m. However, for the purposes of this assessment, ENVIRON has assumed that construction could occur within the allowed daytime hours for construction activities, as defined in the FCMC in Section 17.68.030 (i.e., construction noise is exempt between the hours of 7:30 a.m. and 8:00 p.m. during weekdays, and between 9:00 a.m. and 8:00 p.m. during weekends and legal holidays). Using recommended protocols for estimating hourly traffic based on AADT traffic data[1] (AADT data is provided in the Noise Element of the Foster City General Plan), ENVIRON determined that the minimum hourly sound level would occur between 7:00 p.m. and 8:00 p.m. at the nearest schools and residential areas along E. Hillsdale Boulevard. The quietest daytime hour was used because the lower the existing sound level, the higher the potential for noise impacts.

To evaluate the potential for impacts, ENVIRON estimated the potential cumulative increase in sound levels over existing conditions. As indicated, people generally can detect increases of 5 dBA or more under most conditions. As listed in the above significance criteria, an increase over ambient conditions of more than 5 dBA for more than 1 year would be considered significant.

Table V.I-6 summarizes hourly sound levels during the quietest daytime hour during which construction could occur, the ambient sound level with construction, and the potential for impacts for both residential and commercial uses per the significance criteria identified above for temporary or periodic noise.

As shown in Table V.I-6, construction and traffic sound levels when considered together could exceed the quietest daytime hourly L_{eq} by approximately 3 dBA during the grading phase of the project, an increase that likely would not be discernable even under ideal acoustical conditions. Further, construction activities would not occur during recognized hours of sleep, and construction would occur within the allowed hours of construction as defined by the FCMC and the City's more restrictive SCOAs.

Note that hourly construction noise levels at the nearest noise-sensitive land uses would be between 64 dBA and 65 dBA L_{eq}. As indicated in the Noise Element of the Foster City General Plan, at typical buildings, outdoor noise levels are reduced by

[1] Sacramento Metropolitan Air Quality Management District, 2009. *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways – Technical Appendix,* January.

10 dBA to 15 dBA at interior spaces when windows are open, and between 20 dBA and 24 dBA when windows are closed. Because the existing acoustic environment at the nearest noise sensitive uses ranges from 64 dBA to 65 dBA L_{eq} during the quietest daytime hour, it is expected that window typically are closed at the sides of noise sensitive uses that face the contributing traffic sources (e.g., SR 92 and E. Hillsdale Boulevard). Therefore, it is expected that interior levels due to construction would be reduced by at least 20 dBA, and hourly construction sound levels would be between 41 dBA and 45 dBA at indoor spaces. If windows are opened at these occupied sensitive land uses, construction noise levels may still be reduced by between 10 dBA and 15 dBA. However, due to the high levels of ambient traffic noise, and the relatively small increase in cumulative levels due to construction (i.e., 3 dBA), construction noise impacts, even when windows are open, are not expected to be significant as the increase as a result of project construction would be less than 5dBA.

Noise from haul traffic to and from the site is also expected to generate the highest levels of off-site construction noise. During construction, an estimated a total of 8,123 trucks trips (i.e., 16,246 one-way trips) are expected to access the project site hauling of building materials to the site, and removal of existing materials from the site. The majority of these trips would occur during the building construction phase of the project.

Residential receivers along haul routes therefore may be exposed to an increase in traffic noise. However, this increase in construction-related truck traffic would not occur during recognized hours of sleep, and would occur within the allowed hours of construction as defined by the FCMC.

Noise impacts from construction activities, including on-site construction equipment and activities (see Table V.I-5) and haul traffic to and from the site, are expected to result in less-than-significant noise impacts. As shown in Table V.I-6, although the construction noise could contribute to hourly noise levels in excess of 60 dBA L_{eq} near schools and residential and 70 dBA L_{eq} at the exterior of offices or other commercial uses with interior space sensitive to noise, the construction noise would not increase the ambient noise environment by at least 5 dBA L_{eq}, for a period of 1 year or more. As shown, the increase would be only 3 dBA of existing. Additional construction is anticipated to be completed in less than 1 year.

The City SCOAs detailed in full under Section 1.f above, will help to further minimize any construction-related noise.

TABLE V.I-6 CONSTRUCTION NOISE IMPACT ASSESSMENT SUMMARY

	Existing Traffic During Quietest Daytime Hour (7:00 p.m. – 8:00 p.m.)						
Receiver	SR 92	E. Hillsd. Blvd.	Total	Highest Hourly Construction Noise Level	Cumulative Sound Level During Quietest Daytime Hour (Construction Plus Traffic)	Increase Over Existing	Impact Criteria
Schools[a]	62 dBA	64 dBA	66 dBA	65 dBA	68 dBA	3 dBA	5 dBA
Residences[a]	57 dBA	64 dBA	65 dBA	64 dBA	68 dBA	3 dBA	

[a] Schools and residential receivers represented in this table are those located along E. Hillsdale Boulevard, southeast of the project site. All other receivers and schools are located too far from the project site to be potentially affected by construction noise.
Source: ENVIRON, 2014.

Exposure of On-Site Sensitive Noise Receptors

If the project is constructed in phases and the daycare is completed and in use prior to completion of the last phase, construction activities would generate an increase in noise levels for on-site receivers during the second phase of construction. Future uses of Buildings B, C, and D (Phase 1) would include research and development laboratories and offices, and Building A (Phase 2) would include administrative offices and a possibly a daycare. Building C likely would have seven (7) floors, buildings A and B likely would have four (4) floors each and building D would likely have two (2) floors. All buildings would be constructed using non-operable windows with active ventilation systems. Buildings would be constructed per the Noise Insulation Standards of the California Administrative Code, Chapter 2-35, Part 2, Title 24.

During Phase 2, construction activities may be audible to tenants within Buildings B, C, and D. Although construction-related sound levels would vary, exterior levels could reach 85 dBA or higher depending on construction activities and the proximity of noise-sensitive uses within Phase 1 buildings adjacent to the Phase 2 construction activities. As indicated, the Noise Element of the Foster City General Plan indicates that when windows are closed, typical buildings can reduce exterior noise levels by between 20 and 24 dBA. However, typical high-quality, modern construction methods and materials can be expected to reduce interior sounds by 25 dBA or more compared to exterior sounds, especially if windows are closed and not operable.

Indoor sound levels from construction therefore are expected to be, at most, about 60 dBA or lower when specific construction activities occur 50 feet of the noise-sensitive uses. This may exceed what is tolerable for some noise-sensitive uses, especially when construction activities occur within close proximity to Phase 1buildings for extended periods of time. Note that most construction activity would occur much

further from Phase 1 buildings, and interior levels due to construction likely would be within what is acceptable for some noise-sensitive tenants of Phase 1 buildings.

Building construction and supporting activities are inherently noisy. Although best management practices can be applied to minimize noise emissions, some construction activities would generate noise that may be considered intrusive to some noise-sensitive uses. Construction contractors therefore may wish to coordinate with tenants of Phase 1 buildings to ensure that they are aware of construction schedules, including when and where specific activities may occur, especially when these activities would occur very near Phase 1 buildings and/or would include the use of noisy machinery. Such notifications would allow tenants who complete noise-sensitive tasks the opportunity to alternate schedules or avoid noise-sensitive tasks during periods of construction that generate higher than usual levels of noise. Further, such practices would demonstrate to the noise-sensitive tenants the contractor's commitment to minimizing the potential for noise impacts.

Operational Noise Impacts

Noise impacts associated with long-term operation of the project could be due to increases in traffic along local roadways and exposure to noise from new project-related sources of stationary noise. Additional traffic volumes on area roadways leading to the project site could result in noise impacts to residences along these roadways due to an increase in sound levels.

Exposure of Off-Site Noise Sensitive Receptors

Traffic Related Noise

The primary source of project-related noise is expected to be traffic traveling on local roadways to and from the site. According to the Noise Element of the Foster City General Plan, if the predicted future sound level is greater than 60 dBA L_{dn}, a 3-dBA increase in noise due to the project would be considered a significant noise impact. There are several off-site sensitive receivers identified as potentially affected by increased traffic noise due to this project, as described in detail in Section 1.c, and as illustrated in Figure V.I-1.

The traffic consultant for this project, Fehr & Peers, indicates that the peak hour traffic volumes on E. Hillsdale Boulevard, located across SR 92 from the project site, would increase by up to 0.7 percent over existing conditions due to expected growth in the area with the proposed project. Using standard calculations for estimating increases in traffic sound levels due to increases in traffic volumes (e.g., a doubling of traffic volume would result in a 3-dBA increase), ENVIRON estimated the future sound levels along this roadway by applying the peak-hour increase (0.7 percent) to the L_{dn} noise level found in the General Plan, for a distance of 50 feet from the centerline of E. Hillsdale Boulevard. The increase in traffic results in a sound level increase of

0.03 dBA at the residential properties along E. Hillsdale Boulevard, an acoustically negligible change in noise levels.

Along Mariners Island Boulevard, the traffic increases due to the project are estimated to be 7.2 percent. The City's General Plan does not include 24-hour sound level data for this roadway. Therefore, ENVIRON used the Federal Highway Administration (FHWA) Traffic Noise Model (TNM) to estimate noise levels at the nearest residential receivers along Mariner's Island Boulevard. ENVIRON assumed that the peak hour traffic volumes in the Fehr & Peers report represented 10 percent of the daily volumes (as noted along East 3rd Avenue in the vicinity of Mariners Island Boulevard). The TNM model results indicate that 24-hour L_{dn} levels would increase by 0.3 dBA, and levels would remain at 64 dBA L_{dn} under both existing conditions and after the project is built.

Along East 3rd Avenue, in the vicinity of the Mariner's Island community, west of Mariners Island Boulevard, traffic volumes would increase by 6.4 percent. Using similar standard calculations for estimating increases in traffic sound levels along E. Hillsdale Boulevard, ENVIRON estimated an increase in L_{dn} sound levels of 0.3 dBA. This small change in traffic noise also is considered acoustically negligible.

West of Mariners Island Boulevard, along East 3rd Avenue, traffic volumes would increase by 12.3 percent. Again, Using similar standard calculations for estimating increases in traffic sound levels along E. Hillsdale Boulevard, ENVIRON estimated an increase in L_{dn} sound levels of 0.5 dBA. This small change in traffic noise also is considered acoustically negligible.

Traffic noise data are presented in Table V.I-7.

As noted in Table V.I-7, the largest increase in project-related traffic would be immediately west of the project site, along East 3rd Avenue, between the site and Foster City Boulevard. However there are no noise-sensitive receivers in this area (i.e., adjacent uses include only commercial and light industrial facilities), and there is no potential for noise impacts due to increases in traffic. No mitigation measures are necessary.

On-Site Noise

Noise from the operation of the new project site, such as from loading docks, HVAC equipment, etc., could result in noise impacts to nearby residences due to an increase in sound levels. Operation of the project site is not expected to include acoustically-significant sources of noise. Stationary sources such as HVAC units, loadings docks, garbage compactors, and other similar equipment may be located throughout the project site. However, because the project site is dominated by traffic on SR 92, and because there are no residential receivers in the immediate vicinity of the project site, noise impacts are not expected from on-site operations.

TABLE V.I-7 PREDICTED OFF-SITE TRAFFIC NOISE INCREASES (DBA)

Receptor Location	Existing Sound Levels (L_{dn})[a]	Future Sound Level with Project (L_{dn})	Predicted Increase (L_{dn})	Impact?
E. Hillsdale Boulevard (50 ft from roadway centerline)	67 dBA[a]	67 dBA	0.03	None
Mariners Island Boulevard (40 ft from roadway centerline)	64 dBA[b]	64 dBA	0.3	None
East 3rd Avenue, west of Mariners Island Boulevard (300 ft from roadway centerline)	64 dBA[c]	64 dBA	0.3	None
East 3rd Avenue, east of Mariners Island Boulevard (120 ft from roadway centerline)	67 dBA[d]	68 dBA	0.5	None

[a] From the Noise Element of Foster City General Plan, based on distances to nearest residential area from roadway centerline (50 feet).
[b] Sound level estimate based on FHWA TNM using traffic volumes from Fehr & Peers traffic study report and corresponding estimates of AADT.
[c] From Noise Element of Foster City General Plan, based on distances to nearest residential area from roadway centerline. Sound level at East 3rd Avenue adjusted to 300 feet, the distance of nearest residential area south of East 3rd Avenue, west of Mariners Island Boulevard (Mariner's Island community).
[d] From Noise Element of Foster City General Plan, based on distances to nearest residential area from roadway centerline. Sound level at East 3rd Avenue adjusted to 120 feet, the distance of nearest school south of East 3rd Avenue, west of Mariners Island Boulevard (Marin Day School).
Source: ENVIRON, 2014.

Noise impacts are not expected from site operations due to the expected low levels of operational noise, the high levels of ambient noise from SR 92, and the distance from the site to the nearest residential communities. However, should there be operational sources that result in impacts at the nearest to reduce noise impacts. The proposal may include the following and other means, as appropriate:

- Screen and control noise sources such as parking, outdoor activities and mechanical equipment.
- Increase setbacks for noise sources from adjacent dwellings.
- Wherever possible do not remove fences, walls or landscaping that serve as noise buffers, although design, safety, and other impacts must be addressed.
- Control hours of operation, including deliveries and trash pickup to minimize noise impacts.

Exposure of On-Site Sensitive Noise Receptors

Existing Noise Traffic

The proposed development could result in noise impacts by introducing commercial facilities (i.e., noise sensitive research and development facilities) to an area where the existing sound levels are not considered "acceptable" for such uses.

The proposed project would include research and development tenants that may require a quiet work environment. The project site is located in an area that is dominated by traffic noise from SR 92. As illustrated in the noise contour map of the Noise Element of the Foster City General Plan, the project site is an area where existing sound levels range from 60 dBA to 75 dBA, L_{dn}. The Noise Element of the General Plan has established a compatibility standard of 65 dBA as "normally acceptable" for commercial uses. Sound levels between 65 dBA and 77 dBA would be considered "conditionally acceptable." The intent of these limits is to ensure that the interior environment is maintained at levels that are compatible with commercial use, such as offices. In general, and as outlined earlier in this section, interior noise levels for commercial offices should be maintained at or around 45 dBA (hourly average), depending on the use. The building design will ensure interior levels that are compatible with proposed commercial uses are achieved.

Existing Noise – Airports

There are no public use airports or private airstrips located within a 2-miles radius of the project site. However, the site is located within areas defined by the Airport Land Use Compatibility Plans (ALUCP) of both the San Carlos Airport and the San Francisco International Airport. Each ALUCP includes average noise contours (i.e., sound level isopleths) due to aircraft activity, as receiving within the surrounding communities. ALUCP sound levels are reported in CNEL (community noise equivalent level), a 24-hour noise metric that includes a 5-dBA penalty during evening hours and a 10-dB penalty during nighttime hours. The CNEL is similar to the L_{dn} which applies only a 10-dBA penalty to sounds during nighttime hours. The federal and State of California thresholds for noise-sensitive land use impacts due to aircraft noise is 65 dBA CNEL. Therefore, the CNEL contour that is identified within an airport's ALUCPs must include 65 dBA CNEL, although it is responsibility of the local authority to determine what is an acceptable sound level for residential land uses (as defined in 14 CFR, Part 150, Table 1). As noted above, the Noise Element of the Foster City General Plan establishes 65 dBA L_{dn} as "normally acceptable" for commercial uses (note that the L_{dn} typically is approximately 0.5 dB lower than the corresponding CNEL, and can be considered comparable for the purposes of this discussion).

The site is located outside of the 65 dBA CNEL contour area defined in the ALUCP for the San Francisco International Airport, and also is outside of the 55 dBA CNEL contour area defined in the ALUCP for the San Carlos Airport. Therefore, when

comparing existing aircraft noise with the City's Noise Element, the project site is not considered within an impacted area for noise-sensitive uses.

The existing noise environment due to traffic from SR-92 and other local area roadways (see Table V.I-7) is estimated to be higher than existing noises from the San Francisco or San Carlos airports. Although aircraft noise may be audible at times, due mostly to aircraft accessing the San Francisco International Airport, it is not expected to dominate the acoustic environment at the site.

As stated in the Noise Element of the Foster City General Plan, it is the responsibility of the commercial occupant or project sponsor to ensure that interior sound levels are compatible with the proposed use, and that they do not exceed the US Occupational Health and Safety Administration (OSHA) limit. The most common and practical approach to maintaining an interior environment that is effectively shielded from exterior noise is to construct buildings using material that provide adequate noise insulation. For those areas of the project development that are nearest SR 92, or where there may be increased exposure to aircraft noise using materials that provide high levels of noise insulation may be most suitable.

Vibration

Construction and operation of the various components of the project would be 500 feet or further from the nearest sensitive off-site receivers. Construction activities are expected to employ equipment typical of commercial construction sites (see Table V.I-5) and are not expected to include high-impact equipment such as impact pile-drivers. Groundborne vibration (and related groundborne noise) dissipate rapidly over distance and would be minimal to non-existent at a distance of 500 feet. Therefore, the project would not expose persons to, or generate excessive of, groundborne vibration or groundborne noise.

At buildings constructed during Phase 1, it is expected that groundborne vibration from construction activities will be mostly absorbed within the structure of the buildings, and will not result in impact or annoyance to sensitive uses within these buildings. For those receivers that are highly sensitive to vibration, groundborne vibration potentially could be disruptive during Phase 2 construction during operation of heavy machinery very near the affected building, notably during grading and paving. Note, however, that the extent to which a noise sensitive receiver is disrupted is dependent on the sensitivity of the receiver, the level of groundborne vibration, and the duration of the groundborne vibration event. In general, annoyance from groundborne vibration due to construction is not expected.

At no point is groundborne vibration expected to result in structural damage to existing nearby buildings or those potentially constructed during Phase 1.

During operation, levels of groundborne vibration generated by operational activities will be negligible.

c. Significant Noise Impacts and Mitigation Measures

Implementation of the proposed project would not result in any noise impacts; all impacts would be less than significant with implementation of the City's SCOAs as discussed above.

Cumulative Noise Impacts

This assessment of noise impacts was based primarily on cumulative traffic volumes in the project vicinity provided by the traffic consultant, Fehr & Peers, and as found in the Noise Element of the Foster City General Plan. By using these traffic data, cumulative noise impacts were inherently assessed. According to the noise analysis, the cumulative increase in traffic noise levels at all nearby potentially affected residences would be less than 3 dBA (and in fact, less than 1 dBA), not noticeable, and not significant. Therefore, cumulative impacts of the project would be less than significant.

No additional mitigation measures are necessary. For the purposes of this Draft EIR and in accordance with CEQA Guidelines, the project would not have a significant noise impact.

J. PUBLIC SERVICES, UTILITIES, AND RECREATION

This section analyzes the proposed project's potential impacts to public services, recreation and utilities, including: fire and emergency services, police services, water supply, wastewater, solid waste, telecommunications, and energy. Potential impacts to public services and utilities that could result from the proposed project are identified, and SCOAs are recommended, as appropriate. The related topic of storm drainage is evaluated in *Section V.H, Hydrology and Water Quality*.

1. Setting

This section describes existing public services and utilities locations, capacities, and expansion possibilities.

a. Fire Protection

Foster City Fire Station

The Foster City Fire Department (FCFD) provides fire suppression, prevention, life safety, and hazardous material response and containment services for Foster City. The Department participates in joint dispatching with other fire agencies in San Mateo County, in which the closest uncommitted unit responds to emergency calls, regardless of jurisdiction. The Department also has an Automatic Aid agreement with the City of Hayward Fire Department for the San Mateo Bridge, and participates in the Master Mutual Aid System for the State of California, which provides staff and mechanical assistance throughout the State. Department staffing, facilities, equipment, and response times are described below. The information in this section is based on communications with Michael Keefe, Fire Chief, FCFD.[1]

(1) Staffing

The FCFD has a current authorized staff of 36 full-time employees and 2 part-time employees. Staff is composed 19 firefighters, 9 captains, 3 battalion chiefs, 1 fire marshal, and 2 administrative employees. In addition, Foster City shares a Fire Chief, Deputy Fire Chief, and Battalion Chief with the City of San Mateo. Each of the three shifts of the FCFD is assigned 1 battalion chief, 3 captains, and 7 firefighters, for a minimum of 11 total personnel working each day on all 3 shifts. All engine companies

[1] Keefe, Michael, 2014. Fire Chief, Foster City Fire Department. Written communication with Greg Goodfellow, Urban Planning Partners, November 25, 2014.

are staffed with Advanced Life Support (ALS) system operated by FCFD paramedics), and a minimum of one paramedic is on duty on each Engine company at all times.

(2) Facilities and Equipment

Foster City Fire Station 28 is located at 1040 E. Hillsdale Boulevard, just over 1 mile from the project site. In-service equipment housed at the fire station includes two fire engines and one14-foot water rescue boat. Reserve fire equipment includes one command unit vehicle (used to tow the rescue boat), two reserve fire engines, and one reserve fire truck. There are currently no planned improvements at this fire station, and there are no plans for the construction of new fire stations in the area.

Station 26 at 1500 Marina Court in San Mateo is the second closest station to the project site, at 1.5 miles away. Station 26 is staffed by the City of San Mateo Fire Department. The station has one fire captain and two firefighters present at all times. Three fire personnel are assigned to the station per day. This station is equipped with one fire engine and a lumber truck (LT 26).

(3) Response Times

The Department's average response time goal within City limits is 3.5 to 4.5 minutes. FCFD is currently meeting that goal 90 percent of the time. The average response time to the area of the project site is consistent with that record, at 3.5 to 4.5 minutes.

The Department's current Insurance Service Office (ISO) rating is Class 2 (1 being the highest and 10 being the lowest), upgraded from Class 3 in 2000. This rating considers a community's fire defense capacity verses its fire potential. The score is then used to set property insurance premiums for homeowners and commercial property owners.[2]

b. Police Services

The Foster City Police Department (FCPD) is located at 1030 E. Hillsdale Boulevard, adjacent to Fire Station 28. The Department is just over a mile from the project site. The FCPD has an authorized staff of 37 sworn and 13 non-sworn personnel. Citywide, one supervisor and 3 to 5 officers work during each daytime and evening shift. The Department is not fully staffed, although the FCPD has additional support from 20 volunteers. According to the Chief of the Police Department, as of November, 2014, efforts were underway to hire new personnel.[3]

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[2] City of Foster City, 2014b. Foster City Fire Department, *Insurance Rating Office*. http://www.fostercity.org/fire/ourdepartment/Insurance-Rating-Office.cfm, accessed December 1, 2014.

[3] Martell, Matt, Chief, Foster City Police Department. Written communication with Greg Goodfellow, Urban Planning Partners, November 24, 2014.

The current police officer-to-resident ratio is approximately 1.2 sworn officers per 1,000 residents, which is below the City's target police officer to resident ratio of 1.5 sworn officers per 1,000 residents. This standard, which is also the standard for the industry as a whole, does not take daytime, nonresident populations into account. Generally, municipalities with land uses that significantly increase such populations, such as universities or large business parks, use the standard as a baseline, and then add officers as needed to serve those populations. The FCPD has not identified a standard that considers nonresidents.

The Department has established a goal of responding to all emergency calls in 5 minutes or less. The FCPD is currently meeting that goal, with an average response time for emergency (Priority 1) calls of 4 minutes. The average response time for non-emergency calls is 6 minutes, depending on the nature of the call. The average response time to calls coming from the area of the project site is consistent with this record. According to the Chief of Police, multiple properties in the area of the project site have been vacated since 2013, resulting in an increased number of incidents related to the theft of construction equipment, yet a decrease in the number of incidents overall, as compared to the 316 incidents reported in 2012.[4]

Foster City Police Department

c. Parks and Recreation

The City of Foster City has 24 parks and recreational facilities within the 4 square miles comprising the City. The parks range in size from 0.12 acres to 23.9 acres, and total approximately 113.8 acres. In addition, the City has 212 acres of recreational waterways, for a total of 325.8 acres.[5] Almost all residents live within ¼-mile of a park or a private recreational facility. All of those who do not live within ¼-mile of a park live within ¼-mile of the waterfront.[6] Recreational and community facilities include the Foster City Community Center and the William E. Walker Recreation Center (which includes the Senior Center), at 1000 E. Hillsdale Boulevard and 650 Shell Boulevard, respectively.

[4] Martell, Matt, Chief, Foster City Police Department. Written communication with Greg Goodfellow, Urban Planning Partners, November 24, 2014.

[5] City of Foster City, 2014a. Park Grid. http://www.fostercity.org/parksandrecreation/park-grid.cfm, accessed November 13, 2014.

[6] City of Foster City, 2014c. Foster City Online Map. http://www.fostercity.org/gis/, accessed November 24, 2014.

The proposed project is located in the nonresidential, northeastern area of the City. This area of mostly planned commercial and light industrial developments is separated from largely residential areas to the south by State Route 92 (SR 92). There are fewer parks within close range of the project site than is typical of the City as a whole. However, the project site is located nearly adjacent to the San Francisco Bay shoreline. As a result it is within close range of recreational facilities associated with the regional San Francisco Bay Trail, which runs along the Bay shoreline through Foster City. These facilities include the Levee Pedway/Bikeway, Foster City's segment of the San Francisco Bay Trail, as well as the Little Coyote point recreational area. Both of these open spaces are within ½-mile of the project site. Finally, the City's New Foster City Park is located about ½-mile from the project site, just beyond SR 92.

The City of Foster City currently uses the standard of 5 acres of parkland per 1,000 residents as a threshold to measure how well its citizens are provided with park and recreational facilities access. With a 2013 population of 31,120[7] it is estimated that the City currently provides about 10 acres of parkland (including recreational waterways) per 1,000 residents, far exceeding the above standard.

d. Schools

The following subsection describes current conditions related to school services. The proposed project does not include the development of new residential uses, and would therefore not result in any direct increase to the local student population. Yet new students could be added to the school system indirectly if new employees move to Foster City and San Mateo from elsewhere, thus increasing the number of local households. As a result, schools are considered in this EIR.

The cities of Foster City and Mateo are served by two school districts: The San Mateo-Foster City School District (SMFCSD) and the San Mateo Union High School District (SMUHSD). School capacity is a growing concern for each of these districts.

(1) San Mateo-Foster City School District

The SMFCSD operates 20 schools serving San Mateo and Foster City, including 16 elementary schools and four middle schools. Districtwide enrollment for the 2014-2015 school year was 12,451 students.[8] The SMFCSD Enrollment Projections, dated February 14, 2014, projected enrollment to be 11,940 in October 2014, which would have been a 234 student increase over 2013 enrollment. The 2014 actual enrollment resulted in a 745 student increase, which is substantially higher than the projected increase. The SMFCSD operates three elementary schools and one middle school in Foster City. Foster City Elementary, Brewer Island Elementary, and Bowditch Middle

[7] California Department of Finance, 2013.

[8] Barton, Molly, Assistant Superintendent, Student Services, San Mateo-Foster City School District. Written communication to Urban Planning Partners, September 15, 2014.

school are operating at 99, 99 and 98 percent capacity, respectively. Audubon Elementary is operating at between 88 percent and 87 percent capacity, with room for 90 to 108 new students. It is recognized that the schools are at or near capacity and as development in the area continues to intensify, school capacity is a concern.

In February 2008, 75.5 percent of voters in San Mateo and Foster City supported a $175,000,000 bond to improve the overall quality and safety of local elementary and middle schools. The Measure L bond offers the opportunity to address capacity issues by adding classrooms and buildings to existing schools. The SMFCSD continues to move forward with its Measure L Projects. Most notably, a 14,000+ square-foot, 10-classroom building is currently under construction at Audubon Elementary in Foster City. In November 2013, 53.5 percent of voters in San Mateo County defeated a $130,000,000 bond to improve school capacity challenges, update classroom technology, and improve energy efficiency at each school.[9] Following the failure of Measure P, the Next Steps Advisory Committee (NSC) was appointed as an advisory committee in February 2014 and is now evaluating other options to address school capacity and equity issues.[10]

Schools can create secondary impacts as a result of employees that may move to the area. As such, school districts impose impact fees on new developments to help cover the cost of potential school facility construction or expansion. The District does not have a student generation rate for commercial development. However, new commercial/non-residential development in Foster City is required to provide necessary funding and/or capital facilities for the school system, as determined by State-mandated development impact fees.

(2) San Mateo Union High School District

The SMUHSD operates six high schools and one continuation high school, providing high school education to the communities of Burlingame, Foster City, Hillsborough, Millbrae, San Mateo, and San Bruno. The SMUHSD operates three high schools that serve households in Foster City: Aragon High School, Hillsdale High School, and San Mateo High School. As of September, 2014, both Aragon High School and Hillsdale High School were operating at 96 percent capacity. San Mateo High School was operating at 98 percent capacity. With total SMUHSD enrollment of 8,200 students, and total enrollment capacity of 8,910 students, the entire SMUHSD was at 92 percent capacity.

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[9] League of Women Voters of California Education Fund. Measure P, School Bond San Mateo-Foster City School District, accessed April 22, 2015. http://www.smartvoter.org/2013/11/05/ca/sm/meas/P/

[10] San Mateo-Foster City School District. Next Steps Advisory Committee (NSC). http://www.smfc.k12.ca.us/Next_Steps_Committee, accessed April 22, 2015.

e. Water Services

The Estero Municipal Improvement District (EMID) manages the distribution, operation, and maintenance of Foster City's water supply system. The City's sources of water, water treatment facilities, and water distribution system is described below. This information is based primarily on the Water Supply Assessment (WSA) completed as part of this environmental review, and included as Appendix G to this EIR.

(1) Water Sources

EMID, serving a population of approximately 37,000, is located midway between San Francisco and San Jose and includes the City of Foster City and a small portion of San Mateo. It is 10 miles south of the San Francisco International Airport. The service area of EMID consists of the City of Foster City and the Mariner's Island area of the City of San Mateo. The majority of customers are residential users with a broad cross-section of offices, commercial businesses, and a small number of industrial businesses.

Today, the City of Foster City is almost built-out with a number of redevelopment projects in various stages of planning. The population served by EMID is expected to be approximately 40,000, which includes Foster City and a portion of San Mateo. Table V.J-1 shows the projected population in 5-year increments anticipated until the year 2035. The percent increases for the population growth are also shown in the table.

EMID purchases all of its water from the San Francisco Public Utilities Commission (SFPUC) as a contractual member of the Bay Area Water Supply Conservation Agency (BAWSCA). The SFPUC's water system consists of three regional water supply and conveyance systems: the Hetch Hetchy system, the Alameda system, and the Peninsula system. The Hetch Hetchy system is supplied by runoff from the upper Tuolumne River watershed on the western slope of the central Sierra Nevada Mountains. The Alameda system includes conveyance facilities connecting the Hetch Hetchy aqueducts and the Alameda water sources to the Peninsula system. The Peninsula system includes water facilities that connect the EMID and other Peninsula

TABLE V.J-1 EMID SERVICE AREA CURRENT AND PROJECTED POPULATION

	2015	2020	2025	2030	2035
Service Area Population	37,088	37,924	38,492	38,869	39,223
% Increase		2.3	1.5	1.0	0.9

Estero Municipal Improvement District, 2010-2015 Urban Water Management Plan.

customers to the SFPUC distribution system and the Bay Division Pipelines. EMID does not have any groundwater or recycled water sources to supplement its supply.

EMID does not hold any existing water rights—all of its water supply assurances are the result of its contract with the SFPUC. In 1984, the SFPUC executed a Settlement Agreement and Master Water Sales Contract with the members of BAWSCA. The Contract is governed by the Master Sales Agreement (MSA), which expired in June of 2009. In August of 2009, BAWSCA and its member agencies signed a new Water Supply Agreement and Individual Water Sales Contract with SFPUC. The Contract runs through June 30, 2034 and guarantees a supply assurance of 184 million-gallons-per-day (MGD) to BAWSCA member agencies. The portion of that supply assurance to EMID, and BAWSCA's recent water demand projections for EMID through 2035, is shown in Table V.J-2. Table V.J-2 shows that EMID water demand is, and will remain, significantly lower than its SFPUC assured supply.

Although the Master Agreement and accompanying Water Supply Contract expire in 2034, the Supply Assurance (which quantifies San Francisco's obligation to supply water to its individual wholesale customers) survives their expiration and continues indefinitely.

According to SFPUC's Water System Improvement Program (WSIP), the supply assurance is subject to reductions in the event of drought, water shortage or earthquake, or rehabilitation/maintenance of the system. Table V.J-3 shows SFPUC's projected deliveries to EMID for a single dry year and for five consecutive dry years, based on the 2015 allocation of 6,608 AFY. The SFPUC WSIP calls for 10 percent supply reductions in the first 2 dry years, followed by 20 percent reductions for the next 3 dry years. The percent reductions would be the same for any given five consecutive dry years. During the periods of supply reductions, EMID would have to reduce demand by implementing the Water Shortage Contingency Plan adopted in 1993.

(1) Water Treatment, Distribution and Storage Facilities

As discussed above, the majority of the SFPUC's water supply originates in the upper elevations of the Sierra Nevada Mountains, in the Tuolumne Watershed. The SFPUC treats its water to meet all drinking water standards, and EMID receives the already treated water from the SFPUC and distributes it to its customers. As a retailer, EMID has no direct control over its water supply and treatment. EMID has only one main source of water supply, a 24-inch transmission main that is connected to SFPUC's 54-inch Crystal Springs No. 2 line. The connection point is located in the City of San Mateo, on Crystal Springs Road.

TABLE V.J-2 EMID CURRENT AND FUTURE WATER SUPPLY AND DEMAND (ACRE FEET/YEAR)

	2015	2020	2025	2030	2035
Normal Year Supply	6,608	6,608	6,608	6,608	6,608
EMID Demand Projections	4,495	4,551	4,506	4,473	4,484
Annual Excess	2,113	2,057	2,102	2,135	2,135
Percent Excess	32	31	32	32	32

Source: BAWSCA, 2014 Regional Demand and Conservation Projections; Estero Municipal Improvement District, 2010-2015 Urban Water Management Plan.

TABLE V.J-3 PROJECTED EMID SUPPLY ASSURANCE FOR A SINGLE AND MULTIPLE DRY YEARS

	2015	Dry Year 1	Dry Year 2	Dry Year 3	Dry Year 4	Dry Year 5
Supply (AFY)	6,608	5,947	5,947	5,286	5,286	5,286
% Reduction	-	10%	10%	20%	20%	20%

Source: Estero Municipal Improvement District, 2010-2015 Urban Water Management Plan.

In addition to the 24-inch transmission main, EMID has two separate 12-inch emergency supply connections with California Water Service Company (which serves the City of San Mateo) and with Mid-Peninsula Water Agency (formerly called Belmont County Water District, which serves the City of Belmont, San Carlos, and part of Redwood City). EMID has agreements with both agencies that allow EMID to use these connections during emergency situations. Both the California Water Service Company and the Mid-Peninsula Water Agency are members of the BAWSCA.

EMID has four at-grade water storage tanks with a total capacity of 20 million gallons for emergencies and peak and fire flow demand. Booster pumps are necessary to pump water from the storage tanks into the distribution system. The booster pump station has two electrical pumps and four engine drive pumps. The engine driven pumps are powered by natural gas with propane backup.

f. Wastewater (Sanitary Sewer) System

The wastewater collection and treatment system serving the project site is owned by EMID and operated by the Sewer Division of the Foster City Public Works Department. The existing collection system and wastewater treatment facilities serving the City and the project site are described below.

(1) Collection System

The Sewer Division of the Foster City Public Works Department operates and maintains approximately 66 miles of sanitary sewer lines, more than 8.5 miles of sewer force mains, 48 pumping stations, 15 permanent standby generators, and four portable generators to ensure that the approximately 3 million gallons of wastewater that Foster City homes and businesses generate each day is pumped to the jointly owned San Mateo Water Quality Control Plant (SMWQCP) in San Mateo.

Infrastructure in the vicinity of the project site consists of multiple 8-inch PVC sanitary sewer lines located beneath Lincoln Center Drive and throughout the project site that drain to Lift Station No. 25. These pipes were constructed in 1980 and connect to Lift Station No. 25 near the City's Corporation Yard. Wastewater is transported via a collection of mains and lift stations from the project site directly to the San Mateo Water Quality Control Plant, where it is reclaimed and then discharged into the San Francisco Bay.[11] The system is maintained and upgraded on an as-needed basis.

Lift Station No. 25 currently operates two Flygt submersible pumps each with a rated pumping capacity of 350 gpm as required by the construction of the Bayside Towers Project in 1999. Lift Station No. 25 is pumped to Lift Station No. 59 with a total capacity of about 4.3 MGD. Current flows are in the 2.7 MGD range,[12] or about 63 percent of capacity.

(2) Wastewater Treatment Facilities

Wastewater treatment is provided by the San Mateo Wastewater Treatment Plant (WWTP), which is jointly owned by EMID and the City of San Mateo. EMID owns approximately 25 percent of the treatment plant. The treatment plant has an average daily dry weather flow capacity of 15.7 MGD, of which 4.3 MGD is the purchased capacity for EMID per the Joint Powers Agreement (JPA).[13] In 2013, the WWTP had an average daily dry weather flow of 12.3 MGD.[14] EMID's actual average daily flow was 3.1 MGD. In 2012, the treatment plant's maximum daily dry weather *capacity* was 22.0 MGD and its maximum peak hour dry weather capacity was 39.5. According to Foster City's Public Works Director, the daily dry/wet capacity of the plant, which has not been reconfigured since 2012, has not changed significantly.[15] Based on current flow data, average daily flows are below the capacities indicated in the JPA.

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[11] Moneda, Jeff, Public Works Director, City of Foster City. Written communication with Greg Goodfellow, Urban Planning Partners, December 29, 2014

[12] Ibid.

[13] City of San Mateo & Estero Municipal Improvement District Joint Powers Agreement, Exhibit A. July 17, 1989.

[14] City of San Mateo, 2013. Wastewater Treatment Plant 20 Year Master Plan (2010-2030). http://www.cityofsanmateo.org/documentcenter/view/37550, accessed March 12, 2015.

[15] Moneda, Jeff, Public Works Director, City of Foster City. Personal communication with Greg Goodfellow, Urban Planning Partners, January 15, 2014.

g. Storm Drainage System

The project site is served by an existing public storm drain system, the main line of which runs beneath Lincoln Centre Drive, following the right-of-way of the roadway from East Third Street to the termination of the Lincoln Centre Drive within the project site. Two other storm drain lines "stub" off of the Lincoln Centre Drive line, including one that extends east-west beneath the parking lot at the northern end of the site, and one that runs south from the Lincoln Centre Drive line to the freeway frontage, and where it then extends in both directions along the southern border of the project site, parallel to the freeway.[16]

h. Solid Waste

The following section describes Foster City's non-hazardous and hazardous waste disposal services and capacity.

(1) Non-Hazardous Solid Waste

Foster City is a member agency of the South Bayside Waste Management Authority (SBWMA), also known as RethinkWaste, a joint powers authority created in 1982 to facilitate waste management programs for its member agencies. The SBWMA contracts with private companies for hauling and disposal of solid waste. Recology San Mateo County provides recycle, compost and garbage collection services for residents and businesses in the SBWMA service area. Non-hazardous solid waste and recyclables are taken to the Shoreway Environmental Center, located on the border of the cities of San Carlos and Redwood City. Shoreway includes a Transfer Station operated by South Bay Recycling, as well as a Public Recycling Center. The facility was permitted in 2010 by the California State Integrated Waste Management Board (CIWMB) to receive 3,000 tons per day of solid waste and recyclables, and permit review is required every five years. Currently, the facility receives approximately 750 tons of trash, 350 tons of green waste, and 250 tons of recyclables, or approximately 1,350 tons of waste per day.[17] After undergoing processing, waste from Shoreway Environmental Center is delivered to the Corinda Los Trancos (Ox Mountain) Landfill in Half Moon Bay. The landfill handles construction, demolition, and mixed municipal waste. Ox Mountain has a capacity of 69 million cubic yards. As of May 31, 2011, the estimated remaining capacity was 27 million cubic yards, or 39 percent of the original total.[18] The landfill

[16] City of Foster City, 2010b. Underground Infrastructure, GIS data provided to Urban Planning Partners, December 16, 2014.

[17] Rethink Waste, South Bayside Water Management Authority, 2014. *Fun Facts, Shoreway Environmental Center*. www.rethinkwaste.org, accessed December 12, 2014.

[18] CalRecycle, 2014. *Facility/Site Summary Details, Corinda Los Trancos Landfill*. http://www.calrecycle.ca.gov/SWFacilities/Directory/41-AA-0002/Detail/, accessed January 9, 2015.

has a permitted throughput of 3,598 tons per day[19] and is anticipated to have sufficient capacity to operate until 2018.[20]

(2) Hazardous Solid Waste

Foster City's hazardous wastes are disposed of at the Kettleman Hills Facility, Landfill B-18, which is operated by Chemical Waste Management, Inc. The Kettleman Hills Facility is located in the San Joaquin Valley, about 2.5 miles west of Interstate 5, approximately midway between San Francisco and Los Angeles. The facility is approved under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and permitted under the Toxic Substances Control Act (TSCA) and the Resource Conservation and Recovery Act (RCRA) to manage hazardous waste materials.[21] The Kettleman Hills Landfill B-18 encompasses 499 acres and has a total capacity of 10.7 million cubic yards, and was "operating at near capacity" in July of 2013, according to the California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control.[22] In May of 2014, a permit was approved to increase the total capacity of the landfill from 10.7 million cubic yards to 15.7 million cubic yards.[23]

According to the California Department of Resources Recycling and Recovery (Cal Recycle), no closure date has been identified for the landfill.[24]

i. Telecommunications

A number of telecommunications providers currently provide service to Foster City. AT&T (formerly SBC/Pacific Bell) is the City's primary telephone provider (or Incumbent Local Exchange Carrier – ILEC). Other carriers such as Qwest, Williams Communications, MCI/Worldcom, and Sprint have started providing services to commercial accounts in Foster City. Other providers offer DSL-type services to the

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[19] Permitted throughput is the maximum permitted amount of waste a landfill can handle and dispose of in one day. This figure is established in the current solid waste facilities permit issued by the Integrated Waste Management Board.

[20] California Integrated Waste Management Board (CIWMB), 2004. *Facility/Site Summary Details, Ox Mountain Sanitary Landfill.* www.ciwmb.ca.gov, accessed November 12, 2014.

[21] Waste Management, Inc., 2013. *CWM Kettleman Hills Landfill.* http://kettlemanhillslandfill.wm.com, accessed November 14, 2014.

[22] California Environmental Protection Agency (Cal/EPA), 2013. News Release: *DTSC Issues Draft Decision on Kettleman Facility and Announces Initiative to Reduce Landfill Waste by 50 Percent,* July 2.

[23] California Department of Toxic Substances Control. 2014. Press Release. http://www.dtsc.ca.gov/PressRoom/upload/News_Release_T-11-14.pdf, accessed November 18, 2014.

[24] California Department of Resource, Recycling and Recovery, 2013. *Facility/Site Summary Details: Kettleman Hills.* http://www.calrecycle.ca.gov/SWFacilities /Directory/16-AA-0023/Detail, accessed March 4, 2013.

residential market, but most are reliant upon AT&T's infrastructure. The City has a non-exclusive Franchise Agreement with the Comcast Corporation, which is currently the sole cable television and broadband internet provider. The City regulates Comcast services as provided under federal law. All of these service providers are privately owned and operated, and recover the costs of operation, maintenance, and capital improvement through connection and user fees, which are collected from all customers. These services are currently available at the project site.

The California Public Utilities Commission, which regulates California's tele-communication industry, requires that local phone service providers anticipate and serve new growth. To meet this requirement, local providers continually upgrade their facilities and infrastructure, adding new facilities and technology to remain in conformance with California Public Utilities Commission tariffs and regulations and to serve customer demand in the City.

j. Electricity and Gas

The Pacific Gas & Electric Company (PG&E) provides electricity and natural gas service to customers in Foster City. PG&E charges connection and user fees for all new development, in addition to sliding rates for electrical and natural gas service based on use. Electrical services are currently available at the project site. Title 24, California's Energy Efficiency Standards for Residential and Nonresidential Buildings, details requirements to achieve minimum energy efficiency standards of the State of California. The standards apply to new construction of both residential and nonresidential buildings, and regulate energy consumed for heating, cooling, ventilation, water heating and lighting. Compliance with these standards is verified and enforced through the local building permit process.

2. Regulatory Context

The following describes the public utilities regulatory context in Foster City, including statewide mandates and local General Plan policies.

a. State Mandate AB 939

The California Integrated Waste Management Act of 1989 (AB 939) required local cities and counties to adopt an Integrated Waste Management Plan (IWMP) to establish objectives, policies, and programs relative to waste disposal, management, source reduction, and recycling. AB 939 mandates that each jurisdiction adopt a Source Reduction and Recycling Element (SRRE) to specify how the community will meet the 50 percent waste diversion goal. Each jurisdiction is also required to take measures to reduce solid waste generation and to provide for the safe disposal of special and hazardous wastes. Certain special and hazardous wastes are included within the purview of the SRRE, but communities are also required to adopt a separate Household Hazardous Waste Element (HHWE) to address hazardous wastes generated

by households. The City adopted a SRRE and HHWE in 1992. The City of Foster City reached the 50 percent or greater diversion rate in 1997 when it achieved waste diversion rates of 54 percent and in 1998 and 2006, when it achieved waste diversion rates of 50 percent.[25] In 2011, the City of Foster City Annual Per Capita Disposal Rate (PPD) Per Resident was 2.7, and Annual PPD per Employee was 4.5.[26,27] The PPD per Resident target is 3.7, and the PPD per Employee target is 7.

Since 1989, the County of San Mateo and its cities have implemented a variety of programs to address solid waste including curbside recycling, commercial recycling programs, organics collection, backyard composting, electronics recycling, construction and demolition recycling ordinances and green building programs. Foster City requires that at least 50 percent of all demolition and construction debris be diverted from the landfill by using recycling, reuse, salvage, and other diversion programs.[28] In addition, project applicants are required to prepare a Waste Management Plan which accurately estimates the tonnage of demolition and construction debris generated by applicable projects. Plans for diverting these materials must be described by the applicant and approved by the City. The California Integrated Waste Management Board (CIWMB) estimates an average waste generation rate of 10.5 pounds per employee per day for commercial uses[29] and 5 pounds per unit per day for multi-family residential uses.[30]

b. California Code of Regulations, Title 24: California Building Standards Code

Title 24, California's Energy Efficiency Standards for Residential and Non-Residential Buildings, requires construction of new buildings and additions to adhere to energy efficiency standards. These standards include targets for energy efficiency, water consumption, dual plumbing systems for potable and recyclable water, diversion of construction waste from landfills, and the use of environmentally sensitive materials in construction and design.

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[25] California Integrated Waste Management Board (CIWMB), 2013. *Waste Flows, Jurisdiction Profile for City of Foster City.* www.ciwmb.ca.gov/Profiles/Juris/jurprofile.asp?rg=c&jurid=164&jur=foster+city, accessed February 8, 2013.

[26] 2011 Diversion/Disposal Rates have not yet been approved by the City of Foster City.

[27] CalRecycle, 2013. *Jurisdiction Diversion/Disposal Rate Summary (-007 - Current).* http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionPost2006.aspx, accessed March 1, 2013.

[28] City of Foster City, 2005. Ordinance No. 523: Recycling and Salvaging of Construction and Demolition Debris, November 21.

[29] Integrated Waste Management Board (IWMB), 2013. *Estimated Solid Waste Generation Rates for Commercial Establishments.* www.ciwmb.ca.gov/wastechar/wastegenrates/commercial.htm, accessed February 8, 2013.

[30] Ibid.

The City of Foster City follows the most current State business codes. The City's General Plan Conservation Element, Program C-0, requires new construction to be built according to Title 24.

c. General Plan Policies

The Foster City General Plan includes multiple policies from a number of Plan elements that are related to public services and utilities.

(1) Land Use and Circulation Element

- *Goal LUC-F: Provide Adequate Services and Facilities.* Ensure that new and existing developments can be adequately served by municipal services and facilities.
- *Policy LUC-65: Adequacy of Public Infrastructure and Services*. New projects which require construction or expansion of public improvements shall pay their pro rata fair share of the costs necessary to improve or expand infrastructure necessary to serve them, including streets and street improvements, parks, water storage tanks, sewer and water service, and other public services. The City has established several assessment districts to pay for needed municipal improvements. Facilities benefiting a specific development must be provided by the developer of that project.

(2) Parks and Open Space Element

- *Goal PC-A: Provide Sufficient and Diverse Recreational Opportunities.* Provide sufficient and diverse recreational opportunities for all the City of Foster City residents through the development of new recreational facilities as needed, given available funding and support, and the construction of additional park amenities in existing parks and elsewhere in locations where deficiencies have been identified or opportunities occur.
- *Policy C-1: Water Resources*. Conserve water resources in existing and new development.
- *Policy C-5: Solid Waste*. Reduce the generation of solid waste through recycling and other methods.
- *Program C-a: Water Saving Landscaping and Irrigation*. Promote the use of low-water-use landscaping and irrigation devices in parks, and during review of new projects and modifications to existing developments.
- *Program C-b: Property Owner Water Saving Techniques*. Encourage all property owners to implement the following conservation techniques: utilize drought tolerant plant materials, limit turf areas to 25 percent of landscaping, limit hours of the day for watering, retrofit with water-conserving fixtures, retrofit existing bathrooms and install new bathrooms with ultra-low-flow toilets and water conserving shower heads.
- *Program C-o: Title 24*. Construct new buildings and additions to energy efficiency standards according to Title 24 of the California State Model Code.
- *Program C-p: Solar Heating and Cooling*. Encourage installation of solar panels for heating and cooling with solar energy.
- *Program C-t: Source Reduction and Recycling Element*. Implement the Source Reduction and Recycling Element in accordance with State regulations.

(3) Safety Element

- *Policy S-6: Minimize Loss of Life, Injuries, and Property Damage Due to Fires*. The City will minimize loss of life injuries, and property damage due to fires through review of development proposals, public education, and maintenance of well-trained fire suppression personnel.
- *Policy S-10: Water Supply*. The City will provide an adequate supply of water for daily use and emergency situations.
- *Policy S-11: Police Services*. The City will provide police services necessary to maintain community order and public safety.
- *Program S-j: Development Review for Fire Safety*. The City will review proposals for new and modified buildings to ensure that fire safety provisions are included as required by the most current uniform codes and local regulations.
- *Program S-m: Water Supply and Delivery*. The City will maintain a water supply and delivery system that can meet potential fire-fighting demands through annual exercising of fire hydrants and periodic review of storage needs.
- *Program S-v: Police Services*. The City will provide adequate personnel, training, and equipment to support the provision of police services.
- *Program S-x: Development Review for Crime Prevention*. The City will review proposals for new and modified buildings for compliance with crime prevention requirements.

d. Foster City Standard Conditions of Approval

Foster City has adopted *Standard Conditions of Approval* (SCOAs) for large new and redevelopment projects. The following SCOAs related to public services, utilities, and recreation would apply to the proposed project.

- **SCOA 2.4:** Prior to issuance of a building permit, the Construction Best Management Practices (BMPs) related to stormwater prevention shall be included as notes on the building permit drawings (see http://www.fostercity.org/Services/permits/List-of-Forms.cfm).
- **SCOA 2.9:** The construction contractor shall designate a "noise disturbance coordinator" who shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaints (e.g., beginning work too early, bad muffler) and institute reasonable measures warranted to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site. The construction contractor shall protect all downstream sanitary sewer lines from construction debris while performing sanitary sewer construction. Means to prevent construction debris must be used and shall be inspected by the construction inspector.
- **SCOA 5.5:** Prior to issuance of a building permit, the applicants, at their expense, shall have a registered civil engineer prepare a complete sewer system capacity study of the on- and off-site sewer system (including lift stations) which services the project (both upstream and downstream). The study shall meet the approval of the City Engineer. All needed

construction improvements shall be installed by the applicants at applicants' sole cost. No on-site or downstream overloading of existing sewer system will be permitted.

- **SCOA 5.6:** The applicant shall prepare a sewer flow projection study and a hydraulic capacity study, to be submitted to the Foster City Public Works Department for review, to verify that the existing sewer system is properly sized to meet the projected increase in wastewater generation on the project site. The studies shall show the new connecting points to the existing sewers and model the estimated flows and peaking factors, as they relate to the changes in land use for the proposed project.
- **SCOA 5.13.1:** Prior to issuance of a building permit, the stormwater system shall be designed to be capable of handling a 25-year storm with the hydraulic grade line at least one foot below every grate, to the satisfaction of the Engineering Division.
- **SCOA 5.15:** Prior to issuance of a building permit, a complete storm drainage study of the proposed development must be submitted showing the amount of runoff, and existing and proposed drainage structure capacities. This study shall be subject to review and approval by the Engineering Division. All needed construction improvements will be made by the applicants. No overloading of the existing system will be permitted. A hydrology/hydraulic analysis shall be completed on the existing storm drain system to verify it is adequately sized to handle the run-off from the project.
- **SCOA 5.16:** Prior to issuance of a building permit, existing storm drain pipe lines on the project site and downstream thereof shall be televised to verify they have not become filled with sediment and cleaned out concurrently.
- **SCOA 5.17:** Prior to issuance of a building permit, should the City determine that the City's storm drain system or storm drain pumping capacity requires expansion or modification as a result of the applicants' development, the applicants shall pay for all necessary improvement costs. The timing and amount of payment shall be as determined by the City.
- **SCOA 5.18:** Post-construction survey reports shall be completed on the existing storm drain system. Any necessary repairs to restore the facilities shall be an element of the report. If required, the existing storm drains shall be cleaned as necessary during and at the completion of the proposed project.
- **SCOA 5.19:** Prior to the issuance of a building permit, the improvement plans shall include the design of a domestic water system to the satisfaction of the Engineering Division.
- **SCOA 5.20.1:** Water lines shall be designed for fire flows to meet California Fire Code and Fire Department requirements.
- **SCOA 5.21:** All City/District-owned water systems and on-site water mains shall be looped and meet the requirements of the State Department of Health Services, the City Public Works Department, and the City Fire Marshal.
- **SCOA 5.23:** Prior to the issuance of a building permit, fire mains shall be designed to Fire Department specifications. Fire mains shall be constructed according to those specifications.
- **SCOA 5.25:** To properly evaluate necessary improvements, a complete water system capacity study of the on- and off-site water system which services the proposed project shall be paid for by the project developer and prepared by a registered civil engineer retained by the City/District prior to approval of a building permit. The study shall meet the

approval of the City/District Engineer and include a fire flow analysis, a system demand analysis, and a system capacity analysis specific to the proposed development.

- **SCOA 5.26:** The applicant shall prepare a detailed water pipe hydraulic flow analysis, to be submitted to the Foster City Public Works Department, to determine whether the existing water distribution system is properly sized to meet the projected new water demands on the project site. The analysis shall take account of fire flows and peak hourly flows.
- **SCOA 5.29:** The applicant shall prepare a post-construction survey report on the existing water distribution system in the vicinity of the project site, to be submitted to the Foster City Public Works Department for review. Any necessary repairs to the existing water supply infrastructure shall be included in this report. The applicant shall be responsible for constructing and financing any such repairs.
- **SCOA 8.1:** Documentation showing compliance with Chapter 8.8 of the EMID Code, including, but not limited to submittal of the Outdoor Water Use Efficiency Checklist.
- **SCOA 9.18:** All excess fill shall be disposed of in accordance with City requirements. All building debris shall be disposed of outside the City of Foster City, pursuant to Chapter 15.44, Recycling and Salvaging of Construction and Demolition Debris.

3. Impacts and Standard Conditions of Approval

This section discusses public service, utility and recreation impacts that could result from implementation of the proposed project. The section begins with the significance criteria, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and identifies SCOAs, if appropriate.

a. Significance Criteria

The project would have a significant impact on the environment related to public services, utilities and recreation if it would:

- Result in substantial adverse physical impacts associated with the provision of, or 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 following public services:
  - Fire protection;
  - Police protection;
  - Schools;
  - Other public facilities.
- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

- Create a shortage of parks facilities for new residents, because total parks acreage does not meet the Government standard of 5 acres per 1,000 persons (Foster City Municipal Code Section 16.36).
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.
- Exceed wastewater treatment requirements of the San Francisco Bay RWQCB.
- Require or result in construction of new water or wastewater facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Require or result in construction of new storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Cause there to be insufficient water supplies available to serve the project from existing entitlements and resources, or require new or expanded entitlements.
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
- Require service by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.
- Violate federal, State, and local statutes and regulations related to solid waste.

b. Less-Than-Significant Public Services, Utilities, and Recreation Impacts

Less than significant land use impacts of the proposed project are discussed below.

(1) Fire Protection

As described above, the FCFD's average response time goal for locations within City limits is 3.5 to 4.5 minutes. Also noted by the FCFD is that the average response time to the area of the project site currently meets that goal.

Given that the project site is currently vacant, implementation of the proposed project may result in an incremental increased demand for fire protection and associated emergency services. However, the project site is located in a highly-developed urban area, within 1.5 miles of two fire stations. As such, the proposed project would not require the provision of, or need for, new or physically altered facilities to continue to serve the project site at the current level, nor would the proposed project impact the Department's current response times.[31] Moreover, increased development associated

[31] Keefe, Michael, Fire Chief, Foster City Fire Department. Written communication with Greg Goodfellow, Urban Planning Partners, November 25, 2014.

with proposed project would not exceed the capabilities of existing FCFD staffing levels and require new personnel.[32] The FCFD has currently has sufficient engines, equipment and non-personnel resources to adequately serve the proposed project.[33] As such, development of the proposed project would result in a less-than-significant impact to fire and emergency medical services within the City.

The proposed project would be required to meet all FCFD requirements for sprinkler systems, alarms, fire flow, access, and fire hydrant spacing. The FCFD's Underground Piping for Private Hydrants & Sprinkler Supply provides a guideline of minimum requirements for the design and installation of private hydrant and/or sprinkler supply underground piping. Also, the City of Foster City has modified, by City Ordinance, some sections of the California Fire Code (CFC) which would require further compliance.

(2) Police Protection

The proposed project would increase the number of employees on the currently vacant project site by approximately 1,594, as described in *Chapter III, Project Description*. This could increase the demand for police services in the site and surroundings. This demand would be largely limited to daytime business hours and, with the exception of increased evening patrols around the project site during construction, minimized during the evening and nighttime. As noted in the setting section, there is no industry-wide standard to determine the ration of police officers needed to serve a non-resident daytime population.

Although implementation of the project may result in an incremental increased demand for police services, this increase would not result in the need for new police facilities or staffing.

As noted above, the current ratio of sworn officers to Foster City Residents is 1.2 officers per 1,000 residents, below the City's goal of 1.5 officers per 1,000 residents. With a current population of 31,120 and 37 sworn officers, about 10 new sworn officers are needed to bring the staffing levels to the desired 1.5 officers per 1,000 residents. As a result of the proposed project, a maximum of 165 individuals are expected to become new residents of the City. The addition of residents from the propose project would require less than one additional sworn officer to serve the new development within FCPD's desired staffing ratio.

Police services and staffing ratios go through an annual budgeting process during which citywide priorities are established and service levels monitored, allowing adjustments where needed. Any added personnel would be funded through the City's General Fund. Revenue and taxes generated by the project would contribute to the

[32] Ibid.
[33] Ibid.

City's General Fund for such purposes as funding added personnel. Additional officers needed to meet FCPD's desired staffing level would be accommodated by existing facilities. However, staffing levels do not relate to physical impacts and thus are not considered an impact under CEQA. This analysis is therefore provided for informational purposes only. Development of the project would not affect the Department's ability to meet this response time goal, nor would it require the provision of or need for new or physically altered facilities to continue to serve the project site.[34] The project would therefore have a less-than-significant impact on police protection services.

(3) Schools

As discussed, the commercial nature of proposed project would result in no direct increase in local school population. While school capacity is limited within both the SMFCSD and SMUHSD, the indirect increases in demand on schools associated with project-related job creation would be mitigated by the payment of developer fees pursuant to the California Education Code.

While important to the quality of life in the project area, impacts to schools from increased development do not necessarily result in physical environmental impacts. In Goleta Union School District v. Regents of the University of California, the Court of Appeal found that "Classroom overcrowding, per se, does not constitute a significant effect on the environment." A General Plan may have policies relating to public service levels in general or schools in particular. If a development project overwhelms the school district's capacity and quality of service, it could be inconsistent with the General Plan. The City of Foster City General Plan does not have a specific policy related to school service levels.

Pursuant to California Education Code Section 17620(a)(1), developers pay fees to both the San Mateo-Foster City School District and The San Mateo Union High School District, which share a single collection agency. As of November 18, 2014, the impact fees paid by developers of commercial projects is 0.32 square feet to San Mateo-Foster City School District, and 0.21 per square feet to the San Mateo Union High School District, for a combined total of $0.53 per square foot in impact fees.[35] This would result in $294,000 in fees paid by the developer of the proposed project to the districts, including $177,600 to SMFCSD and $116,550 to the SMUHSD. With payment of these fees, the impact of the project on school facilities would be less than significant.

[34] Martell, Matt, Chief, Foster City Police Department. Written communication with Greg Goodfellow, Urban Planning Partners, November 24, 2014.

[35] Mak, Steve, Director of Fiscal Services, San Mateo-Foster City School District. Letter to Foster City Office of the City Manager, re: *School Impact Fee Increase*, November 18, 2014.

(4) Parks and Recreation

As described throughout this section, due to its commercial nature and lack of any residential component, the proposed project would not result in any direct increase in the City's population. The indirect increases in demand on parks and recreational facilities associated with project-related job creation would not be significant enough to trigger the need for new facilities. As previously described, the City of Foster City has a policy of providing 5 acres per 1,000 residents as a threshold to measure how well its citizens are provided with park and recreational facilities access. With a 2013 population of 31,120, the City currently exceeds this policy, with more than 10 acres of recreational waterways and parks per 1,000 residents.

As detailed in *Chapter III, Project Description*, a central objective of the proposed project is to create usable open spaces that provide opportunities for recreation for project employees and visitors. These would include a central landscaped area with various passive recreational amenities, pedestrian pathways, and lagoon fronting open spaces. These recreational amenities would be fully accessible to the daytime population of employees expected at the proposed project, further reducing the potential impact of that population on existing City parks. This accessibility, combined with the current quantity of City parkland that exceeds City standards, would result in a less-than-significant impact related to the advanced physical deterioration of existing parks or shortage of parks and recreational services. Finally, the proposed project does not include the construction of recreational facilities, other than the internal and waterfront open spaces designed for employee relaxation and collaboration. These are included in the environmental review reflected in this document. Therefore, the project would not require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

(5) Wastewater Treatment

As described above, the WWTP's average daily dry weather capacity is 15.7 MGD, of which 4.3 MGD is the purchased capacity for EMID. In 2013, the WWTP had an average daily dry weather flow of 12.3 MGD. The average daily flow is within the average daily flow design capacity of 15.7 MGD.[36] EMID's average daily flow as of 2014 was 2.4 MGD. The proposed project would generate approximately 0.16 MGD of wastewater.[37] The net increase of 0.16 MGD would increase the City's average daily flow to 2.56 MGD, which is well below the 4.3 MGD purchased capacity for average daily flow. In addition, the addition of 0.16 MGD would increase the WWTP's total average daily flow to 12.46 MGD (based on 2013), below the 15.7 MGD total capacity for average daily flow for the WWTP.

[36] City of San Mateo, 2013. Wastewater Treatment Plant 20 Year Master Plan (2010-2030). http://www.cityofsanmateo.org/documentcenter/view/37550, accessed on March 12, 2015.

[37] Assumes a wastewater generation rate of 0.27 gallons per day per every square foot of office and laboratory uses. City of Foster City, 1999. *Civic Center Master Plan Study,* March.

In addition, the City's SCOA's state that the applicants shall complete a sewer system capacity study, and that all needed construction improvements shall be installed by the applicants. According to the SCOA, a sewer flow projection study and a hydraulic capacity study must also be competed, to verify that the existing sewer system is properly sized to meet the projected increase in wastewater generation on the project site.

Because the proposed project would allow EMID to remain well below its allocated daily flow capacity at the WWTP, it would result in a less-than-significant impact on wastewater treatment and disposal (as no new wastewater facilities would be required to serve the project).

(6) Storm Water

As explained in Section V.H. Hydrology and Water Quality, the proposed project would increase the quantity of pervious surfaces at the project site by up to 5 acres. It would therefore decrease storm water runoff to be below pre-project levels. Due to the decrease in impervious surfaces, runoff would not exceed the capacity of the existing storm drain systems and storm water detention is not currently anticipated to be necessary. The storm drainage system would be located within the grading footprint, and would convey runoff to approximately the same points where it now discharges the project site.

In addition, The City's SCOAs require that prior to construction of the project, existing storm drain pipelines on the project site and downstream be televised to verify they have not become filled with sediment and cleaned out concurrently. If the existing storm drain system would be by-passed or replaced, a hydrology/hydraulic analysis for the proposed project would be performed to the satisfaction of the City Engineer in accordance with the City's SCOAs. The analysis would verify whether proposed modifications to the drainage infrastructure would be adequate to receive and convey runoff from the project site. If the findings of the analysis reveal that implementation of the proposed project would create runoff beyond the capacity of the existing storm drain systems, the project would be required to upgrade undersized components as a condition of approval for the project. Prior to project approval, the design drainage plans of the proposed project would be subject to review by the Foster City Public Works Department to ensure that the proposed storm drainage system would be adequate to convey runoff under the proposed setting. The SCOAs also require that post-construction survey reports be completed on the existing storm drain system. Any necessary repairs to restore the facilities shall be an element of the report. If required, the existing storm drains would be cleaned as necessary during and at the completion of the proposed project. As such, the proposed project would not result in the construction of new storm water drainage facilities, or expansion of existing facilities. The impact would be less than significant.

(7) Water Supply

The proposed project would contain up to 595,000 gross square feet of life sciences research facilities in a campus-style setting, including up to 555,000 gross square feet of laboratory and office uses, and a 40,000-square-foot building to house amenities for employees and visitors.

The project proposes that 70 percent of the gross square footage be developed for office uses and 30 percent be developed for laboratory uses. However, to ensure that maximum water demand is studied, the WSA analysis of water supply impacts also evaluated a variant that would be 30 percent office and 70 percent laboratory. The latter would require more water and was used to compute the net project demand for the proposed project.

According to the Water Supply Assessment (WSA) conducted for the proposed project and other major projects in Foster City and approved by the EMID Board on February 17, 2015 (included as Appendix G to this EIR), the proposed project would result in approximately 120 acre feet of additional water demand per year. Table V.J-4 shows the anticipated SFPUC water supply assurance every 5 years between 2015 and 2035 (assuming no supply disruptions or critical multi-year droughts), projected demand within the EMID service area as determined by the Bay Area Water Supply and Conservation Agency (BAWSCA), additional demand from the proposed project, demand associated with other major proposed development projects in the EMID service area, and water supply remaining after accounting for expected demand.

As indicated in Table V.J-4, EMID is under contract to receive 6,608 acre feet per year from the SFPUC, assuming no significant supply disruptions or prolonged drought conditions. This water supply is assured through 2034, with provisions for extension to 2044. Taking into account major anticipated development projects within the EMID service area, including the Lincoln Centre Life Sciences Research Campus, EMID would have a sufficient water supply to meet expected demand. The expected water supply surplus would range from 1,296 acre feet per year in 2020 to 1,363 acre feet per year in 2035.

In the event of prolonged drought conditions, EMID would implement the Water Shortage Contingency Plan, which would result in reduced water demand of up to 20 percent within the service area. The Water Shortage Contingency Plan would thus ensure an adequate water supply within the EMID service area if the SFPUC reduces water deliveries to EMID by 10 to 20 percent (as would occur during a prolonged drought). For instance, a 20 percent reduction in water demand would reduce the overall demand during year five of a 5-year drought starting in 2030 to approximately 4,187 AFY with the new projects. The anticipated supply that year, taking into account a 20 percent reduction in water deliveries from the SFPUC, would be 5,286 acre-feet (AF). Thus even under a 5-year drought scenario starting in 2030, EMID would still be

TABLE V.J-4 EMID WATER SUPPLY AND DEMAND PROJECTIONS PLUS PROJECTS (ACRE FEET/YEAR)

	2015	2020	2025	2030	2035
Normal SFPUC Water Supply Assurance	6,608	6,608	6,608	6,608	6,608
EMID Water Demand	4,495	4,551	4,506	4,473	4,484
Proposed Project Demand	0	120	120	120	120
Additional Projects Demand	0	641	641	641	641
Total System Demand	4,495	5,312	5,267	5,234	5,245
Est. Remaining SFPUC Supply	2,113	1,296	1,341	1,374	1,363
Est. Remaining Supply Reliability, %	32%	20%	20%	21%	21%

Source: Bay Area Water Supply and Conservation Agency, 2014; Estero Municipal Improvement District, 2010-2015 Urban Water Management Plan.

able to provide adequate water to all existing and anticipated development and maintain a water surplus of approximately 1,099 AF.

Therefore, the water demand associated with the project and all foreseeable development could be accommodated during multiple dry years (such as those that could result from global climate change), through implementation of the mandatory demand reductions outlined in the Water Shortage Contingency Plan.

Because the proposed project would represent a significant increase in water demand but would be within the anticipated supply range for the City, it would not lead to insufficient water supplies in existing entitlements and resources, or require new or expanded entitlements. No new water facilities, or expansion of existing water facilities, the construction of which could cause significant environmental effects would result. Therefore, the proposed project would result in a less-than-significant impact on potable water supply.

(8) Solid Waste

The proposed project would be served by landfills with the capacity to handle solid wastes generated by the operational phases of the proposed project. As required by AB 939, the California Integrated Waste Management Act, a minimum of 50 percent of the City's waste must be recycled. Per the City's construction and demolition ordinance, the construction contractor would be required to recycle a minimum of half of all demolition and construction debris to meet City requirements. Chapter 15.44 (Ordinance 593) of the Foster City Municipal Code requires construction contractors to take their construction and demolition debris to a facility that processes construction and demolition materials for recycling. Most of these facilities yield recycling rates in

excess of 80 percent. The typical residual that would go to the landfill is 10 to 15 percent of the debris.

This would not substantially decrease the available capacity at the Ox Mountain Sanitary Landfill. As previously described, the CIWMB estimates an average waste generation rate of 10.5 pounds per employee per day for commercial. The proposed project would result in the addition of an estimated 1,594 new employees that would together produce about 16,737 pounds of waste per day. This represents less than 0.3 percent of the total daily permitted throughput for the Shoreway Environmental Center, which is permitted for a daily throughput of 3,000 tons of solid waste and recyclables. The amount of solid waste generated by operation of the proposed project would not exceed the landfill capacity and thus development of the proposed project would have a less-than-significant impact on landfill capacity. In addition, Allied Waste Management currently provides recycling services to the project site. These services contribute to a reduction in solid waste generated by proposed development. The design and location of on-site recycling bins serving new development would be subject to City review and approval prior to issuance of building permits.

(9) Electricity, Gas, and Telecommunications

Development of the proposed project would occur in a location that currently has electricity, gas, telephone, cable, and internet services. As such, the proposed project would have a less-than-significant impact on electricity, gas, telecommunications, cable, and internet services.

c. Significant Public Services, Utilities, and Recreation Impacts and Mitigation Measures

Implementation of the proposed project would not result in any public services, utilities, or recreation impacts; all impacts would be less than significant with implementation of the City's SCOAs as discussed above.

d. Cumulative Public Services, Utilities, and Recreation Impacts

The proposed project and cumulative projects would incrementally increase the demand for fire, police, school, and recreation services. These services are subject to an annual budgeting process during which service priorities are established and service levels are monitored, allowing for adjustments where needed. Changes in demand for these services are expected to be incremental, allowing for carefully planned expansions of existing facilities. Any expansions would be likely to occur on sites already occupied by existing service providers. Therefore, no cumulative impacts to these services are anticipated that would result in adverse physical impacts associated with the maintenance of service standards.

The anticipated growth associated with the propose project, in combination with past, present, and reasonably foreseeable future projects, could adversely affect FCFD response times. However, the FCFD anticipates that it would continue to be able to meet its response time goal in the context of future development. In addition, the measures that the City may require as part of the Development Agreement (including requiring the project applicant to participate in the City's replacement/upgrade of traffic signal preemption devices, and requiring the identification of fire roads and lanes) would further reduce the contribution of the project to cumulative impacts on FCFD services. Similar measures may also be incorporated into other planned projects of a similar size and would reduce the impact of cumulative development on emergency response times (and avoid the need for new capital facilities to retain existing response times). Thus, no cumulative impacts to fire services are anticipated that would result in adverse physical impacts associated with the maintenance of service standards.

School capacity is a growing, valid concern for both school districts that serve Foster City. As is the case with the proposed project, new resources made available to school districts, in the form of State-mandated developer fees, will work to mitigate both direct and indirect capacity-related impacts of future projects. Thus, no cumulative impacts to school services are anticipated.

The proposed project and cumulative development projects would also incrementally increase demand for wastewater and water services and other utilities in Foster City. While development of the proposed project would place additional demands on City services and utility projects, buildout of project and other planned development would not result in any significant impacts to services and utility projects as discussed above. Assuming adherence to the City's SCOA's, it is not expected that the proposed project in combination with other cumulative development would result in a significant impact on these utilities.

VI. ALTERNATIVES

The California Environmental Quality Act (CEQA) Guidelines require the analysis of a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the project's basic objectives and avoid or substantially lessen any of the significant effects of the project. The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.[1] 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.

The proposed project and the project objectives are described in detail in *Chapter III, Project Description,* and the potential environmental effects of implementing the proposed project are analyzed in *Chapter V, Settings, Impacts, Standard Conditions of Approval, and Mitigation Measures.* Impacts associated with the following environmental topics would be significant for the proposed project without the implementation of SCOAs and/or mitigation measures, but would be reduced to a less-than-significant level if the SCOAs and/or mitigation measures recommended in this EIR are implemented:

- Aesthetics and Shade and Shadow
- Traffic and Transportation
- Air Quality
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality

The following impacts are identified as potentially significant and unavoidable for one of two reasons: (1) implementation of improvements needed to mitigate require approval from an agency other than the City of Foster City (i.e., Caltrans, City of San Mateo); and/or (2) physical improvements or revisions in the project are not feasible to adequately mitigate the impact to a less-than-significant level:

- Traffic and Transportation, related to the increase in vehicle delay and vehicle trips at the following three signalized intersections and one freeway segment:
    - Foster City Boulevard/Chess Drive under Existing Plus Project Conditions, Background Conditions, and Cumulative Conditions;

[1] *CEQA Guidelines*, 1998, Section 15126.6.

- Norfolk Street/East 3rd Avenue under Background Conditions and Cumulative Conditions;
- SR 92 Eastbound Ramps/Metro Center Boulevard under Background Plus Project Conditions and Cumulative Plus Project Conditions;
- Eastbound SR 92, east of Foster City Boulevard under Existing Plus Project Conditions, Background Conditions, and Cumulative Conditions.

The following discussion of alternatives is included, per CEQA Guidelines, to provide the public and decision makers with information that will help them understand the adverse impacts and benefits associated with three potential alternatives to the proposed project. A discussion of the environmentally superior alternative is also provided, as required by CEQA. The three alternatives are as follows:

- The **No Project/No Build Alternative**, which assumes the project would not be developed. The existing site would remain vacant and undeveloped with no new development on the project site.
- The **Current Entitlement Alternative** which assumes development of the seven buildings allowed under the current General Development Plan approved in 1980 and amended in 1981.
- The **Reduced Project Alternative**, which assumes only a portion of the proposed project would be developed.

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 the "significant effects of the project would be avoided or substantially lessened by putting the project in another location." A feasible alternative location within Foster City that would accommodate the infill development of a campus-like life sciences research facility of a similar size is not currently available. There is no available undeveloped land of an adequate size or available large underutilized sites, with the appropriate land use controls, that could be redeveloped as a life sciences campus. As such, an alternative site location is not considered.

As stated above and described in detail in *Chapter V, Settings, Impacts, Standard Conditions of Approval, and Mitigation Measures*, implementation of the proposed project would result in ten potentially significant unavoidable impacts. The impacts relate to increased delay during peak traffic hours at three intersections: Foster City Boulevard/Chess Drive (TRANS-2, TRANS-7, and TRANS-14), Norfolk Street/East 3rd Avenue (Impacts TRANS-5 and TRANS-11), and SR 92 Eastbound Ramps/Metro Center Boulevard signalized intersections (Impacts TRANS-8 and TRANS-15) and increased vehicle trips during peak traffic hours on Eastbound SR 92 past Foster City Boulevard (Impacts TRANS-4, TRANS-10, and TRANS-17).

Impacts TRANS-2, TRANS-7, and TRANS-14 could be avoided with the following mitigation measures: (1) the addition of a southbound right-turn lane; (2) re-timing of the traffic signal during PM peak hours; and (3) implementation of the TDM Plan. However, approval by Caltrans may be required for the southbound right-turn lane as some of the property may be owned by Caltrans. If Caltrans approval is determined necessary and Caltrans does not approve, and the City is unable to implement these improvements, then this impact would be significant and unavoidable. At this time, without assured approval by Caltrans, this impact is deemed to be significant and unavoidable.

Impacts TRANS-4, TRANS-10, and TRANS-17 could be reduced at freeway segment Eastbound SR 92 by implementing the TDM Plan. However, the associated reduction in vehicle trips would not, be sufficient to reduce the project's traffic contribution below the threshold of less than one percent of the freeway's capacity. Therefore the impact would remain significant and unavoidable.

Impacts TRANS-5 and TRANS-11 could be avoided if the City of San Mateo agreed to convert the eastbound right-turn lane of East 3rd Avenue to a shared through/right-turn lane and widen the east leg of East 3rd Avenue to accommodate three receiving lanes. This would improve LOS in the AM peak hour from LOS F to LOS E (better than conditions without the project). However, the City of San Mateo has previously stated that this improvement is not acceptable. Without assured approval by the City of San Mateo, these two impacts would remain significant and unavoidable.

Impacts TRANS-8 and TRANS-15 could be avoided if Caltrans approved adding more capacity to the Eastbound SR 92 on-ramp. However, currently, there are no planned capacity improvements for this on-ramp and without assured approval by Caltrans, these two impacts would remain significant and unavoidable.

As a result, a modified project such as that described below in connection with Alternatives B, Current Entitlement Alternative, and C, Reduced Project Alternative, would not eliminate these impacts.

A. NO PROJECT/NO BUILD ALTERNATIVE

1. Principle Characteristics

The No Project/No Build Alternative assumes that the project site would remain in its existing condition and would not be subject to development. The site would remain vacant, defined by building pads and hardscape. No new improvements would be constructed on the project site.

2. Relationship with Project Objectives

The No Project /No Build Alternative would achieve none of the key objectives of the proposed project, including those related to:

- Creating a campus that supports innovation in Foster City;
- Successfully redeveloping of an infill site; and
- Boosting economic development in Foster City.

3. Analysis of the No Project/No Build Alternative

The potential impacts of the No Project/No Build Alternative are described in the following section.

(1) Land Use

Implementation of the No Project/No Build Alternative would result in the continuation of existing land uses on the project site, which is currently vacant. No new land uses would be introduced. As would be the case under the proposed project, this alternative would not physically divide the existing community, nor conflict with habitat conservation plans. The positive land use impacts of growth that adheres and conforms to the Foster City General Plan would not occur under this alternative. This alternative would not result in any significant land use impacts.

(2) Aesthetics and Shade and Shadow

Under the No Project/No Build Alternative, the project site would remain undeveloped, and its visual quality and impact on scenic resources unchanged. As no development would result under the No Project/No Build Alternative, there would be no impacts related to light and glare, unlike the proposed project. This alternative would not achieve the positive aesthetic results associated with coordinated, designed development on a site of low visual quality. This alternative would not result in any significant impacts related to aesthetics, shade and shadow.

(3) Traffic and Transportation

The No Project/No Build Alternative would result in fewer AM and PM peak hour trips than the proposed project. As described under baseline conditions in Section V.B.1.d, all study intersections currently operate at an acceptable LOS D or better except for Norfolk Street/East 3rd Avenue in the AM peak hour and Foster City Boulevard/Chess Drive in the PM peak hour, both of which operate at LOS E. Unlike the proposed project, the No Project/No Build Alternative would not contribute to significant congestion in the project vicinity. The significant impacts related to increased delay during peak traffic hours would not occur under the No Project/No Build Alternative at the following three intersections that would be impacted by the project: Foster City Boulevard/Chess Drive (TRANS-2, TRANS-7, and TRANS-14), Norfolk Street/East 3rd Avenue (Impacts TRANS-5 and TRANS-11), and SR 92 Eastbound Ramps/Metro Center

Boulevard signalized intersections (Impacts TRANS-8 and TRANS-15). Additionally the No Project/No Build Alternative would not result in increased vehicle trips during peak traffic hours on Eastbound SR 92 past Foster City Boulevard (Impacts TRANS-4, TRANS-10, and TRANS-17). In addition, the alternative would avoid other impacts of the project, including the addition of capacity to already over-capacity shuttles and interference with circulation during the construction period.

(4) Air Quality

This alternative would not change the existing air quality. Under this alternative, there would be no construction activity or increases in vehicle trips associated with the development of a life sciences campus. Similar to the proposed project, the No Project/No Build Alternative would not produce significant operational impacts related to toxic air contaminants, emissions standards, and odors. Unlike the proposed project, it would produce no temporary, mitigatable construction-related emissions or dust. This alternative would not result in any significant impacts related to air quality.

(5) Geology, Soils, and Seismicity

The No Project/No Build Alternative would not develop the uses envisioned in the proposed project, and thus would not expose new people or new structures to major seismic hazards. The project site would still be susceptible to seismic ground shaking and unstable soils, as identified in the analysis of the proposed project. However, given that the project site would remain undeveloped, potential employees and visitors associated with the proposed project would not be exposed to those risks, and the SCOAs identified in Section V.E.2 would not be required.

(6) Greenhouse Gas Emissions

The No Project/No Build Alternative would result in no operational or construction activity at the project site. As a result, it would produce no new greenhouse gas (GHG) emissions. As would be the case under the proposed project, this alternative would not conflict with any plans or policies related to the reduction of GHGs. Unlike the proposed project, this alternative would generate no GHG emissions whatsoever. While construction and operation of the proposed project would result in numerous activities that contribute to GHG emissions, these emissions would not exceed BAAQMD thresholds. The No Project/No Build Alternative would result in no significant impacts related to GHGs.

(7) Hazards and Hazardous Materials

Implementation of the No Project/No Build Alternative would keep the site in its existing condition. As such, it would not create significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials, or create a significant hazard to the public or the environment through reasonable foreseeable upset or accident conditions involving the release of hazardous materials

into the environment. Similarly, this alternative would not expose construction workers or the public to hazardous materials from contaminants in the soil during and following construction activities, or expose workers or the public to airborne toxics, (e.g., lead-based paint and asbestos) during demolition. Implementation of the project could expose individuals to contaminated soil and asbestos during construction, but the impact of this exposure would be less than significant with adherence to SCOAs, and Mitigation Measure HAZ-1 outlined in Section V.F. Unlike the No Project/No Build Alternative, the proposed project represents an opportunity to advance conditions at a site recently subjected to a demolition process.

(8) Hydrology and Water Quality

The No Project/No Build Alternative would not result in the construction of any new structures, and the project sites would remain in its current state. This alternative would produce no new significant impacts related to water quality standards, water quality degradation, runoff, flooding, water-oriented natural hazards, groundwater or drainage. However, given that the site under existing conditions has more impervious area than it would under the proposed project, this alternative would have greater impacts than the proposed project related to degradation of water quality in the Foster City lagoon. Since this alternative would not achieve the decrease in impervious surface that would result from the proposed project, it would not reduce stormwater runoff overall, which the proposed project would, as explained Section V.H.2.b.

(9) Noise

No construction activity would occur under the No Project/No Build Alternative. This alternative would not result in increased traffic and would not expose new residences or offices to increased noise levels. Therefore, the No Project/No Build Alternative would result in no significant impacts related to noise exposure, increased noise levels and construction-related noise. No significant noise-related significant impacts were identified for the proposed project, but the project would increase noise at a less-than-significant level. Construction activities would generate minimal, temporary increases in noise levels for residences and schools to the southeast, and new traffic resulting from operation of the proposed project would generate negligible increases in noise levels in an area without sensitive receptors.

(10) Public Services, Utilities and Recreation

The No Project/No Build Alternative would result in no new improvements or population or employment increase at the project site. As a result, it would place no new demands on any City services, utilities, infrastructure or parks. Although the proposed project would increase demands on City services such as police and fire, as well increase stress on existing utilities, these increases would be fairly minimal. As explained in Section V.J.3.b, adherence to the City's SCOAs would further ensure that the proposed project's impact on public services, utilities and recreational facilities are less than significant.

B. CURRENT ENTITLEMENT ALTERNATIVE

1. Principle Characteristics

The Current Entitlement Alternative assumes that the project site would be developed in accordance with the current entitlements subsequently built after the General Development Plan was approved in 1980 and amended in 1981. Under this alternative, the Life Technologies campus is assumed to be developed very similar to how the site was developed prior to demolition, with seven one- and two-story office/warehouse and lab buildings totaling approximately 280,000 square feet. Development under this alternative would assume 196,000 square feet, or 70 percent of the floor area, would be used for office space. The remaining, at least 84,000 square feet (30 percent), would be dedicated to laboratory uses. No new improvements would be constructed on the project site.

2. Relationship with Project Objectives

The Current Entitlement Alternative would achieve part of the key objectives of the proposed project, including those related to:

- Creating a campus that supports innovation in Foster City;
- Successfully redeveloping an infill site; and
- Boosting economic development in Foster City.

3. Analysis of the Current Entitlement Alternative

The potential impacts of the Current Entitlement Alternative are described in the following section.

(1) Land Use

Implementation of the Current Entitlement Alternative, similar land uses would be developed on the project site as the proposed project, including office/warehouse and lab buildings. As would be the case under the proposed project, this alternative would not physically divide the existing community, nor conflict with habitat conservation plans. The positive land use impacts of growth that adheres and conforms to the Foster City General Plan would not occur under this alternative. This alternative would not result in any significant land use impacts.

(2) Aesthetics and Shade and Shadow

The Current Entitlement Alternative would result in a less intense development on the site including reduced building heights for all buildings. Like the proposed project, this alternative would be visually compatible with surrounding development, cast shadows on adjacent properties, and introduce new sources of light and glare; however, like the proposed project, any development under this alternative would be subject to design review. With implementation of the SCOA recommended in Section

V.B, this alternative's impacts related to aesthetics and shade and shadow would be less than significant.

(3) Traffic and Transportation

The Current Entitlement Alternative would result in 280 AM and 293 PM peak hour trips for office and laboratory uses (both fewer than the proposed project); however, like the proposed project, this alternative would still result in significant traffic and transportation impacts. Intersections East 3rd Street/Norfolk Street and Foster City Boulevard/Chess Drive are already operating at unacceptable LOS E under existing conditions and conditions at the SR 92 Eastbound Ramps/Metro Center Boulevard would worsen to LOS F in the PM peak hour under Background Plus Project Conditions and Cumulative Conditions as a result of mitigation measures to reduce vehicle delay at Foster City Boulevard/Chess Drive. Like the proposed project, the Current Entitlement Alternative would also contribute to congestion at freeway segment Eastbound SR 92, east of Foster City Boulevard as it operates at LOS F during the PM peak hour under existing conditions. Similar to the proposed project, the Current Entitlement Alternative would avoid other impacts of the project, including the addition of capacity to already over-capacity shuttles and interference with circulation during the construction period with the application of a mitigation measure requiring the applicant to prepare an analysis of its projected public transit ridership, and develop a plan for how that ridership will be accommodated. The plan may include, among other things, funding a pro rata share of expansion of existing public transit services; funding a pro rata share of new public transit services; or a demonstration that the project reduces or eliminates additional demand for public transit due to alternate means of transportation including, but not limited to, private shuttles.

(4) Air Quality

This alternative would contribute to an increase in emissions affecting air quality due to construction activities; however, to a lesser extent than the proposed project. Under the Current Entitlement Alternative, there would be construction activities and an increase in vehicle trips as compared with existing conditions. The smaller development assumed under this alternative would decrease the emissions effecting air quality; however, this alternative would likely result in the same impacts as the proposed project including significant construction impacts related to fugitive dust, toxic air contaminants, and emissions standards. Similar to the proposed project, implementation of the SCOA and mitigation measures would reduce this alternative's impact to a less-than-significant level.

(5) Geology, Soils, and Seismicity

Under the Current Entitlement Alternative the project site would still be susceptible to seismic ground shaking and differential compaction, as are identified under the proposed project. However, as a result of the smaller office/warehouse and lab space under this alternative, fewer employees and visitors would be exposed to potential

seismic ground shaking. As with the proposed project, potential significant impacts in this topical area would be reduced to a less-than-significant level with implementation of the SCOAs identified in Section V.E.2.

(6) Greenhouse Gas Emissions

The Current Entitlement Alternative would result in similar operational and construction activity at the project site. As a result, development under this alternative would produce new greenhouse gas (GHG) emissions, although fewer than the proposed project. As would be the case under the proposed project, this alternative would not conflict with any plans or policies related to the reduction of GHGs. Similar to the proposed project, construction and operation of the alternative project would result in numerous activities that contribute to GHG emissions, however, these emissions would not exceed BAAQMD thresholds. As a result, the Current Entitlement Alternative would not result in significant impacts related to GHGs.

(7) Hazards and Hazardous Materials

Implementation of the Current Entitlement Alternative would result in the construction of development with similar uses with less development intensity. Construction would occur under this alternative and could expose construction workers or the public to hazardous materials from contaminants in the soil during and following construction activities, or expose workers or the public to airborne toxics, (e.g., lead-based paint and asbestos) during the removal of asbestos-cement (AC) pipes. However, implementation of the SCOAs outlined in Section V. H would reduce the potential impacts to a less-than-significant level.

(8) Hydrology and Water Quality

The Current Entitlement Alternative would result in the construction of new structures, but to a lesser extent than the proposed project. This alternative would result in about the same amount of impervious surfaces and runoff as existing conditions that could affect stormwater conveyance systems or degradation of water quality in receiving waters. Given that the site under former conditions had more impervious area than it would under the proposed project, this alternative would have greater impacts than the proposed project related to degradation of water quality in the Foster City lagoon. Since this alternative would not achieve the decrease in impervious surface that would result from the proposed project, it would not reduce stormwater runoff overall, which the proposed project would, as explained in Section V.H.2.b.

(9) Noise

The Current Entitlement Alternative would result in noise impacts associated with the construction of the project, similar to the impacts that would be the result of the proposed project. The smaller development size may result in a slight decrease in construction activity; however, it is likely that use of similar construction equipment

over a similar timeframe would be needed to implement development under this alternative. Construction activities would generate minimal, temporary increases in noise levels for residences and schools to the southeast, and new traffic resulting from operation of the proposed project would generate negligible increases in noise levels in an area without sensitive receptors.

(10) Public Services, Utilities and Recreation

Due to fewer employees, the Current Entitlement Alternative would result in a somewhat reduced demand for City services, utilities, infrastructure or parks as compared with the proposed project. Although the proposed project would increase demands on City services, such as police and fire, as well as increase stress on existing utilities, these increases would be fairly minimal. As explained in Section V.J.3.b, adherence to the City's SCOAs would further ensure that the proposed project's impact on public services, utilities, and recreational facilities are less than significant.

C. REDUCED PROJECT ALTERNATIVE

1. Principle Characteristics

The Reduced Project Alternative assumes a reduction in overall building square footage. Development under this alternative would assume development of up to 320,000 square feet of laboratory and office space housed in two buildings and a 40,000 square feet building to house amenities for employees and visitors. A maximum of 224,000 square feet, or 70 percent of the floor area, would be used for office space. The remaining, at least 96,000 square feet (30 percent), would be dedicated to laboratory uses.

2. Relationship with Project Objectives

The Reduced Project Alternative would achieve part of the key objectives of the proposed project, including those related to:

- Creating a campus that supports innovation in Foster City;
- Successfully redeveloping of an infill site; and
- Boosting economic development in Foster City.

3. Analysis of the Reduced Project Alternative

The potential impacts of the Reduced Project Alternative are described in the following section.

(1) Land Use

Under the Reduced Project Alternative, similar land uses would be developed on the project site as the proposed project, including office and lab buildings. As would be the case under the proposed project, this alternative would not physically divide the existing community, nor conflict with habitat conservation plans. The positive land use impacts of growth that adheres and conforms to the Foster City General Plan would not occur under this alternative. This alternative would not result in any significant land use impacts.

(2) Aesthetics and Shade and Shadow

The Reduced Project Alternative would result in a less intense development on the site, as the third office/lab building would not be built. Like the proposed project, this alternative would be visually compatible with surrounding development, cast shadows on adjacent properties, and introduce new sources of light and glare; however, like the proposed project, any development under this alternative would be subject to design review. With implementation of the SCOA recommended in Section V.B, this alternative would result in less-than-significant impacts related to aesthetics and shade and shadow.

(3) Traffic and Transportation

The Reduced Project Alternative would result in 361 AM and 376 PM peak hour trips for office and laboratory uses (both fewer than the proposed project); however, like the proposed project, this alternative would still result in significant traffic and transportation impacts. Intersections East 3rd Street/Norfolk Street and Foster City Boulevard/Chess Drive are already operating at unacceptable LOS E under existing conditions and conditions at the SR 92 Eastbound Ramps/Metro Center Boulevard would worsen to LOS F in the PM peak hour under Background Plus Project Conditions and Cumulative Conditions as a result of mitigation measures to reduce vehicle delay at Foster City Boulevard/Chess Drive. Like the proposed project, the Reduced Project Alternative would also contribute to congestion at freeway segment Eastbound SR 92, east of Foster City Boulevard as it operates at LOS F during the PM peak hour under existing conditions. Similar to the proposed project, the Reduced Project Alternative would avoid other impacts of the project, including the addition of capacity to already over-capacity shuttles and interference with circulation during the construction period with the application of a mitigation measure requiring the applicant to prepare an analysis of its projected public transit ridership, and develop a plan for how that ridership will be accommodated. The plan may include, among other things, funding a pro rata share of expansion of existing public transit services; funding a pro rata share of new public transit services; or a demonstration that the project reduces or eliminates additional demand for public transit due to alternate means of transportation including, but not limited to, private shuttles.

(4) Air Quality

This alternative would contribute to an increase in emissions affecting air quality due to construction activities; however, to a lesser extent than the proposed project. Under the Reduced Project Alternative, there would be construction activities and an increase in vehicle trips as compared with existing conditions. The smaller development assumed under this alternative would decrease the emissions effecting air quality; however, this alternative would likely result in the same impacts as the proposed project including significant construction impacts related to fugitive dust, toxic air contaminants, and emissions standards. Similar to the proposed project, implementation of the SCOA and mitigation measures would reduce this alternative's impact to a less-than-significant level.

(5) Geology, Soils, and Seismicity

Under the Reduced Project Alternative the project site would still be susceptible to seismic ground shaking and differential compaction, as are identified under the proposed project. However, as a result of the reduced square footage under this alternative, fewer employees and visitors would be exposed to potential seismic ground shaking. As with the proposed project, potential significant impacts in this topical area would be reduced to a less-than-significant level with implementation of SCOAs identified in Section V.E.2.

(6) Greenhouse Gas Emissions

The Reduced Project Alternative would result in similar operational and construction activity at the project site. As a result, development under this alternative would produce new greenhouse gas (GHG) emissions. As would be the case under the proposed project, this alternative would not conflict with any plans or policies related to the reduction of GHGs. Similar to the proposed project, construction and operation of the alternative project would result in numerous activities that contribute to GHG emissions, however, these emissions would not exceed BAAQMD thresholds. As a result, the Reduced Project Alternative would not result in significant impacts related to GHGs.

(7) Hazards and Hazardous Materials

Implementation of the Reduced Project Alternative would result in the construction of development with similar uses with less development intensity. Construction would occur under this alternative and could expose construction workers or the public to hazardous materials from contaminants in the soil during and following construction activities, or expose workers or the public to airborne toxics, (e.g., lead-based paint and asbestos) during the removal of asbestos-cement (AC) pipes. However, implementation of the SCOAs outlined in Section V. H would reduce the potential impacts to a less-than-significant level.

(8) Hydrology and Water Quality

The Reduced Project Alternative would result in the construction of new structures and landscaping, but to a lesser extent than the proposed project. As a result of more landscaped areas, this alternative would decrease the amount of impervious surfaces and runoff as existing conditions which could affect stormwater conveyance systems or degradation of water quality in receiving waters. Given that the site under former conditions had more impervious area than it would under the proposed project, this alternative would have similar impacts as the proposed project related to degradation of water quality in the Foster City lagoon. With implementation of the SCOAs provided in Chapter V.H impacts related to hydrology and water quality would be reduced to a less-than-significant level in the Reduced Project Alternative

(9) Noise

The Reduced Project Alternative would result in noise impacts associated with the construction of the project, similar to the impacts that would be the result of the proposed project. The reduction in development may result in a slight decrease in construction activity; however, it is likely that use of similar construction equipment over a similar timeframe would be needed to implement development under this alternative. Construction activities would generate minimal, temporary increases in noise levels for residences and schools to the southeast, and new traffic resulting from operation of the proposed project would generate negligible increases in noise levels in an area without sensitive receptors.

(10) Public Services, Utilities and Recreation

Due to fewer employees, the Reduced Project Alternative would result in a somewhat reduced demand for City services, utilities, infrastructure or parks as compared with the proposed project. Although the proposed project would increase demands on City services, such as police and fire, as well as increase stress on existing utilities, these increases would be fairly minimal. As explained in Section V.J.3.b, adherence to the City's SCOAs would further ensure that the proposed project's impact on public services, utilities, and recreational facilities are less than significant.

D. ENVIRONMENTALLY-SUPERIOR ALTERNATIVE

CEQA requires the identification of the environmentally superior alternative in an EIR. Of the three alternatives analyzed above, the No Project/No Build Alternative is considered the environmentally superior alternative in the strict sense that the environmental impacts associated with its implementation would be the least of all the scenarios examined (including the proposed project). While this alternative would be environmentally superior in the technical sense that contribution to these afore-mentioned impacts would not occur, this alternative would not meet the project objectives, nor offer the public and community benefits identified, such as boosting

economic development in Foster City by redeveloping a site at an infill location with a campus that supports innovation and collaboration.

In cases where the No Project/No Build Alternative is the environmentally superior alternative, CEQA requires that the second most environmentally superior alternative be identified. The Current Entitlement Alternative would be considered the second most environmentally superior alternative. Comparison of the environmental impacts associated with each alternative as described above, indicates the Current Entitlement Alternative would generally represent the next-best alternative in terms of reducing impacts. While implementation of the Current Entitlement Alternative would result in slightly reduced environmental impacts, this alternative would still result in the significant unavoidable impacts related to traffic as the proposed project.

VII. CEQA REQUIRED ASSESSMENT CONCLUSIONS

As required by the California Environmental Quality Act (CEQA), this chapter discusses the following types of impacts that could result from implementation of the Lincoln Centre Life Sciences and Research Campus Project (project): effects found not to be significant, growth-inducing impacts, unavoidable significant environmental impacts, and significant irreversible changes.

A. EFFECTS FOUND NOT TO BE SIGNIFICANT

The scope of the EIR was determined after meetings among department representatives of the City of Foster City involved in project planning and review and consultants for the City. In addition to these meetings, a Notice of Preparation (NOP) was circulated on October 6, 2014, and a public scoping session was held in conjunction with the Planning Commission meeting on November 6, 2014. Written comments received on the NOP were considered in the preparation of the final scope for this document and in the evaluation of the proposed project. No public comments were received during the scoping session.

The environmental topics analyzed in *Chapter V, Setting, Impacts, and Mitigation Measures,* include those topics upon which the project was determined during the scoping phase to have a significant effect and which generated the greatest potential controversy. By contrast, the following topics were excluded from detailed discussion in the EIR because it was determined during the scoping phase that project impacts on these resource areas would not be significant: agriculture and forest resources, biological resources, cultural resources, mineral resources, and population and housing. A brief description of the why these topics were found not to be significant is provided below.

1. Agriculture and Forest Resources

The entire project site is a previously developed, now nearly entirely hardscaped, property located in an urban area. There are no agricultural uses, including Prime Farmland, Unique Farmland or Farmland of Statewide Importance, located on, adjacent to, or near the project site. There are no agricultural zones near the site, nor are there Williamson Act-contracted properties. The site sits atop soil composed primarily of unproductive Bay Mud, as the site was tidal marshland previous to filling in 1939. Additionally, there are no forest lands or resources on or in the vicinity of the project site. As a result, the project would not impact agricultural or forest resources.

2. Biological Resources

Huffman-Broadway Group, Inc. (HBG) reviewed biological conditions associated with proposed development within the approximately 20-acre project site. Their analysis included: (1) a review of the habitat characteristics of the site and species of plants and animals expected to utilize the site; (2) review of the California Natural Diversity Data Base (CNDDB) to determine if any populations of endangered, threatened, or rare species have occurred historically or are currently known to exist in the project vicinity; and (3) conducting a field survey of the site (Gary Deghi of HBG visited the site on July 23 and December 15, 2014). The findings are detailed in a letter report that is included in Appendix E of this EIR. A summary of the report's findings follows:

- **Special-status plant or animal species.** The proposed project would not have a substantial adverse effect on any special-status plant or animal species. The site is a previously-developed site of primarily hardscape, with vegetation consisting primarily of trees used in landscaping. No habitats for special status species occurs at the project site or in the immediate vicinity. No impacts on special status species would result from implementation of the project.
- **Riparian habitat or other sensitive natural community.** The project will not have a substantial adverse effect on any riparian habitat or other sensitive natural community. Such habitats are not present at the Site, which is a previously developed site of primarily hardscape, with vegetation consisting primarily of trees used in landscaping.
- **Federally protected wetlands.** The project will not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act. No wetlands are present at the project site. A waterway canal associated with the Foster City Lagoon system bordering the site to the west contains waters that may be subject to permit jurisdiction of the Corps and RWQCB. Areas within San Francisco Bay north of East Third Avenue would be subject to the jurisdiction of these agencies as well. A permit from the Corps or RWQCB could be required for work on facilities such as stormwater outfalls conducted within these waterways. No portion of the project is proposed to occur within the waterway canal or San Francisco Bay. The applicant has indicated that all stormwater will be handled using existing stormwater outfalls and no new outfalls into the Foster City lagoon system or San Francisco Bay are necessary to implement the project.
- **Movement of any native resident or migratory fish or wildlife species.** The project will not interfere substantially with movement of migratory wildlife species, established wildlife corridors, or wildlife nursery sites. The project site is an urban habitat and is a previously developed site of primarily hardscape, with vegetation consisting primarily of trees used in landscaping. As such, no movement corridors for wildlife or breeding or nursery sites are present.

- **Local policies or ordinances protecting biological resources**. The project does not conflict with any local policies or ordinances protecting biological resources. The project site is located beyond the 100-foot shoreline band jurisdiction of San Francisco Bay therefore, a permit from BCDC would not be necessary. Grading for the project will remove the 823 trees existing within the property and replace them with new project landscaping. All trees that would be removed are non-native trees commonly used in urban landscaping settings and not protected by local tree preservation policies or ordinances. The project is consistent with local policies and ordinances of the City of Foster City.
- **Habitat Conservation Plan**. There is no adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan applicable to the project site.

As a result, the project would not have a significant impact on any biological resources or conflict with any policies, plans or regulations related to biological resources and no mitigation measures are required.

3. Cultural Resources

LSA Associates conducted a records search to identify the baseline conditions for cultural resources in the project area. Their analysis included a records search (File #14-0385) of the project area at the Northwest Information Center (NWIC) of the California Historical Resources Information System, Sonoma State University, Rohnert Park. The NWIC is the official state repository of cultural resource records and reports for San Mateo County. As part of the records search, the following federal and State of California inventories were reviewed:

- *California Inventory of Historic Resources* (California Department of Parks and Recreation 1976);
- Five Views: An Ethnic Historic Site Survey for California (California Office of Historic Preservation 1988)
- *California Points of Historical Interest* (California Office of Historic Preservation 1992);
- *California Historical Landmarks* (California Office of Historic Preservation 1996);
- *Directory of Properties in the Historic Property Data File* (California Office of Historic Preservation, April 5, 2012). The directory includes the listings of the National Register of Historic Places, National Historic Landmarks, the California Register of Historical Resources, California Historical Landmarks, and California Points of Historical Interest.

The findings are detailed in a letter report that is included in Appendix F of this EIR. A summary of the report's findings follows:

- Approximately 85 percent of the project area was previously studied for cultural resources as part of a proposed marina development; however, no cultural resources have been recorded or otherwise identified in the project area.
- The project area's low archaeological sensitivity is indicated by the absence of recorded archaeological sites, the low likelihood that the area was used by Native Americans, the absence of buildings/structures in the historic period, and the deposition of engineered fill during the creation of Foster City.

For these reasons, prehistoric and historical archaeological deposits, paleontological resources, and human remains are not anticipated in the project area. Although unlikely, it is always possible that archaeological or paleontological deposits or human remains that were not previously identified could occur in the project area. The procedures described below are from the City's SCOAs and should be followed in the event of the accidental discovery of these resources.

- **SCOA 9.19:** If **paleontological resources** are discovered during project activities, all work within 25 feet of the discovery shall be redirected and the Community Development Director immediately notified. A qualified paleontologist shall be contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Paleontological resources include fossil plants and animals, and evidence of past life such as trace fossils and tracks. Ancient marine sediments may contain invertebrate fossils such as snails, clam and oyster shells, sponges, and protozoa; and vertebrate fossils such as fish, whale, and sea lion bones. Fossil vertebrate land animals may include bones of reptiles, birds, and mammals. Paleontological resources also include plant imprints, petrified wood, and animal tracks.

  Upon completion of the assessment, the paleontologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the paleontological resources discovered. This report shall be submitted to the project applicant, the Foster City Community Development Department, and the paleontological curation facility.

  Adverse effects to paleontological resources shall be avoided by project activities. If avoidance is not feasible (as determined by the City, in conjunction with the qualified paleontologist), the paleontological resources shall be evaluated for their significance. If the resources are not significant, avoidance is not necessary. If the resources are significant, adverse effects on the resources shall be avoided, or such effects shall be mitigated. Mitigation can include, but is not necessarily limited to: excavation of paleontological resources using standard paleontological field methods and procedures; laboratory and technical analyses of recovered materials; production of a report detailing the methods, findings, and significance of recovered fossils; curation of paleontological materials at an appropriate facility (e.g., the University of California Museum of Paleontology) for future research and/or display; an interpretive display of recovered fossils at a local school, museum, or library; and public lectures at local schools on the findings and significance of the site and recovered fossils. The City shall ensure that any mitigation involving excavation

of the resource is implemented prior to project construction or actions that could adversely affect the resource. (CDD, BD)

- **SCOA 9.20:** If deposits of **prehistoric or historic archaeological materials** are encountered during project activities, all work within 25 feet of the discovery shall be redirected and the Community Development Director immediately notified. A qualified archaeologist shall be contacted to assess the find, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Prehistoric materials can include flaked-stone tools (e.g., projectile points, knives, choppers) or obsidian, chert, basalt, or quartzite toolmaking debris; bone tools; culturally darkened soil (i.e., midden soil often containing heat-affected rock, ash and charcoal, shellfish remains, faunal bones, and cultural materials); and stone-milling equipment (e.g., mortars, pestels, handstones). Prehistoric archaeological sites often contain human remains. Historical materials can include wood, stone, concrete, or adobe footings, walls, and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramics, metal and other refuse.

  Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results of the analysis, and provide recommendations for the treatment of the archaeological deposits discovered. The report shall be submitted to the project applicant, the Foster City Community Development Department and the Northwest Information Center. Project personnel shall not collect or move any archaeological materials or human remains. Adverse effects to such deposits shall be avoided by project activities. If avoidance is not feasible (as determined by the City, in conjunction with the qualified archaeologist), the archaeological deposits shall be evaluated for their eligibility for listing in the California Register. If the deposits are not eligible, avoidance is not necessary. If the deposits are eligible, avoidance of project impacts on the deposit shall be the preferred mitigation. If adverse effects on the deposits cannot be avoided, such effects must be mitigated. Mitigation can include, but is not necessarily limited to: excavation of the deposit in accordance with a data recovery plan (see CEQA Guidelines Section 15126.4(b)(3)(C)) and standard archaeological field methods and procedures; laboratory and technical analyses of recovered archaeological materials; production of a report detailing the methods, findings, and significance of the archaeological site and associated materials; curation of archaeological materials at an appropriate facility for future research and/or display; preparation of a brochure for public distribution that discusses the significance of the archaeological deposit; an interpretive display of recovered archaeological material sat a local school, museum, or library; and public lectures at local schools and/or historical societies on the findings and significance of the site and recovered archaeological materials. The City shall ensure that any mitigation involving excavation of the deposit is implemented prior to the resumption of actions that could adversely affect the deposit.

- **SCOA 9.21:** If **human remains** are encountered, work within 25 feet of the discovery shall be directed and the County Coroner and the Community Development Director immediately notified. At the same time, an archaeologist shall be contacted to assess the situation and consult with agencies as appropriate. The project applicant shall also be notified. Project personnel shall not collect or move any human remains and associated materials. If the human remains are of Native American origin, the Coroner shall notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Most Likely Descendant (MLD) to inspect the site and provide

recommendations for the proper treatment of the remains and associated grave goods. Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The project sponsor shall comply with these recommendations. The report shall be submitted to the project applicant, the Foster City Community Development Department, the MLD, and the Northwest Information Center.

With implementation of the SCOAs identified above, the proposed project would not result in significant impacts to cultural or paleontological resources.

4. Mineral Resources

No known mineral resources are located within or near the project site, nor has mineral extraction activities taken place within or around the project site during recent history. For these reasons, the project's impacts to mineral resources would not be significant and no mitigation measures are required.

5. Population and Housing

The proposed project does not include any new residential units, and would therefore not directly induce population growth. However, population growth and housing demand could be induced by development that generates employment opportunities, which could increase the demand for housing.

As outlined in Table III-2 of *Chapter III, Project Description,* the size and uses of the proposed project would result in the creation of approximately 1,594 new jobs on the project site. These new job opportunities could cause people to move to Foster City or surrounding communities, which would generate additional housing demand in the region.

In a recent study of the environmental impacts of a proposed campus master plan for a life sciences company currently located in Foster City, it was found that approximately 10.38 percent of on-site employees live in Foster City, while the other 89.62 percent live elsewhere in the Bay Area.[1] According to this ratio, the proposed project would result in approximately 165 employees that live in Foster City. Assuming that none of these employees would be existing Foster City residents and assuming none would share households (each employee thus occupying one housing unit), the project would potentially increase demand for housing in Foster City by 165 housing units. However, this number is likely an overestimate, as new jobs created would likely attract existing City residents, due to lifestyle advantages and shortened commutes.

[1] LSA Associates, 2012. *Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR*.

The land use designation and zoning of the project site require approvals that would allow the City to carefully assess growth impacts. The uses of the proposed project are consistent with the current General Plan land use classification for the project site, Research/Office Park (ROP). As noted in *Section V.A, Land Use*, properties designated as ROP typically are used for office, research and development (R&D), and manufacturing operations, similar to the proposed project. The maximum floor area ratio (FAR) of the proposed project, at 0.68, would be slightly greater than that allowed (0.60) by the current ROP designation for the General Plan for Lincoln Centre and the office and R&D developments that recently occupied the site. The Association of Bay Area Governments-projected household growth for Foster City assumed development of this property at an FAR of 0.60. The incremental increases of 0.08 would not result in induced housing demand that would exceed the ABAG projected household growth, even when considered with cumulative growth. As a result, induced housing demand from the project would have a less-than-significant impact.

Finally, because the site is currently undeveloped, the proposed project would not displace any existing housing or people, and therefore would not necessitate the construction of replacement housing elsewhere.

B. GROWTH-INDUCING IMPACTS

A project is considered growth-inducing if it would directly or indirectly foster substantial economic or population growth, or the construction of additional housing. Examples of projects likely to have significant growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or industrial parks in areas that are currently only sparsely developed or are undeveloped. Typically, redevelopment projects on infill sites that are surrounded by existing urban uses are not considered growth-inducing because redevelopment by itself usually does not facilitate development intensification on adjacent sites.

Implementation of the proposed project would not result in direct population growth because new housing units are not included. The proposed project would likely result in indirect population growth, but it would not be substantial in the context of population growth projected to occur in Foster City. Project-associated indirect population growth would occur as a result of the construction of up to 555,000 square feet of office and laboratory space and the creation of up to 165 new jobs on the project site. As described in Section VII.5, Population, Employment and Housing, the creation of these jobs could cause new employees to move to Foster City, thereby increasing the City's population. The creation of 165 new jobs on the project site would cause approximately 165 employees to relocate to Foster City and would require 165 housing units to meet this increased demand (assuming new employees live in separate households and do not currently live in Foster City). The projected

housing units expected to be constructed in Foster City in the near term would more than satisfy the demand associated with the proposed project. As such, the proposed project would not induce substantial growth in Foster City.

In addition, the proposed project would occur on an infill site in an existing urbanized area in Foster City, and as such would not require the extension of utilities or roads into undeveloped areas, and would not directly or indirectly lead to the development of greenfield sites on the San Francisco Peninsula. Because the project site is located within an existing urbanized area and is served by transit, anticipated employment growth could reduce adverse impacts associated with automobile use, such as air pollution. The intensification of employment on the project site could allow for efficiencies in future transit expansions, thereby increasing the per capita utilization of transit. Therefore, the growth that would occur as a result of project implementation would not be considered substantial or adverse.

C. UNAVOIDABLE SIGNIFICANT ENVIRONMENTAL IMPACTS

Implementation of the proposed project would result in ten significant unavoidable impacts that could not be avoided by implementation of mitigation measures, or reduced to a less-than-significant level:

- TRANS-2, The addition of project traffic would worsen operations at the signalized intersection of Foster City Boulevard/Chess Drive from LOS E to LOS F in the PM peak hour under Existing Plus Project Conditions.
- TRANS-4, The freeway segment of Eastbound SR 92, east of Foster City Boulevard currently exceeds the CMP LOS standard during the PM peak hour under Existing Plus Project Conditions. The addition of project traffic would increase the traffic volume on this freeway segment by greater than one percent of the segment's capacity.
- TRANS-5, The addition of project traffic would increase vehicle delay by more than 4 seconds at the signalized intersection of Norfolk Street/East 3rd Avenue, which operates at LOS F in the AM peak hour under Background Conditions,
- TRANS-7, The addition of project traffic would increase vehicle delay by more than 4 seconds at the signalized intersection of Foster City Boulevard/Chess Drive, which operates at LOS F in the PM peak hour under Background Conditions.
- TRANS-8, Mitigation Measure TRANS-7 would worsen operations at the signalized intersection of SR 92 Eastbound Ramps/Metro Center Boulevard from acceptable LOS D to unacceptable LOS F in the PM peak hour under Background Plus Project Conditions,
- TRANS-10: The freeway segment of Eastbound SR 92, east of Foster City Boulevard exceeds the CMP LOS standard during the PM peak hour under Background

Conditions. The addition of project traffic would increase the traffic volume on this freeway segment by greater than one percent of the segment's capacity.

- TRANS-11, The addition of project traffic at the signalized intersection of Norfolk Street / East 3rd Avenue would increase vehicle delay by more than 4 seconds in the AM peak hour (which operates at LOS F without the project) and worsen traffic operations from LOS D to LOS E in the PM peak hour under Cumulative Conditions, and
- TRANS-14, The addition of project traffic would increase vehicle delay by more than four seconds at the signalized intersection of Foster City Boulevard / Chess Drive, which operates at LOS F in the PM peak hour under Cumulative Conditions.
- TRANS-15, Mitigation Measure TRANS-14 would worsen operations at the signalized intersection of SR 92 Eastbound Ramps/Metro Center Boulevard from acceptable LOS D to unacceptable LOS F in the PM peak hour under Cumulative Plus Project Conditions.
- TRANS-17, The freeway segment of Eastbound SR 92, east of Foster City Boulevard exceeds the CMP LOS standard during the PM peak hour under Cumulative Conditions. The addition of project traffic would increase the traffic volume on this freeway segment by greater than one percent of the segment's capacity.

D. SIGNIFICANT IRREVERSIBLE CHANGES

An EIR must identify any significant irreversible environmental changes that could result from implementation of a proposed project. These may include current or future uses of non-renewable resources, and secondary impacts that commit future generations to similar uses. CEQA dictates that irretrievable commitments of resources should be evaluated to assure that such current consumption is justified. The CEQA Guidelines describe three categories of significant irreversible changes: 1) changes in land use that would commit future generations; 2) irreversible changes from environmental actions; and 3) consumption of non-renewable resources.

1. Changes in Land Use Which Would Commit Future Generations

The project would be implemented on a site that was previously developed with office/warehouse buildings that were recently demolished. The proposed project would build office and laboratory space on land designated for Research/Office Park (ROP). The maximum Floor Area Ratio (FAR) of the proposed project, at 0.68, would be greater than the FAR of 0.60 allowed by the current ROP designation, as established by the existing GDP. A new GDP and associated General Plan Amendment would be required to increase the FAR and accommodate the proposed intensity of development. However, it is conceivable that after buildout, the project site could be used for a range of land uses (i.e., the proposed buildings, which would generally

have large floor plates, could accommodate uses other than biomedical office and laboratory uses, such as light manufacturing and storage, back-of-office administrative, and research and development uses). The buildings and open space areas that are anticipated as part of the project would be suitable candidates for eventual adaptive reuse or further redevelopment. For instance, the proposed configuration of office and laboratory buildings, interspersed with open space and surface parking lots, could allow for future integration of residential uses, if desired by the City. Therefore, the project would not result in changes in land use that would commit future generations to a poor use of resources. The conversion of one- and two-story office/warehouse buildings into multi-story buildings would represent a more efficient use of land compared to existing conditions.

2. Irreversible Changes from Environmental Actions

No significant irreversible environmental damage, such as what could occur as a result of an accidental spill or explosion of hazardous materials, is anticipated due to redevelopment activities associated with the project. Furthermore, compliance with federal, State and local regulations, of the City of Foster City, and the implementation of SCOAs and mitigation measures identified in *Section V.G, Hazards and Hazardous Materials*, would reduce to a less-than-significant level the possibility that hazardous substances within the project site could cause significant environmental damage.

3. Consumption of Nonrenewable Resources

Consumption of nonrenewable resources includes conversion of agricultural lands, loss of access to mining reserves, and use of non-renewable energy sources. The project site is located within an urbanized area of Foster City. No agricultural lands exist on the project site; therefore none would be converted to non-agricultural uses. In addition, the site does not contain known mineral resources and does not serve as a mining reserve; thus, implementation of the project would not result in the loss of access to mining reserves.

Construction of the project itself, including the use of fuel, steel, and concrete, among other materials, would also consume nonrenewable resources. However, the buildings and infrastructure constructed as part of the proposed project are expected to be long-lasting and construction methods are expected to be modern and efficient. Therefore, the use of these materials would not be considered wasteful.

Implementation of SCOA 7.2 would require the project sponsor to provide a letter describing the sustainable practices that are included in the project. This would ensure that the project uses sustainable practices and would encourage the substitution of renewable fuel sources for nonrenewable sources. With implementation of SCOA 7.2, along with compliance with State Title 24 energy

efficiency standards, the proposed project would not result in a significant increase in the consumption of nonrenewable resources.

VIII. REPORT PREPARATION AND REFERENCES

A. REPORT PREPARERS

Urban Planning Partners, Inc., Prime Consultant
505 17th Street, 2nd Floor
Oakland CA 94612
Lynette Dias, AICP, Principal-in-Charge and Project Manager
Carla Violet, Associate Planner, Deputy PM
Gregory Goodfellow, Senior Planner
Hayley Cox, Assistant Planner
Susan Smith, Word Processing

Additional Project Consultants
Traffic and Transportation
Fehr & Peers Transportation Consultants
332 Pine Street, 4th Floor
San Francisco, CA 94104
Matt Goyne, P.E., Project Manager

Air Quality; Greenhouse Gas Emissions; Noise
ENVIRON
201 California Street, Suite 1200
San Francisco, CA 94111
Michael Keinath, Principal
Min Hou, Senior Associate

Hydrology and Water Quality; Geology, Soils and Seismicity; Hazards and Hazardous Materials
BASELINE Environmental Consulting
101 H Street, Suite C
Petaluma, CA 94952-5100
Bruce Abelli-Amen, P.G., C.H., Principal
Cem Atabek, Environmental Engineer
Monika Krupa, Environmental Scientist I

Biological Resources
Huffman Broadway Group, Inc.
828 Mission Avenue
San Rafael, CA 94901
Gary Deghi, Vice President/Senior Environmental Scientist

Cultural Resources
LSA Associates, Inc.
157 Park Place
Point Richmond, CA 94801
Andrew Pulcheon, AICP, CEP, Principal/Cultural Resources Manager

Visual Simulations
Andrew McNichol
1760 Harbour Drive
Coquitlam BC, V3J 5W3, Canada
Andrew McNichol, Principal

B. REFERENCES

AEI Consultants, 2013. *Phase I Environmental Site Assessment,* March 18.

Agency for Toxic Substances and Disease Registry (ATSDR), 2001. *Toxic FAQs for Polychlorinated Biphenyls*, February. http://www.atsdr.cdc.gov/tfacts17.pdf, accessed December 8, 2014.

Alameda County Superior Court, 2012. *California Building Industry Association v. Bay Area Air Quality Management District,* Case RG10548693, March 5. Available at: http://apps.alameda.courts.ca.gov/domainweb/html/casesumbody.html.

Association of Bay Area Governments (ABAG), 2001. *The REAL Dirt on Liquefaction, A Guide to the Liquefaction Hazard in Future Earthquakes Affecting the San Francisco Bay Area,* February.

Association of Bay Area Governments (ABAG), 2006. Liquefaction Susceptibility. http://resilience.abag.ca.gov/earthquakes/, accessed December 8, 2014.

Association of Bay Area Governments (ABAG), 2008. *Shaking Scenarios.* http://resilience.abag.ca.gov/earthquakes/sanmateo/, accessed December 8, 2014.

Attfield M.D., Schleiff P.L., Lubin J.H., Blair A., Stewart P.A., Vermeulen R., Coble J.B., Silverman D.T., 2011. *The Diesel Exhaust in Miners Study: A Cohort Mortality Study With Emphasis on Lung Cancer*. Journal National Cancer Institute.

Bay Area Air Quality Management District (BAAQMD), 2001. *Ozone Attainment Plan*. Available at: http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans/Ozone-Attainment-Plans/2001-Ozone-Attainment-Plan.aspx.

Bay Area Air Quality Management District (BAAQMD), 2005. *Bay Area Ozone Strategy*. Available at: http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans/Bay-Area-Ozone-Strategy/2005-Bay-Area-Ozone-Strategy.aspx

Bay Area Air Quality Management District (BAAQMD), 2007. *Toxic Air Contaminants 2003 Annual Report,* August.

Bay Area Air Quality Management District (BAAQMD), 2008. *CARB Emissions Factors for CI Diesel Engines-Percent HC in Relation to NMHC+NOX*. Accessed December. 2014

Bay Area Air Quality Management District (BAAQMD), 2010a. Bay Area 2010 Clean Air Plan, adopted September.

Bay Area Air Quality Management District (BAAQMD), 2010b. *CEQA Guidelines,* May. December 15 2014. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/Draft_BAAQMD_CEQA_Guidelines_May_2010_Final.ashx?la=en.

Bay Area Air Quality Management District (BAAQMD), 2010c. *CEQA Air Quality Guidelines Update – Thresholds of Significance*, May.

Bay Area Air Quality Management District (BAAQMD), 2010d. Source Inventory of Bay Area Greenhouse Gas Emissions. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/Emission%20Inventory/regionalinventory2007_2_10.ashx, accessed December 19, 2014.

Bay Area Air Quality Management District (BAAQMD), 2011a. *Highway Screening Analysis Tool*, April.

Bay Area Air Quality Management District (BAAQMD), 2011b. Roadway Screening Analysis Tables, updated May.

Bay Area Air Quality Management District (BAAQMD), 2012a. *CEQA Guidelines,* May. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_Final_May%202012.ashx?la=en, accessed December 15, 2014.

Bay Area Air Quality Management District (BAAQMD), 2012b. *CEQA Guidelines*, Table 8.1, May.

Bay Area Air Quality Management District (BAAQMD), 2012c. Recommended Methods for Screening and Modeling Local Risks and Hazards, May. http://www.baaqmd.gov/~/media/Files/Planning%20and%20 Research/CEQA/Risk%20Modeling%20Approach%20May%202012.ashx?la=en, accessed November 2014.

Bay Area Air Quality Management District (BAAQMD), 2012d. *Understanding Particulate Matter: Protecting Public Health in the San Francisco Bay Area,* November.

Bay Area Air Quality Management District (BAAQMD), 2013. Particulate Matter (PM) Planning. http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans/PM-Planning.aspx, accessed December 21, 2014.

Bay Area Air Quality Management District (BAAQMD), 2014a. Air Quality Standards and Attainment Status. http://hank.baaqmd.gov/pln/air_quality/ambient_air_ quality.htm, accessed December 21.

Bay Area Air Quality Management District (BAAQMD), 2014b. BAAQMD Care Program. http://www.baaqmd.gov/Divisions/Planning-and-Research/CARE-Program.aspx, accessed December 2014.

Bay Area Air Quality Management District (BAAQMD), 2014c. CEQA Guidelines. http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx, accessed December 15.

Bay Area Air Quality Management District (BAAQMD), 2014d. Climate Protection Program. http://www.baaqmd.gov/?sc_itemid=83004271-3753-4519-8B09-D85F3FC7AE70, accessed December 21.

Bay Area Air Quality Management District (BAAQMD), 2014e. Tools & Methodology. Available at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx

Bay Area Water Supply and Conservation Agency (BAWSCA), 2014. Regional Demand and Conservation Projections: Estero Municipal Improvement District. 2010-2015. Urban Water Management Plan.

Borrero, J., Dengler, L., Uslu, B., Synolakis, C., 2006. *Numerical Modeling of Tsunami Effects at Marine Oil Terminals in San Francisco Bay*, June 8. Report prepared for: Marine Facilities Division of the California State Lands Commission.

Brekke, L.D., et al., 2004. *Climate Change Impacts Uncertainty for Water Resources in the San Joaquin River Basin, California.* Journal of the American Water Resources Association (AWRA). 40(2): pp. 149-164.

Brown, William M. III, 1988. Historical Setting of the Storm: Perspectives on Population, Development, and Damaging Rainstorms in the San Francisco Bay Region, in *Landslides, Floods, and Marine Effects of the Storm of January 3-5, 1982, in the San Francisco Bay Region,*

California Air Resources Board (CARB), 2000a. Final Diesel Risk Reduction Plan with Appendices. http://www.arb.ca.gov/diesel/documents/rrpapp.htm. accessed December 21, 2014.

California Air Resources Board (CARB), 2000b. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles,* October.

California Air Resources Board (CARB), 2004a. *Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.*

California Air Resources Board (CARB), 2004b. *Amendments to the California Diesel Fuel Regulations, Sulfur Content of Diesel Fuel.* August.

California Air Resources Board (CARB), 2004c. *Off-Road Compression-Ignition Engines and Equipment.* December.

California Air Resources Board (CARB), 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*, April.

California Air Resources Board (CARB), 2006. Public Workshop to Discuss Establishing the 1990 Emissions Level and the California 2020 Limit and Developing Regulations to Require Reporting of Greenhouse Gas Emissions, December.

California Air Resources Board (CARB), 2008. Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines. http://www.arb.ca.gov/diesel/documents/rmg.htm, accessed December 21, 2014.

California Air Resources Board (CARB), 2009a. Initial Statement of Reason for Proposed Regulation for the Management of High Global Warming Potential Refrigerant for Stationary Sources, October 23. http://www.arb.ca.gov/regact/2009/gwprmp09/isorref.pdf, accessed May 2014.

California Air Resources Board (CARB), 2009b. *The California Almanac of Emissions and Air Quality,* Chapter 4: Air Basin Trends and Forecasts – Criteria Air Pollutants.

California Air Resources Board (CARB), 2009c. *The California Almanac of Emissions and Air Quality,* Appendix C: Emissions, Air Quality, and Health Risk for Ten Toxic Air Contaminants.

California Air Resources Board (CARB), 2011a. Executive Order No. G-11-024, Relating to Adoption of Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to SB 375. http://www.arb.ca.gov/cc/sb375/executive_order_g11024.pdf, accessed December 21, 2014.

California Air Resources Board (CARB), 2011b. FAQ. Airborne Toxic Control Measure for Stationary Compression Ignition Engines. Requirements for Stationary Engines used in Non-Agricultural Applications. http://www.arb.ca.gov/diesel/documents/atcmfaq.pdf, accessed December 2014.

California Air Resources Board (CARB), 2011c. Final Regulation Order, Airborne Toxic Control Measure for Diesel Particular Matter from Portable Engines Rated at 50 Horsepower and Greater. http://www.arb.ca.gov/portable/perp/perpatcm.pdf, accessed December 2014.

California Air Resources Board (CARB), 2011d. Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document, August. http://www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf, accessed December 2014.

California Air Resources Board (CARB), 2011e. Regulation for In-Use Off-Road Diesel-Fueled Fleets.

California Air Resources Board (CARB), 2011f. Status of Scoping Plan Recommended Measures. July. http://www.arb.ca.gov/cc/scopingplan/status_of_scoping_plan_measures.pdf, accessed December 2014.

California Air Resources Board (CARB), 2011g. Toxic Air Contaminant Identification List. http://www.arb.ca.gov/toxics/id/taclist.htm, accessed December 21, 2014.

California Air Resources Board (CARB), 2012. New Off-Road Compression-Ignition (Diesel) Engines and Equipment. http://arb.ca.gov/msprog/offroad/orcomp/orcomp.htm, accessed December 21, 2014.

California Air Resources Board (CARB), 2013a. Ambient Air Quality Standards. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, accessed December 15 2014.

California Air Resources Board (CARB), 2013b. Heavy-Duty Vehicle Idling Emission Reduction Program. http://www.arb.ca.gov/msprog/truck-idling/truck-idling.htm, accessed December 21, 2014.

California Air Resources Board (CARB), 2013c. *Regulator Advisory.* Enforcement of the In-use Off-Road Vehicle Regulation. Mail-out #MSCD 13-25, September. Available at: http://www.arb.ca.gov/msprog/mailouts/msc1325/msc1325.pdf.

California Air Resources Board (CARB), 2014a. California 1990 Greenhouse Gas Emissions Level and 2020 Limit. http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm, accessed December.

California Air Resources Board (CARB), 2014b. California Greenhouse Gas Emissions for 2000 to 2012 – Trends of Emissions and Other Indicators. 2014. http://www.arb.ca.gov/cc/inventory/data/misc/ghg_inventory_trends_00-12_2014-05-13.pdf, accessed December 21 2014.

California Air Resources Board (CARB), 2014c. Clean Fuels Outlet Regulation Activity. http://www.arb.ca.gov/fuels/altfuels/cf-outlets/cf-outlets.htm, accessed December.

California Air Resources Board (CARB), 2014d. First Update to the Climate Change Scoping Plan, May. http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf, accessed December 2014.

California Air Resources Board (CARB), 2014e. *Glossary of Air Pollution Terms.* http://www.arb.ca.gov/html/gloss.htm#T, accessed December 21.

California Air Resources Board (CARB), 2014f. In-Use Off-Road Diesel Vehicle Regulation. http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm, accessed December 21.

California Air Resources Board (CARB), 2014g. Low-Emissions Vehicles and GHG 2012 Regulatory Activity. http://www.arb.ca.gov/regact/2012/leviiighg2012/leviiighg2012.htm, accessed December.

California Air Resources Board (CARB), 2014h. *State Standard Area Designations.* http://www.arb.ca.gov/desig/statedesig.htm#prior, accessed on December 21.

California Air Resources Board (CARB), 2014i. *Toxic Air Contaminant Identification List.* http://www.arb.ca.gov/toxics/id/taclist.htm, accessed December 21.

California Air Resources Board (CARB), 2014j. Zero Emission Vehicles 2012 Regulatory Activity. http://www.arb.ca.gov/regact/2012/zev2012/zev2012.htm, accessed December 2014.

California Air Resources Board (CARB), n.d. *Off-Road Diesel Standards*. Accessed December 2014

California Climate Change Center (CCCC), 2006a. Our Changing Climate: Assessing the Risks to California, CEC500-2006-077, July.

California Climate Change Center (CCCC), 2006b. Scenarios of Climate Change in California: An Overview (White Paper, CEC-500-2005-203-SF), February.

California Climate Change Center, 2012. *Our Changing Climate 2012, Vulnerability and Adaptation to the Increasing Risks from Climate Change in California*. http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf. accessed December 19, 2014.

California Code of Regulations, 2014. Occupational Health and Safety Codes. Available at: www.dir.ca.gov.

California Code of Regulations, Title 8, Sections 1532.1 and 1592.

California Code of Regulations, Title 13, Sections 2281, 2282, 2284, 2420, 2425.1, 2449 and 2485.

California Code of Regulations, Title 14, Section 15382.

California Court of Appeals First District, 2013. *California Building Industry Association v. Bay Area Air Quality Management District,* Case A135335 and A136212, August 13. Available at: http://www.courts.ca.gov/opinions/documents/A135335.pdf.

California Department of Conservation (CDC), 1974. State of California Special Studies Zones, San Mateo Quadrangle Map [Alquist-Priolo Map]. Available at: http://www.quake.ca.gov/gmaps/WH/regulatorymaps.htm.

California, Department of Justice, 2008. Comment letter to the City of Concord re "Concord Community Reuse Plan Draft Environmental Impact Report – SCH#2007052094," August 8.

California Department of Finance, 2013.

California Department of Mines and Geology (CDMG), 1987, updated 1996. *Mineral Land Classification: Aggregate Minerals in the San Francisco-Monterey Bay Area,* California Department of Conservation.

California Department of Public Health (CDPH), 1999. *Short Fact Sheet on EMF*, California EMF Program.

California Department of Public Health (CDPH),2002. *An Evaluation of the Possible Risks from Electric and Magnetic Fields from Power Lines, Internal Wiring, Electrical Occupations, and Appliances*, Final Report, California EMF Program. June. Available at: http://www.ehib.org/emf/RiskEvaluation/riskeval.html.

California Department of Public Health (CDPH), 2013a. *Medical Waste Management Program, Local Enforcement Agency Contacts*, February 15. http://www.cdph.ca.gov/certlic/medicalwaste/Documents/MedicalWaste/L%20E%20A.pdf, accessed December 12, 2014.

California Department of Public Health (CDPH), 2013b. The Medical Waste Management Act (California Health and Safety Code, Sections 117600 – 118360), January. http://www.cdph.ca.gov/certlic/medicalwaste/Pages/LawsRegs.aspx, accessed December 12, 2014.

California Department of Resource, Recycling and Recovery, 2013. *Facility/Site Summary Details: Kettleman Hills.* http://www.calrecycle.ca.gov/SWFacilities/Directory/16-AA-0023/Detail, accessed March 4, 2013.

California Department of Toxic Substances Control. 2014. Press Release. http://www.dtsc.ca.gov/PressRoom/upload/News_Release_T-11-14.pdf, accessed November 18, 2014.

California Department of Transportation, 2014. California Scenic Highway Program. http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm, accessed December 16, 2014.

California Department of Water Resources (DWR), 2004. *California's Groundwater: Santa Clara Valley Groundwater Basin, San Mateo Subbasin, Bulletin 118*, February 27.

California Department of Water Resources (DWR), 2006. Progress on Incorporating Climate Change into Management of California Water Resources, July.

California Department of Water Resources (DWR), 2010. *California Data Exchange Center: Lower Crystal Springs Reservoir*. http://cdec.water.ca.gov/cgi-progs/profile?s=CRY&type=dam, accessed October 21, 2014.

California Department of Water Resources (DWR), Division of Safety of Dams, 2012. *Statutes and Regulations Pertaining to Supervision of Dams and Reservoirs*. http://www.water.ca.gov/damsafety/docs/statutes-regulations.pdf, accessed October 22, 2014.

California Emergency Management Agency (CEMA), 2009, *Tsunami Inundation Map for Emergency Planning, San Mateo Quadrangle*, June 15.

http://www.consrv.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/San Mateo/Documents/Tsunami_Inundation_SanMateo_Quad_SanMateo.pdf, accessed October 21, 2014.

California Emissions Estimator Model (CalEEMod®). http://www.caleemod.com/, accessed November 2014.

California Energy Commission (CEC), 2005. California's Water-Energy Relationship. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.pdf, accessed December 20, 2014.

California Energy Commission (CEC), 2006. Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004 – Final Staff Report, publication # CEC-600-2006-013-SF. December 22, 2006 and January 23, 2007 update to that report.

California Environmental Protection Act (Cal/EPA) and California Air Resources Board (CARB), 2007. Proposed Early Actions to Mitigate Climate Change in California, April.

California Environmental Protection Agency (Cal/EPA), 2013. News Release: *DTSC Issues Draft Decision on Kettleman Facility and Announces Initiative to Reduce Landfill Waste by 50 Percent,* July 2.

California Environmental Quality Act (CEQA) Guidelines 1998, Section 15126.6.

California Environmental Quality Act (CEQA) Guidelines Section 15002(i).

California Environmental Quality Act (CEQA) Guidelines Section 15064.4(b).

California Geological Survey (CGS), 2002a. California Geomorphic Provinces, Note 36.

California Geological Survey (CGS), 2002b. How Earthquakes and Their Effects Are Measured, Note 32.

California Geological Survey (CGS), 2010. *2010 Fault Activity Map of California,* Geologic Data Map No. 6. http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html, accessed December 8, 2014.

California Geological Survey (CGS), 2014. Seismic Hazards Zonation Program. http://www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx, accessed December 12, 2014.

California Integrated Waste Management Board (CIWMB), 2004. *Facility/Site Summary Details, Ox Mountain Sanitary Landfill.* www.ciwmb.ca.gov, accessed November 12, 2014.

California Integrated Waste Management Board (CIWMB), 2013. *Waste Flows, Jurisdiction Profile for City of Foster City.* www.ciwmb.ca.gov/Profiles/Juris/jurprofile.asp?rg=c&jurid=164&jur=foster+city, accessed February 8, 2013.

California Natural Resources Agency. CEQA Guidelines Amendments, adopted March 18, 2010. Available at: http://resources.ca.gov/ceqa/guidelines/.California Public Utilities Code Section 21675(a).

California Public Utilities Commission (CPUC), 2013. Current Renewable Procurement Status, Pacific Gas and Electric. http://www.cpuc.ca.gov/PUC/energy/Renewables/index.htm, accessed December 21, 2014.

California Water Code, Section 10631(c).

CalRecycle, 2013. *Jurisdiction Diversion/Disposal Rate Summary (-007 - Current).* http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionPost2006.aspx, accessed March 1, 2013.

CalRecycle, 2014. *Facility/Site Summary Details, Corinda Los Trancos Lanfill*. http://www.calrecycle.ca.gov/SWFacilities/Directory/41-AA-0002/Detail/, accessed January 9, 2015.

Caltrans, 2013. 2013 Traffic Volumes on California State Highways. Available at: http://traffic-counts.dot.ca.gov/docs/2013_aadt_volumes.pdf.

Cayan, D., et al., 2006. Scenarios of Climate Change in California: An Overview (White Paper, CEC-500-2005-203-SF), February.

City of Foster City Municipal Code, Chapter 1.01, Code Adoption, and Chapter 15.04, Building Code.

City of Foster City Municipal Code, Title 17, 17.36.010, Purpose.

City of Foster City Municipal Code, Title 17, 17.36.030, General Development Plan.

City of Foster City Municipal Code, Title 17, 17.58, Zoning.

City of Foster City Municipal Code, Title 17, 17.68.030, Noise.

City of Foster City, 1993a. *General Plan,* adopted May. http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/General-Plan.cfm, accessed December 2014.

City of Foster City, 1993b. *General Plan,* Land Use and Circulation Element, Policy LUC-50. Amended June 1999.

City of Foster City, 1993c. *General Plan,* Noise Element.

City of Foster City, 1995. *General Plan, Ch. 7, Safety Element*, adopted October. Available at: http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/General-Plan.cfm.

City of Foster City, 2004. *General Plan,* Land Use and Circulation Element. November.

City of Foster City, 2005. Ordinance No. 523: Recycling and Salvaging of Construction and Demolition Debris, November 21.

City of Foster City, 2008. City Council Resolution No. 2008-99.

City of Foster City, 2009. *Foster City General Plan Conservation Element*, September. Available at: http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/upload/GP-Chapter-8-Conservation-Element.pdf.

City of Foster City, 2010a. *Foster City General Plan, Housing Element.* Adopted February 1. Available at: http://www.fostercity.org/departmentsanddivisions/communitydevelopment/PlanningCodeEnforcement/upload/4_Housing-Element-2010.pdf.

City of Foster City, 2010b. Underground Infrastructure, GIS data provided to Urban Planning Partners, December 16, 2014.

City of Foster City, 2014a. Park Grid. http://www.fostercity.org/parksandrecreation/park-grid.cfm, accessed November 13.

City of Foster City, 2014b. Foster City Fire Department, *Insurance Rating Office*. http://www.fostercity.org/fire/ourdepartment/Insurance-Rating-Office.cfm, accessed December 1.

City of Foster City, 2014c. Foster City Map, City GIS data. http://www.fostercity.org/gis/, accessed November 24.

City of Foster City, 2014d. *Lagoon System.* http://www.fostercity.org/publicworks/lagoonandlevee/Lagoon-Information.cfm, accessed October 21.

City of Foster City, 2014e. The Creation of Foster City. http://www.fostercity.org/ourcommunity/Creation-of-Foster-City-Part-1.cfm, accessed December 5.

City of Foster City, 2014f. Land Use and Circulation Update, http://www.fostercity.org/departmentsanddivisions/communitydevelopment/Features/Land-Use-and-Circulation-Update.cfm, accessed December 5.

City of Foster City, 2014g. Notice of Study Session. Foster City General Plan Update. http://www.fostercity.org/departmentsanddivisions/communitydevelopment/Notices/upload/100214-SS-Notice.pdf, accessed December 5.

City of Foster City Ad Hoc Environmental Task Force, 2009. Recommended Sustainability Action Plan. http://www.fostercity.org/projectsandinitiatives/upload/Final-W8_1.pdf, accessed December 2014.

City of Foster City, Resolution No. P-136-80, Exhibit A.

City of San Mateo General Plan, 2010.

City of San Mateo, 2013. Wastewater Treatment Plant 20 Year Master Plan (2010-2030). http://www.cityofsanmateo.org/documentcenter/view/37550, accessed on March 12, 2015.

City of San Mateo, 2014. *Smart Corridor.* http://www.cityofsanmateo.org/index.aspx?NID=2186, accessed December 16.

City/County Association of Governments of San Mateo County (C/CAG), 1996. San Mateo County Comprehensive Airport Land Use Plan, 1996. Adopted November 14, 1996.

City/County Association of Governments of San Mateo County (C/CAG), 2004, CCAG Land Use Committee Recommendation: Revised Airport Influence Area Boundary for San Carlos Airport – Areas A & B. Adopted October 2004. Available at: http://ccag.ca.gov/plansreportslibrary/airport-land-use/.

City/County Association of Governments of San Mateo County (C/CAG), 2012. *Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport*, November. Available at: http://ccag.ca.gov/plansreportslibrary/airport-land-use/.

Climate Action Team Reports. 2013. http://www.climatechange.ca.gov/climate_action_team/reports/index.html#2010, accessed December 21, 2014.

Climate Change and President Obama's Action Plan. 2013. http://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf, accessed December 21, 2014.

Climate Change Technology Program (CCTP), 2008. About the U.S. Climate Change Technology Program. http://www.climatetechnology.gov/about/index.htm, accessed December 21, 2014.

E3, GHG Calculator Version 3c. Available at: http://www.ethree.com/documents/GHG%20update/GHG%20Calculator%20version%203c_Oct2010.zip.

East Bay Municipal Utility District (EBMUD), 2010. Urban Water Management Plan 2010. http://www.ebmud.com/sites/default/files/pdfs/UWMP-2010-2011-07-21-web-small.pdf, accessed December 2014.

EnviroMatrix, 1996. *Preliminary Subsurface Assessment, Building 500 – Stock Room No. 7,* July 15.

Fact Sheet: President Obama's Climate Action Plan, 2014. http://www.whitehouse.gov/the-press-office/2013/06/25/fact-sheet-president-obama-s-climate-action-plan, accessed December 21, 2014.

Federal Emergency Management Agency (FEMA), 2012. *Flood Insurance Rate Map (FIRM), San Mateo County, California, Community Panel Number 060318 0159 E*, October 16. www.msc.fema.gov, accessed October 6, 2014.

Federal Emergency Management Agency (FEMA), 2014. San Francisco Bay Area Coastal Study, San Mateo County, California. http://www.r9map.org/Docs/SantaMateo_Fema_Factsheet.pdf, accessed April 15, 2015.

Federal Emergency Management Agency (FEMA), 2015. San Francisco Bay Coastal Study, San Mateo, California. http://www.r9map.org/Pages/ProjectDetailsPage.aspx?choLoco=41&choProj=267, accessed April 15, 2015.

Federal Highway Administration (FHWA), 2014. *Roadway Construction Noise Model (RCNM)* Version 1.1.

Federal Register, 2014. Vol. 79. No. 242, December 17.

Fehr & Peers, 2008. *Foster City Multi-Project Traffic Analysis.*

Fehr & Peers Transportation Consultants, 2014. *Transportation Impact Study for Lincoln Centre Campus Redevelopment Project,* December.

Fehr & Peers, 2014. *Final Traffic Forecasting Report for the US 101-Holly Street Interchange PA/ED.*

Green Environmental Inc., 2005. *Phase II Environmental Site Assessment, Applied Biosystems, 850 Lincoln Center Drive, Buildings 200, 300, 400, 500, 600, 700 & 800, Foster City, Californi*a, March 28.

Integrated Waste Management Board (IWMB), 2013. *Estimated Solid Waste Generation Rates for Commercial Establishments.* www.ciwmb.ca.gov/wastechar/wastegenrates/commercial.htm, accessed February 8, 2013.

International Agency for Research on Cancer (IARC), 2012. Press Release No. 213. IARC: Diesel Engine Exhaust Carcinogenic, June.

International Panel on Climate Change (IPCC), 2007. *Climate Change 2007: Synthesis Report – Summary for Policy Makers.* Core Writing Team, Pachauri, R.K and Reisinger, A. (Eds). IPCC, Geneva, Switzerland, 104 pp. Available at: http://www.ipcc.ch/publications_and_data/ar4/syr/en/contents.html.

International Panel on Climate Change (IPCC), 2013. Fifth Assessment Report. Climate Change 2013: Working Group I Report: The Physical Science Basis. http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf, accessed December 2014.

International Panel on Climate Change (IPCC), 2013. Fifth Assessment Report. 2013. Climate Change 2013: Working Group I Report: The Physical Science Basis. Summary for Policymakers. Detection and Attribution of Climate Change. http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf, accessed December 2014.

Institute of Transportation Engineers, 2014. *Trip Generation Manual, 9th Ed.*

Kimley-Horn, 2008. *Analysis of Gilead Sciences General Development Plan Traffic Impacts*.

Kiparsky, M. and P.H. Gleick, 2003. Climate Change and California Water Resources: A Survey and Summary of the Literature. Oakland, CA: Pacific Institute for Studies in Development, July.

Langan Treadwell Rollo, 2014. *Draft Geotechnical Investigation, Lincoln Centre Campus,* Foster City, California. No. 731622001, December 19.

Langan Treadwell Rollo, 2014. *Updated Phase I Environmental Site Assessment, Lincoln Center Campus, Foster City, California*, November 21.

League of Women Voters of California Education Fund. Measure P, School Bond San Mateo-Foster City School District, accessed April 22, 2015.

LSA Associates, 2012. *Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR*.

National Academy of Sciences, 2012. *Chapter 4, Sea-Level Variability and Change off the California, Oregon, and Washington Coasts*, in: Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future. http://www.nap.edu/openbook.php?record_id=13389&page=R1, accessed October 21, 2014.

National Institute of Environmental Health Science (NIEHS), 1999. *Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields, Prepared in response to the 1992 Energy Policy Act*. NIH Publication No. 99-4493, pp. 38. Available at: http://www.niehs.nih.gov/health/assets/docs_f_o/health_effects_from_exposure_to_powerline_frequency_electric_and_magnetic_fields.pdf.

Natural Resources Conservation Service (NRCS), 2014. Web Soil Survey, USDA Mapping. http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm, accessed December 8.

Norris, Robert M. and Robert W. Webb, 1976. *Geology of California,* 2nd Edition, J. Wiley & Sons, Inc.

Office of Environmental Health Hazard Assessment (OEHHA), 1998. *Findings of the Scientific Review Panel on The Report on Diesel Exhaust*, as adopted at the Panel's April 22, 1998, meeting. April.

Office of Environmental Health Hazard Assessment (OEHHA), 2002. *Air Toxics Hot Spots Program Risk Assessment Guidelines: Part II Technical Support Document for Describing Available Cancer Potency Factors.* California Environmental Protection Agency (Cal/EPA), December.

Olivier, J.G.J., et al. 2011. Long-term trend in global CO2 emissions; 2011 report (PDF). PBL Netherlands Environmental Assessment Agency; Institute for Environment and Sustainability (IES) of the European Commission's Joint Research Centre (JRC).

Pacific Gas and Electric, Greenhouse Gas Emission Factors: Guidance for PG&E Customers, 2013. http://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf. Accessed November 2014.

Parmesan, C. and H. Galbraith, 2004. Observed Impacts of Global Climate Change in the U.S., Arlington, VA: Pew Center on Global Climate Change, November.

President Obama's Climate Action Plan Progress Report, 2014. http://www.whitehouse.gov/sites/default/files/docs/cap_progress_report_update_062514_final.pdf, accessed December 21, 2014.

Presidential Memorandum – Power Sector Carbon Pollution Standards, 2013. http://www.whitehouse.gov/the-press-office/2013/06/25/presidential-memorandum-power-sector-carbon-pollution-standards, accessed December 21, 2014.

Public Resources Code Section 21001(d).

Public Resources Code Section 21068.

Rethink Waste, South Bayside Water Management Authority, 2014. *Fun Facts, Shoreway Environmental Center*. www.rethinkwaste.org, accessed December 12, 2014.

Sacramento Metropolitan Air Quality Management District (SMAQMD), 2009. *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways – Technical Appendix,* January.

San Francisco Bay Conservation and Development Commission (SFBCDC), 2011. *Staff Report, Living with a Rising Bay: Vulnerability and Adaptations in San Francisco Bay and on its Shoreline,* October 6.

San Francisco Bay Regional Water Quality Control Board (Regional Water Board), 1995 as appended through 2011. *Water Quality Control Plan for the San Francisco Bay Basin*. www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml.

San Francisco Bay Regional Water Quality Control Board (Regional Water Board), 2013. *Environmental Screening Levels*, Interim Final, December. http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml, accessed December 8, 2014.

San Francisco Public Utilities Commission (SFPUC), 2013. *Lower Crystal Springs Dam Improvements (WSIP).* http://216.119.104.145/bids/projectDetail.aspx?prj_id=128, accessed October 22, 2014.

San Mateo County Environmental Health Department (SMCEHD), 2012. *Environmental Health – Toxic Programs*. http://smchealth.org/environ/toxic, accessed December 8, 2014.

San Mateo Countywide Water Pollution Prevention Program, 2013, *C.3 Stormwater Technical Guidance*, January 4. http://www.flowstobay.org/files/newdevelopment/C3techguide/C3TechGuidanceJan2013.pdf, accessed October 21, 2014.

San Mateo-Foster City School District. Next Steps Advisory Committee (NSC). http://www.smfc.k12.ca.us/Next_Steps_Committee, accessed April 22, 2014.

Sea Level Rise Committee of SF Adapt. Guidance for Incorporating Sea Level Rise into Capital Planning in San Francisco. 2014 http://www.acfloodcontrol.org/SFBayCHARG/pdf/sf_slr_guidance.pdf

Silverman D.T., Samanic C.M., Lubin J.H., Blair A.E., Stewart P.A., Vermeulen R., Coble J.B., Rothman N., Schleiff P.L., Travis W.D., Ziegler R.G., Wacholder S., Attfield M.D., 2011. *The Diesel Exhaust in Miners Study: A Nested Case-Control Study of Lung Cancer and Diesel Exhaust.* Journal National Cancer Institute.

Skyvector, 2014. *San Francisco Sectional Chart*. www.skyvector.com, accessed December 16.

Soil Conservation Service (SCS), 1991. *Soil Survey of San Mateo County, Eastern Part, and San Francisco County, California.*

Titus, James G. and Narayanan, Vijay, 1995. *The Probability of Sea Level Rise*, US Environmental Protection Agency, September. http://repositories.tdl.org/tamug-ir/bitstream/handle/1969.3/25952/ 8881-Probability%20of%20Sea%20Level%20Rise.pdf?sequence=1, accessed October 21, 2014.

Transportation Research Board, 2000. *Highway Capacity Manual-Special Report-209*.

U.S. Army Corps of Engineers (Corps), 1984. *San Francisco Bay Tidal Stage vs. Frequency Study*.

U.S. Department of Homeland Security, 2007. *Letter to Mr. Ray Towne, Director of Public Works, City of Foster City, CA: Letter of Levee Certification for Levee P771, FEMA*, July 23.

U.S. Energy Information Administration (EIA). 2014. State-Level Energy-Related Carbon Dioxide Emissions, 2000-2011, accessed December 21, 2014.

U.S. Environmental Protection Agency (U.S. EPA), 2002. *Health Assessment Document for Diesel Engine Exhaust.* National Center for Environmental Assessment, Office of Research and Development, Washington, DC. EPA/600/8-90/057F, May.

U.S. Environmental Protection Agency (U.S. EPA), 2007. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846 On-Line*, updated September 4, 2013. http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm, accessed December 8, 2014.

U.S. Environmental Protection Agency (U.S. EPA), 2010. Conversion Factors for Hydrocarbon Emission Components. http://www.epa.gov/oms/models/nonrdmdl/nonrdmdl2010/420r10015.pdf, accessed December 2014.

U.S. Environmental Protection Agency (U.S. EPA), 2011. Integrated Risk Information System (IRIS). United States Environmental Protection Agency. Available at: http://www.epa.gov/iris/.

U.S. Environmental Protection Agency (U.S. EPA), 2012. *Toxic Air Pollutants.* http://www.epa.gov/oar/toxicair/newtoxics.html, accessed December 21, 2014.

U.S. Environmental Protection Agency (U.S. EPA), 2013a. Clean Power Plan Proposed Rule. http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule, accessed December 21, 2014.

U.S. Environmental Protection Agency (U.S. EPA), 2013b. Fact Sheet. Final Amendments to the Emission Standards for Reciprocating Internal Combustion Engines. Specifics About Provisions Related to Emergency Engines. http://www.epa.gov/ ttn/atw/icengines/docs/20130114emergencyfs.pdf, accessed December 2014.

U.S. Environmental Protection Agency (U.S. EPA), 2013c. Fact Sheet. Reconsideration of Final Standards for Stationary and Reciprocating Internal Combustion Engines. http://www.epa.gov/ttn/atw/icengines/docs/20130829fs.pdf, accessed December 2014.

U.S. Environmental Protection Agency (U.S. EPA), 2014a. *Climate Change Basics*. http://www.epa.gov/climatechange/basics/, accessed October 21, 2014.

U.S. Environmental Protection Agency (U.S. EPA), 2014b. *The Green Book Nonattainment Areas for Criteria Pollutants.* http://epa.gov/airquality/greenbk/, accessed on December 21.

U.S. Geological Survey (USGS), 1979. *Flatlands Deposits of the San Francisco Bay Region,* California, USGS Professional Paper 943. Jointly by DOI, HUD, USGS.

U.S. Geological Survey (USGS), 1983. *Geologic Map of San Mateo County,* USGS Misc. Investigation I-1257-A.

U.S. Geological Survey (USGS), 2006. Maps of Quaternary Deposits and Liquefaction Susceptibility in the Central San Francisco Bay Region. Available at: http://pubs.usgs.gov/of/2006/1037/.

U.S. Geological Survey (USGS), 2008. *Forecasting California's Earthquakes – What Can We Expect in the Next 30 Years,* USGS Fact Sheet 2008-3027.

U.S. Supreme Court, *Massachusetts et. al. v. USEPA et. al* (No. 05-1120, 415F 3d 50), April 2, 2007.

Waste Management, Inc., 2013. *CWM Kettleman Hills Landfill*. http://kettlemanhillslandfill.wm.com, accessed November 14, 2014.

Western Regional Climate Center, 2012. *General Climate Summary Tables-Precipitation, Redwood City, California,* October 31. http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7339, accessed October 7, 2014.

Western Regional Climate Center, 2013. *Period of Record Monthly Climate Summary - Redwood City, California,* March 31. http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7339, accessed October 7, 2014.

C. CONTACTS

Barton, Molly, Assistant Superintendent, Student Services, San Mateo-Foster City School District. Written communication to Urban Planning Partners, September 15, 2014.

Enrollment Projection Consultants, 2014. Projected Enrollments from 2013 to 2023. Written communication to Superintendent and Board of Education, San Mateo-Foster City School District, February 14, 2014

Keefe, Michael, 2014. Fire Chief, Foster City Fire Department. Written communication with Greg Goodfellow, Urban Planning Partners, November 25, 2014.

Mak, Steve, Director of Fiscal Services, San Mateo-Foster City School District. Letter to Foster City Office of the City Manager, re: School Impact Fee Increase, November 18, 2014.

Martell, Matt, Chief, Foster City Police Department. Written communication with Greg Goodfellow, Urban Planning Partners, November 24, 2014.

Moneda, Jeff, Public Works Director, City of Foster City. Written communication with Greg Goodfellow, Urban Planning Partners, December 29, 2014.

Shu, Allan, 2015. Senior Engineer, Foster City, California. Personal communication with BASELINE, 15 January.

Towne, Ray, 2012. Director of Public Works, Foster City, California. Personal communication with BASELINE Environmental Consulting, August 29.


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