PUBLIC REVIEW DRAFT

GILEAD SCIENCES INTEGRATED CORPORATE CAMPUS MASTER PLAN SUBSEQUENT ENVIRONMENTAL IMPACT REPORT

STATE CLEARINGHOUSE NO. 2008122064

LSA

December 2012

NOTICE OF AVAILABILITY
CITY OF FOSTER CITY
GILEAD SCIENCES INTEGRATED CORPORATE CAMPUS MASTER PLAN
DRAFT SUBSEQUENT ENVIRONMENTAL IMPACT REPORT AND
PUBLIC HEARING – January 17, 2013

State Clearinghouse # 2008122064

NOTICE IS HEREBY GIVEN that the City of Foster City, as Lead Agency, has completed a Draft Subsequent Environmental Impact Report (Subsequent EIR) for the Gilead Sciences Integrated Corporate Campus Master Plan (2012 Master Plan). The 2012 Master Plan would amend the Vintage Park General Development Plan, under which the 2010 Corporate Campus Master Plan (2010 Master Plan) was approved. The amendments would increase the amount of building space and land area beyond that identified in the 2010 Master Plan. The 2010 Master Plan was examined in the Gilead Sciences Corporate Campus Master Plan EIR, which was certified on February 16, 2010.

PUBLIC HEARING: The Planning Commission is scheduled to receive public comments on the Subsequent EIR on **January 17, 2013, 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 Subsequent EIR begins **December 14, 2012 and ends January 28, 2013**. The City must receive all written comments regarding the adequacy of the Subsequent EIR 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 kkojayan@fostercity.org and the fax number is (650) 286-3589. Direct all comments to the attention of Kohar Kojayan, Senior Planner.

DOCUMENT AVAILABILITY: Copies of the Subsequent EIR 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 Subsequent EIR is also available at the Foster City Public Library, at 1000 East Hillsdale Boulevard, and online, at http://www.fostercity.org/.

PROJECT LOCATION: Vintage Park – 300-368 Lakeside Drive; 301 Velocity Way - (APNs: 094-901-290; 094-901-300; 094-901-310; 094-901-340; 094-901-370; 094-901-380; 094-901-390; 094-901-400; 094-901-410; 094-904-290; 094-904-300; 094-904-310; 094-904-320; 094-904-330; 094-904-340; 094-122-050; 094-122-060; 094-122-070; 094-122-080; 094-122-110; 094-122-120; 094-122-130; 094-122-150), ± 72 acres of a portion of the Vintage Park business park owned by Gilead Sciences. The project site is bounded by East Third Avenue to the north, Vintage Park Drive/Marsh Drive to the east, Bridgepointe Shopping Center/Home Depot in San Mateo to the south, and Mariners Island Boulevard in San Mateo to the west. Figure 1 depicts the location of the project site.

PROJECT DESCRIPTION: The proposed project would amend the 2010 Master Plan and the Vintage Park General Development Plan to incorporate and develop an additional approximately 32 acres acquired from Electronics for Imaging (EFI) adjacent to the 40-acre site comprising the 2010 Master Plan. The 2012 Master Plan would redevelop a portion of the approximately 73-acre project site, including demolition of up to 12 of the existing office and laboratory buildings, and construction of up to 17 new buildings. Buildout of the 2012 Master Plan would result in a total of up to 22 office and laboratory buildings (comprising approximately 2,500,600 square feet of interior space) and 6,050 parking stalls on the project site. Development envisioned under the proposed 2012 Master Plan would require an amendment to the Vintage Park General Development Plan/Rezoning, an amended and restated Development Agreement, and various other City entitlements, including demolition, construction, and building permits.

SIGNIFICANT ANTICIPATED ENVIRONMENTAL EFFECTS: The Subsequent EIR 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:

- The project would conflict with General Plan noise policies adopted to avoid or mitigate an environmental impact.
- Project-related traffic would create a clearly noticeable permanent change in the noise environment.
- Operation of the project would result in a significant project-level and cumulative net increase in criteria pollutant emissions, resulting in a conflict with the Bay Area Air Quality Management District 2010 Clean Air Plan.

These impacts would remain significant and unavoidable, since the mitigation measures identified in the Subsequent EIR 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 Kohar Kojayan, Senior Planner at (650) 286-3237 or kkojayan@fostercity.org.

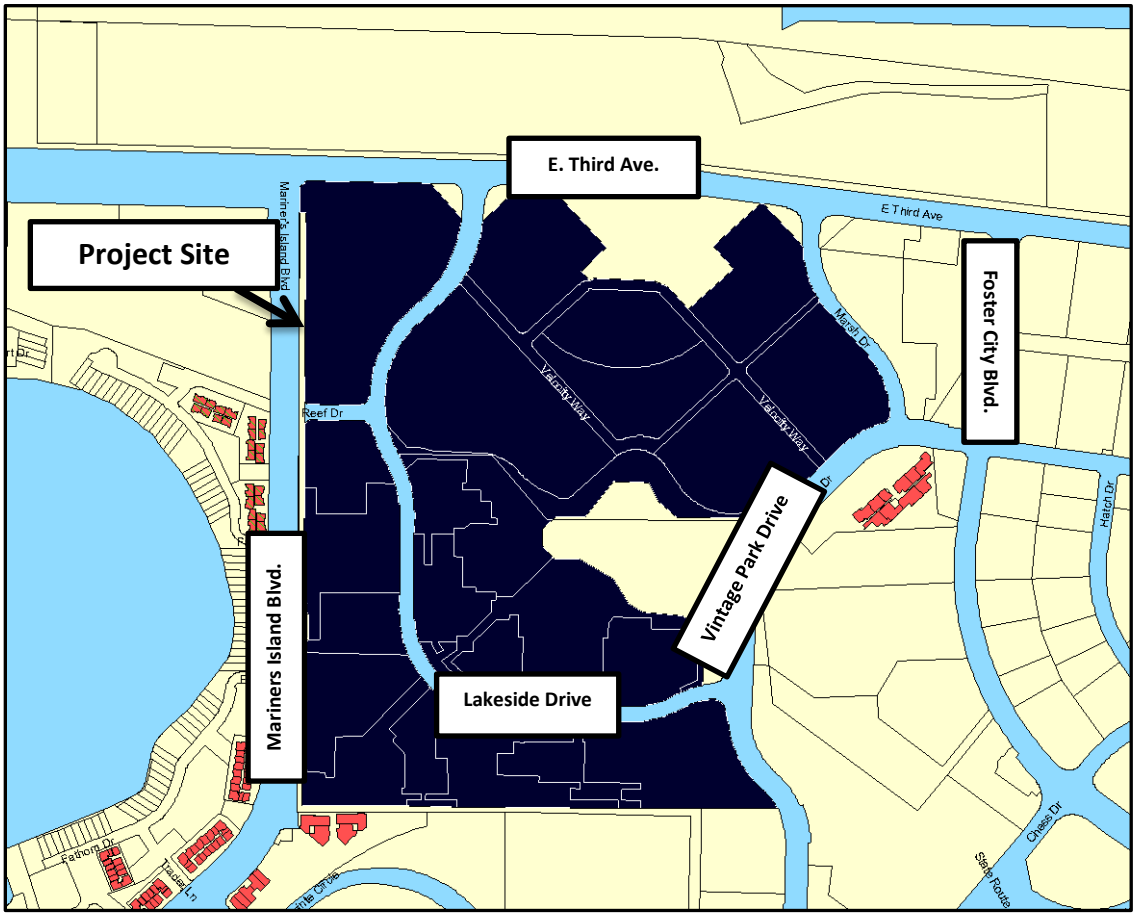

Figure 1: Project Site for Gilead Sciences Integrated Corporate Campus Master Plan

PUBLIC REVIEW DRAFT

GILEAD SCIENCES INTEGRATED CORPORATE CAMPUS MASTER PLAN SUBSEQUENT ENVIRONMENTAL IMPACT REPORT

STATE CLEARINGHOUSE NO. 2008122064

Submitted to:

City of Foster City
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December 2012

TABLE OF CONTENTS

I. INTRODUCTION AND SUMMARY S-1
- A. PURPOSE OF THE SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (EIR) S-1
- B. REPORT ORGANIZATION S-2
- C. PROJECT UNDER REVIEW S-3
- D. SUBSEQUENT EIR S-4
- E. SUBSEQUENT EIR SCOPE S-5
- F. SUMMARY OF IMPACTS AND MITIGATION MEASURES S-6
- G. SUMMARY TABLE S-8

II. PROJECT DESCRIPTION 1
- A. BACKGROUND AND PRIOR ENVIRONMENTAL REVIEW 1
- B. PROJECT SITE 9
- C. PROJECT OBJECTIVES 12
- D. PROPOSED PROJECT 13
- E. DISCRETIONARY CITY ACTIONS 27
- F. SUBSEQUENT DISCRETIONARY ACTIONS 28
- G. USES OF THIS EIR 30

III. PLANNING POLICY 31
- A. FOSTER CITY GENERAL PLAN 31
- B. FOSTER CITY ZONING ORDINANCE 42
- C. GILEAD SCIENCES GENERAL DEVELOPMENT PLAN (MASTER PLAN) 46
- D. VINTAGE PARK DESIGN GUIDELINES AND VINTAGE PARK SIGNAGE GUIDELINES 47
- E. COMPREHENSIVE AIRPORT LAND USE PLANS 48

IV. SETTING, IMPACTS AND MITIGATION MEASURES 55
- A. LAND USE 57
- B. VISUAL QUALITY 67
- C. POPULATION, EMPLOYMENT, AND HOUSING 83
- D. GEOLOGY, SOILS, AND SEISMICITY 95
- E. HYDROLOGY AND WATER QUALITY 111
- F. HAZARDS AND HAZARDOUS MATERIALS 125
- G. TRANSPORTATION AND CIRCULATION 145
- H. NOISE 207
- I. AIR QUALITY 227
- J. PUBLIC SERVICES, UTILITIES, AND RECREATION 257
- K. GLOBAL CLIMATE CHANGE 277

V. ALTERNATIVES 305
A. NO PROJECT ALTERNATIVE 306
B. EXISTING ENTITLEMENTS ALTERNATIVE 309
C. REDUCED OFFICE ALTERNATIVE 312
D. REDUCED LABORATORY ALTERNATIVE 314
E. LAKESIDE DRIVE OPEN ALTERNATIVE 317
F. ALTERNATIVES CONSIDERED BUT ULTIMATELY REJECTED 318
G. ENVIRONMENTALLY SUPERIOR ALTERNATIVE 318

VI. OTHER CEQA CONSIDERATIONS 321
A. GROWTH INDUCEMENT 321
B. SIGNIFICANT IRREVERSIBLE CHANGES 322
C. EFFECTS FOUND NOT TO BE SIGNIFICANT 323
D. SIGNIFICANT UNAVOIDABLE IMPACTS 327

VII. REPORT PREPARATION 329
A. REPORT PREPARATION 329
B. REFERENCES 330
C. COMMUNICATIONS 339

APPENDICES

Appendix A: Notice of Preparation and Comment Letters
Appendix B: Transportation Impact Analysis
Appendix C: Air Quality and Greenhouse Gas Data
Appendix D: Noise Data
Appendix E: Water Supply Assessment
Appendix F: Animated Simulation

FIGURES

Figure II-1: Project Site Location ... 2
Figure II-2: Existing Aerial View ... 3
Figure II-3: Maximum Building Envelope, 2012 Addendum (Addendum #2) ... 8
Figure II-4: Maximum Building Envelope ... 14
Figure II-5: Site Perspective ... 15
Figure II-6: Landscape Plan ... 21
Figure II-7: Circulation Plan ... 23
Figure III-1: Existing General Plan Designation ... 33
Figure III-2: Existing Zoning Designation ... 43
Figure III-3: San Carlos Airport Influence Area Boundaries ... 51
Figure III-4: San Francisco International Airport Influence Area Boundaries ... 52
Figure IV.A-1: Land Uses in the Plan Area ... 59
Figure IV.B-1: Viewpoint Location Map ... 69
Figure IV.B-2: Visual Simulations from Viewpoint 1 ... 70
Figure IV.B-3: Visual Simulations from Viewpoint 2 ... 71
Figure IV.B-4: Visual Simulations from Viewpoint 3 ... 72
Figure IV.B-5: Visual Simulations from Viewpoint 4 ... 73
Figure IV.B-6: Visual Simulations from Viewpoint 5 ... 74
Figure IV.C-1: City of Foster City Population Growth, 1970-2030 ... 84
Figure IV.C-2: Projected 2012 Master Plan Housing Demand by City ... 90
Figure IV.D-1: Regional Faults ... 99
Figure IV.G-1: Study Intersections and Freeway Segments ... 147
Figure IV.G-2: Comparison of No Project and Plus Project Land Uses ... 151
Figure IV.G-3: Existing Transit Routes ... 157
Figure IV.G-4: Existing Bicycle Facilities ... 158
Figure IV.G-5: Existing Intersection Peak-Hour Volumes, Lane Configurations, and Traffic Control Devices ... 163
Figure IV.G-6: Trip Distribution ... 173
Figure IV.G-7: Trip Assignment -- Proposed Project ... 174
Figure IV.G-8: Existing Plus Project Intersection Peak Hour Volumes -- Proposed Project ... 177
Figure IV.G-9: Probable Future Development Locations ... 178
Figure IV.G-10: Cumulative Project Trip Distribution ... 183
Figure IV.G-11: Cumulative Conditions Intersection Peak Hour Volumes ... 184
Figure IV.G-12: Cumulative Roadway Improvements ... 187
Figure IV.G-13: Proposed Circulation Plan and Recommendations ... 195
Figure IV.H-1: Modeled Traffic Noise Levels Change from Existing to Existing with Project ... 215
Figure IV.K-1: California GHG Emissions by Sector (2000-2009 Average) ... 284
Figure IV.K-2: Bay Area GHG Emissions by Sector (2007) ... 285

TABLES

Table I-1: Summary of Impacts and Mitigation Measures S-9
Table II-1: Existing Buildings 11
Table II-2: Summary of the Changes between the 2010 Master Plan (as Modified by Addendum #2) and 2012 Master Plans 17
Table II-3: Development Summary 18
Table II-4: Proposed New Buildings 19
Table II-5: Parking Ratios 26
Table II-6: Required Permits and Approvals 28
Table III-1: Applicable General Plan Goals, Policies, and Programs 37
Table IV.B-1: Vintage Park Design Guidelines Policy Consistency 80
Table IV.C-1: Foster City Population Growth 83
Table IV.C-2: Housing and Employment Data – Foster City and San Mateo County 88
Table IV.C-3: Projected 2012 Master Plan Housing Demand by City Based on Residential Location of Current Gilead Employees 91
Table IV.C-4: Project Housing Demand Compared to RHNA 92
Table IV.C-5: Housing and Employment Data Without and With Project 93
Table IV.D-1: Modified Mercalli Scale 101
Table IV.G-1: Land Use Assumptions for Project Site under Existing and Cumulative No Project Conditions 150
Table IV.G-2: Signalized Intersection LOS Criteria 153
Table IV.G-3: Unsignalized Intersection LOS Criteria 154
Table IV.G-4: Freeway Segment LOS Criteria 154
Table IV.G-5: Existing Transit Service 155
Table IV.G-6: Existing Intersection LOS Results 161
Table IV.G-7: Locally Acceptable LOS Criteria 162
Table IV.G-8: Existing Freeway Segment LOS Results 165
Table IV.G-9: Trip Generation Rate Comparison 170
Table IV.G-10: Trip Generation Summary – Proposed Project 171
Table IV.G-11: Existing Plus Project Intersection LOS Results 179
Table IV.G-12: Existing Plus Project Freeway Segment LOS Results 180
Table IV.G-13: Future Probable Developments 181
Table IV.G-14: Cumulative Conditions Trip Generation Estimate Summary 182
Table IV.G-15: Cumulative Roadway System Improvements 185
Table IV.G-16: Net Change in Land Uses for Project Site under Cumulative Conditions 186
Table IV.G-17: Cumulative Plus Project Intersection LOS Results 191
Table IV.G-18: Cumulative Plus Project Freeway Segment LOS Results 192
Table IV.G-19: Required Parking Supply Calculation 205
Table IV.G-20: Parking Demand Estimate and Supply Comparison 206
Table IV.H-1: Definitions of Acoustical Terms 208
Table IV.H-2: Typical A-Weighted Sound Levels 209
Table IV.H-3: Noise and Land Use Compatibility Standards for Industrial and Commercial Noise Sources 210
Table IV.H-4: Noise Limits 210
Table IV.H-5: Existing Traffic Noise Levels 212

Table IV.H-6: Modeled Traffic Noise Levels at 50 feet from Centerline of Outermost Travel Lane, dBA 217
Table IV.H-7: Typical Construction Equipment Maximum Noise Levels, L_{max} 220
Table IV.H-8: Construction-related Noise Levels, dBA 222
Table IV.I-1: Sources and Health Effects of Air Pollutants 228
Table IV.I-2: Ambient Air Quality at the 897 Barron Ave., Redwood City, Monitoring Station 234
Table IV.I-3: Federal and State Ambient Air Quality Standards 238
Table IV.I-4: San Francisco Bay Area Attainment Status 243
Table IV.I-5: General Plan Goals and Policies Related to Air Quality 244
Table IV.I-6: Project Construction Emissions in Pounds Per Day 248
Table IV.I-7: Regional Emissions from Existing On-Site Uses 250
Table IV.I-8: Project Regional Emissions 250
Table IV.I-9: Mitigated Project Regional Emissions 251
Table IV.J-1: SMFCSD 2011-2012 Enrollment at Schools Serving Foster City 259
Table IV.J-2: SMFCSD 2011-2012 Enrollment at Schools Serving Foster City 260
Table IV.J-3: EMID Current and Planned Water Supply and Demand (acre feet/year) 262
Table IV.J-4: Projected EMID Deliveries For Five Consecutive Dry Years (acre feet/year) 263
Table IV.J-5: EMID Water Supply and Demand Projections Plus Project (acre feet/year) 273
Table IV.K-1: Global Warming Potential of Greenhouse Gases 278
Table IV.K-2: General Plan Goals and Policies that Would Reduce GHG Emissions 292
Table IV.K-3: Project Compliance with Statewide Greenhouse Gas Emission Reduction Strategies 297
Table IV.K-4: Annual GHG Emissions (Metric Tons per Year) 301
Table IV.K-5: Annual Mitigated GHG Emissions (Metric Tons Per Year) 302

GLOSSARY

A	Inhalation breathing factor
AADT	Average Annual Daily Traffic
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ADT	Average Daily Traffic
AERMOD	Model used in preparation of Health Risk Assessments
AIA	Airport Influence Area
ALS	Advanced Life Support
AP-EFZA	Alquist-Priolo Earthquake Fault Zoning Act
ARB	California Air Resources Board
AT	Average time over which exposure to an air pollutant is measured
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BAT	Best Available Technology
BAWSCA	Bay Area Water Supply and Conservation Agency
BCDC	San Francisco Bay Conservation and Development Commission
BCT	Best Conventional Technology
bgs	Below the ground surface
BMP	Best Management Practice
Cair	Concentration of particulate matter in air
CalEEMod	California Emission Estimator Model
Cal/EPA	California Environmental Protection Agency
Cal-OSHA	State of California Occupational Safety and Health Administration
Cal Recycle	California Department of Resources, Recycling and Recovery
CAPCOA	California Air Pollution Control Officers Association
Census	United States Census
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CEQA	California Environmental Quality Act
CFC	California Fire Code
CGS	California Geological Survey

CH_4	Methane
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
COA	condition of approval
CO_2E	carbon dioxide equivalent
CUPA	Certified Unified Program Agency
CWM	Chemical Waste Management
DHS	California Department of Health Services
Differential Compaction	A phenomenon in which non-saturated, cohesionless soil is made more dense by earthquake vibrations, causing differential settlement.
DIR	California Department of Industrial Relations
DOSH	California Division of Occupational Safety and Health
DSL	digital subscriber line
DTSC	California Department of Toxic Substances Control
CAAQS	California Air Quality Standards
Caltrans	California Department of Transportation
CARE	Community Air Risk Evaluation
CBC	California Building Code
C/CAG	San Mateo City/County Association of Governments
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHP	California Highway Patrol
CIP	Capital Improvement Program
CMP	Congestion Management Program
CMWMP	California Department of Public Health Medical Waste Management Program
CNEL	Community Noise Equivalent Level
Corps	U.S. Army Corps of Engineers
CRAF	Cancer risk adjustment factor
CWA	U.S. Clean Water Act
DCM	Methylene Dichloride
dB	decibel
dBA	A-weighted decibel

DBA	diameter of tree at breast height
DBR	Adult daily breathing rate
DPM	Diesel particulate matter
ED	Exposure duration
EDB	1,2 Dibromoethane
EDC	Dichloroethane
EF	Exposure frequency
EFI	Electronics for Imaging
EIR	Environmental Impact Report
EMID	Estero Municipal Improvement District
EMF	electro-magnetic field
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
ESA/EHSA	Environmental Site Assessment and Environmental Health and Safety Assessment
ESL	Environmental Screening Levels
FAR	Floor Area Ratio
FCAA	Federal Clean Air Act
FCFD	Foster City Fire Department
FCPD	Foster City Police Department
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIP	Federal Implementation Plan
FIRM	Flood Insurance Rate Map
FRM	Federal Reference Method
GHG	Greenhouse gases, the gases primarily responsible for global climate change
GIS	geographic information system
GPS	Global Positioning System
HAZWOPER	Hazardous Waste Operations and Emergency Response
HCD	California Department of Housing and Community Development
HCM	Highway Capacity Manual
HMBP	Hazardous Materials Business Plan
HMIS	Hazardous Materials Inventory Statement

HRA	Health Risk Assessment
HVAC	Heating, ventilation, and air conditioning
ICBO	International Conference of Building Officials
IFCI	International Fire Code Institute
ITE	Institute of Transportation Engineers
Lateral Spreading	The phenomenon in which surface soil is displaced along a zone that has formed within an underlying liquefied layer.
LCSD	Lower Crystal Springs Dam
Ldn	Day-night equivalent noise level
LEED	Leadership in Energy and Environmental Design
Leq	Continuous equivalent noise level
Liquefaction	The transformation of soil from a solid to a liquefied state during which saturated soil temporarily loses strength resulting from the buildup of excess pore water pressure, which may occur during earthquakes.
LLRW	low-level radioactive wastes
Lmax	Maximum instantaneous noise level
Lmin	Minimum instantaneous noise level
LOS	Level of Service
MEI	Maximum Exposed Individual
MFP	Multi-Hazard Functional Plan
mgd	million gallons a day
MMT	Million metric tons
mpg	Miles per gallon
MPO	Metropolitan Planning Organization
MRP	regional stormwater permit
MTC	Metropolitan Transportation Commission
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NB	New building
NFPA	National Fire Code, National Fire Protection Association
NHTSA	Department of Transportation's National Highway Traffic Safety Administration
NLB	New lab building
ND	No data

NEPA	National Environmental Policy Act
NIEHS	National Institute of Environmental Health Science
NFIP	National Flood Insurance Program
NGVD	National Geodetic Vertical Datum
NO_2	Nitrogen dioxide
NOP	Notice of Preparation of an Environmental Impact Report
NO_x	Nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRC	U.S. Nuclear Regulatory Commission
NWIC	Northwest Information Center, Sonoma State University
O_3	Ozone
OEHHA	California Office of Environmental Health and Hazard Assessment
OPR	State of California Governor's office of Planning and Research
OSHA	Occupational Safety and Health Administration
Pb	Lead
PCB	Polychlorinated biphenyl, a class of organic compounds considered toxic
Perc	Tetrachloroethylene
PG&E	Pacific Gas and Electric Company
PM	Particulate matter
$PM_{2.5}$	Suspended Particulate Matter of 2.5 Microns in Diameter
PM_{10}	Suspended Particulate Matter of 10 Microns in Diameter
ppb	Parts per billion
pphm	Parts per hundred million
pphm	Parts per hundred million
ppm	Parts per million
ppv	Peak particle velocity
PRC	State of California Public Resources Code
PV	Photovoltaic
RCRA	Resource Conservation and Recovery Act of 1976
REL	Referenced exposure level
RHNA	Regional Housing Needs Allocation
rms	Root mean square

ROG	Reactive organic gases
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Acts of 1986
SB	Senate Bill
SBWMA	South Bayside Waste Management Authority
SEL	Sound exposure level
SF_6	Sulfur hexafluoride
SFHA	Special Flood Hazard Area
SFPUC	San Francisco Public Utilities Commission
SHMA	Seismic Hazards Mapping Act
SIP	State Implementation Plan
SMCEHD	San Mateo County Health Department, Environmental Health Division
SMFCSD	San Mateo-Foster City School District
SMUHSD	San Mateo Union High School District
SO_2	Sulfur dioxide
SR 92	State Route 92
SWPPP	Stormwater Pollution Prevention Plan
TA	San Mateo County Transportation Authority
TAC	Toxic air contaminant
TCA	Trichloroethane
TCE	Trichloroethylene
TCM	Chloroform
TDM	Transportation demand management
TIA	Transportation Impact Analysis
TSM	Traffic Systems Management
TSCA	Toxic Substances Control Act
UBC	Uniform Building Code
UFC	Uniform Fire Code
UNFCCC	United Nations Framework Convention on Climate Change
U.S. EPA	United States Environmental Protection Agency

USGS	United States Geological Survey
URBEMIS	An urban emissions model
UST	Underground Storage Tank
VMT	Vehicle miles traveled
VOC	Volatile organic compound
WHO	World Health Organization
WWTP	Wastewater Treatment Plant
$\mu g/m^3$	Micrograms per cubic meter

I. INTRODUCTION AND SUMMARY

A. PURPOSE OF THE SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (EIR)

In compliance with the California Environmental Quality Act (CEQA), this Subsequent EIR describes the potential environmental impacts of the Gilead Sciences Integrated Corporate Campus Master Plan (2012 Master Plan or project), which is a long-term plan for the physical development of the Gilead Sciences biopharmaceutical campus. The 2012 Master Plan would amend the Vintage Park General Development Plan, under which the 2010 Corporate Campus Master Plan (2010 Master Plan) was approved. The amendments would increase the amount of building space and land area beyond that identified in the 2010 Master Plan. The 2010 Master Plan was examined in the Gilead Sciences Corporate Campus Master Plan EIR[1,2] (2010 EIR), which was certified on February 16, 2010.

This Subsequent EIR is designed to fully inform City of Foster City (City) decision-makers, other responsible agencies, and the general public of the currently-proposed project and the potential impacts of its approval. This Subsequent EIR also examines various alternatives to the 2012 Master Plan, and recommends a set of mitigation measures to reduce or avoid potentially significant impacts. The City of Foster City is the lead agency. This Subsequent EIR, along with the 2010 EIR, will be used by the City of Foster City, the Planning Commission, the City Council, and the public in their review of the proposed project and the various approvals required to implement the 2012 Master Plan, as described in Chapter II, Project Description. If the 2012 Master Plan is not approved by the City of Foster City, Gilead Sciences could proceed with development allowed under the 2010 Master Plan, including the development analyzed in Addenda #1 and #2, and other existing entitlements.

This Subsequent EIR evaluates the 2012 Master Plan on a programmatic level, in part because specific building designs have not yet been identified or proposed. Specific projects proposed as part of the 2012 Master Plan would be examined in light of this Subsequent EIR and the 2010 EIR to determine whether additional environmental documents would need to be prepared. Section 15168 of the *CEQA Guidelines* defines a programmatic environmental review (referred to as a program EIR) as follows:

> A program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either: (1) geographically; (2) as logical parts in the chain of contemplated actions; (3) in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or (4) as individual

[1] LSA Associates, Inc., 2009. *Gilead Sciences Corporate Campus Master Plan Environmental Impact Report (Public Review Draft).* January.

[2] LSA Associates, Inc., 2009. *Gilead Sciences Corporate Campus Master Plan Environmental Impact Report, Response to Comments Document*. July.

activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

Use of a program EIR can provide the following advantages: (1) provide an occasion for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action; (2) ensure consideration of cumulative impacts that might be slighted in a case-by-case analysis; (3) avoid duplicative reconsideration of basic policy considerations; (4) allow the Lead Agency to consider broad policy alternatives and program-wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts; and (5) allow reduction in paperwork.

This Subsequent EIR identifies general effects resulting from the development contemplated by the 2012 Master Plan. Individual development projects proposed within the 2012 Master Plan area (e.g., individual buildings) would receive project-specific environmental evaluation, as necessary, during the development review process. This review would likely involve the preparation of an Initial Study checklist, which would be used to determine whether the environmental impacts of an individual project are adequately addressed in this Subsequent EIR or whether further environmental review is required. (The conditions under which a Subsequent EIR is prepared and the content of such an EIR are described in subsection D., Subsequent EIR, of this chapter.)

B. REPORT ORGANIZATION

This Subsequent EIR is organized into the following chapters:

Chapter I – Introduction and Summary: Discusses the overall purpose of the Subsequent EIR; summarizes the organization of the document; discusses the function of a Subsequent EIR as described in the *CEQA Guidelines*; and summarizes the project and the impacts that would result from the project.

Chapter II – Project Description: Provides background information about the project, including the project's environmental review history; discusses existing conditions at the project site; describes the objectives and physical characteristics of the project; and identifies the required approvals.

Chapter III – Planning Policy: Evaluates the 2012 Master Plan in the context of applicable planning-related policies.

Chapter IV – Setting, Impacts, and Mitigation Measures: Describes the following for each environmental topic: existing conditions (setting); potential environmental impacts and their level of significance; and measures to mitigate identified significant impacts. Potential adverse impacts are identified by level of significance, as follows: less-than-significant (LTS), significant (S), and significant and unavoidable (SU). The significance of each impact is categorized before and after implementation of any recommended mitigation measures.

Chapter V – Alternatives: Provides an evaluation of alternatives to the proposed project, including the No Project alternative.

Chapter VI – Other CEQA Considerations: Provides additional specifically-required analyses of the proposed project's potential growth-inducing effects, significant irreversible changes, cumulative impacts, and effects found not to be significant.

Chapter VII – Report Preparation: Identifies preparers of the Subsequent EIR, references used, and persons and organizations contacted.

C. PROJECT UNDER REVIEW

The project under review is the Gilead Sciences 2012 Master Plan, which amends the Gilead Sciences 2010 Master Plan to incorporate and develop an additional approximately 32 acres acquired from Electronics for Imaging (EFI) adjacent to the 40-acre site comprising the 2010 Master Plan. This Subsequent EIR has been prepared to evaluate the environmental impacts of the Gilead Sciences 2012 Master Plan in the City of Foster City. The proposed project would redevelop a portion of the approximately 73-acre[3] project site, including demolition of up to 12 of the existing office and laboratory[4] buildings, and construction of up to 17 new buildings. Buildout of the 2012 Master Plan would result in a total of up to 22 office and laboratory buildings (comprising approximately 2,500,600 square feet of interior space) and 6,050 parking stalls on the project site. Specific utility infrastructure would be designed when individual building projects are proposed.

Currently, the project site, as shown in Figure II-2 (see Chapter II, Project Description), is developed with 17 buildings up to five stories in height, including NLB-1, which is currently under construction in the southeastern corner of the site. The total interior square footage of the existing buildings, including NLB-1, is 926,735 square feet. The site currently contains 3,847 parking stalls.

The 2010 EIR (as modified by Addenda #1 and #2) assumed the 2010 Master Plan would redevelop a 40-acre site (comprising over half of the 2012 Master Plan site), including the demolition of up to six of the existing office and laboratory buildings, and construction of up to seven new buildings. Buildout of the 2010 Master Plan would have resulted in a total of up to 17 new buildings (approximately 1,200,480 square feet of interior space) and 3,022 parking stalls on the site.

Development envisioned under the proposed 2012 Master Plan would require an amendment to the Vintage Park General Development Plan/Rezoning, an amended and restated Development Agreement, and various other City entitlements, including demolition, construction, and development permits. A more detailed description of the proposed project is provided in Chapter II, Project Description.

As noted above, if the 2012 Master Plan is not approved by the City of Foster City, Gilead Sciences could proceed with development allowed under the 2010 Master Plan.

[3] The 73-acre total excludes the segments of Lakeside Drive and Reef Drive within the project site, and Vintage Lake.

[4] Laboratory buildings include research and development uses.

D. SUBSEQUENT EIR

CEQA requires that public agencies document and consider the environmental implications of their discretionary actions and prepare an EIR if substantial evidence exists that a project may have a significant effect on the environment. As described previously, the 2010 EIR evaluated the environmental impacts of the 2010 Master Plan. However, the *CEQA Guidelines* establish a process for analyzing changes to a proposed project after the certification of the initial EIR.

When changes to an approved project are proposed, a lead agency evaluates the changes and documents their potential environmental effects by preparing either a Subsequent EIR, a Supplemental EIR, or an Addendum to the existing EIR. A Subsequent EIR is prepared if the revised project would potentially result in new significant impacts or substantially increase the severity of existing impacts, and these impacts would require major changes to the existing EIR. The Subsequent EIR functions as a stand-alone document, meaning that a reader can use it to understand the impacts of the revised project in their entirety. A Supplement to an EIR, by contrast, is prepared only if the potentially new or intensified impacts would require minor additions or revisions to the existing EIR. A Supplemental EIR is typically used in conjunction with the previous EIR, and may contain only select topical analyses. An Addendum is prepared if the revised project would result in no new potentially significant impacts beyond those identified in the initial EIR.

CEQA Guidelines Section 15162 lists the conditions requiring preparation of a Subsequent EIR:

- Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
- Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

  (A) The project will have one or more significant effects not discussed in the previous EIR or negative declarations;

  (B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

  (C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

  (D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

The 2012 Master Plan requires a Subsequent EIR because, per *CEQA Guidelines* Section 15162, it would represent a change to the 2010 Master Plan as it was defined in the 2010 EIR, and this change would require substantial revisions to the 2010 EIR due to potential new significant environmental impacts. In particular, the project would result in significant impacts to those environmental topics addressed in Chapter IV of this Subsequent EIR. These significant impacts are discussed in detail in Chapter IV, Setting, Impacts and Mitigation Measures. Alternatives to the project that would reduce the significant impacts of the 2012 Master Plan are discussed in Chapter V, Alternatives.

As discussed above, the Subsequent EIR is a stand-alone document intended to help readers understand the environmental implications of the 2012 Master Plan in their entirety. Thus the focus of the analysis is on the changes to existing environmental conditions that would result from implementation of the 2012 Master Plan. However, the Existing Entitlements Alternative in Chapter V, Alternatives, compares the environmental effects of the 2012 Master Plan to the environmental effects of existing site entitlements (i.e., the 2010 Master Plan).

E. SUBSEQUENT EIR SCOPE

On March 15, 2012, the City circulated a Notice of Preparation (NOP) to help identify the types of impacts that could result from the proposed project, as well as potential areas of controversy. The NOP was mailed to public agencies (including the State Clearinghouse), organizations, and individuals considered likely to be interested in the proposed project and its potential impacts. The public comment period ended on April 16, 2012. A public scoping session was also held on April 5, 2012. The NOP and written comments received during the scoping period are included as Appendix A.

As a result of an evaluation of the potential environmental impacts of the project, review of the 2010 EIR, consultation with City staff, and review of comments received as part of the scoping process, the following environmental topics are addressed as separate sections in this Subsequent EIR:

- Land Use;
- Visual Quality;
- Population, Employment, and Housing;
- Geology, Seismicity, and Soils;
- Hydrology and Water Quality;
- Hazards and Hazardous Materials;
- Transportation and Circulation;
- Noise;
- Air Quality;
- Public Services, Utilities, and Recreation; and
- Global Climate Change.

These are the same topics analyzed in detail in the 2010 EIR.

F. SUMMARY OF IMPACTS AND MITIGATION MEASURES

This summary provides an overview of the analysis contained in Chapter IV, Setting, Impacts, and Mitigation Measures. CEQA requires a summary to include discussion of: (1) potential areas of controversy; (2) significant project-level impacts, with proposed mitigation measures that would reduce or avoid those impacts; (3) cumulative impacts; (4) significant irreversible and unavoidable impacts; and (5) alternatives to the proposed project that would reduce or avoid the environmental impacts of the project. A summary is also required to discuss issues to be resolved, including the choice among alternatives, and whether or how to mitigate significant environmental effects.

1. Potential Areas of Controversy

Letters and verbal testimony (from the April 5, 2012, scoping session) received as comments on the Notice of Preparation (NOP) raised a number of potential areas of controversy, including: visual impacts; traffic congestion; noise; air pollution from vehicles; health impacts; traffic safety; and emergency access. In addition, some of the comments received in response to the NOP address the merits of the project itself and not the potential adverse environmental impacts that are the subject of this Subsequent EIR. The NOP and written comments are included in Appendix A of this EIR.

2. Significant 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."[5] Implementation of the proposed project has the potential to result in adverse environmental impacts in several environmental areas. Impacts in the following areas would be significant without the implementation of mitigation measures, but would be reduced to a less-than-significant level if the mitigation measures noted in this Subsequent EIR are implemented:

- Visual Quality
- Geology, Soils, and Seismicity
- Hydrology and Water Quality
- Hazards and Hazardous Materials
- Transportation and Circulation
- Noise
- Air Quality
- Global Climate Change

[5] Remy, Thomas, Moose, and Manley, 2007. *Guide to the California Environmental Quality Act*, p.184; Public Resources Code 15382; Public Resources Code 21068.

3. Significant Unavoidable Impacts

The proposed project would result in the following significant and unavoidable impacts:

- The project would conflict with General Plan noise policies adopted to avoid or mitigate an environmental impact.
- Project-related traffic would create a clearly noticeable permanent change in the noise environment.
- Operation of the project would result in a significant project-level and cumulative net increase in criteria pollutant emissions, resulting in a conflict with the Bay Area Air Quality Management District 2010 Clean Air Plan.

4. Alternatives to the Proposed Project

The five alternatives to the proposed project analyzed in Chapter V of this Subsequent EIR are summarized below. These alternatives (with the exception of the CEQA-mandated No Project alternative) were intended to achieve most of the basic objectives of the project while reducing or avoiding significant environmental effects. The following five alternatives were developed based on input from the Foster City Planning Commission, the public, City staff, and the consultant team to reduce the significant impacts of the project.

1. The **No Project alternative** assumes the continuation of existing conditions within the project site. The site would remain developed with existing office and laboratory uses in one- to five-story buildings. NLB-1, which is currently under construction, is assumed to be completed. Including NLB-1, the site would contain 926,735 square feet of building space under the No Project alternative.
2. The **Existing Entitlements alternative** assumes that the project site would be developed in accordance with the existing entitlements issued as part of approval of the 2010 Master Plan (including Addenda #1 and #2). The alternative would allow for a total of 1,363,480 square feet of building space on the site, including 445,432 square feet of laboratory space and 918,048 square feet of office space. Under this alternative, the approximately 32-acre former EFI property would remain in approximately its existing condition.[6] That site would contain only Building 301, which contains 163,000 square feet of building space.
3. The **Reduced Office alternative** assumes that overall development within the project site would be reduced compared to the 2012 Master Plan in order to reduce environmental impacts, with a focus on office development. The alternative would allow for a total of 1,905,480 square feet of building space on the site, including 1,460,048 square feet of office space and 445,432 square feet of laboratory space.

[6] The 1997 EFI General Development Plan/Rezoning allows for the development of 1,000,000 square feet of office, research and development, light assembly, exercise, cafeteria, and childcare uses on the approximately 32-acre former EFI property and adjoining property occupied by the building at 303 Velocity Way. The approved zoning includes the already-developed 303 Velocity Way building (295,000 square feet) and Building 301 (163,000 square feet). However, buildout to 1,000,000 square feet (total) would require supplemental environmental review. Thus this development is not assumed to be part of the Existing Entitlements alternative.

4. The **Reduced Laboratory alternative** assumes a slight reduction in overall development on the project site compared to the 2012 Master Plan while retaining approximately the same amount of laboratory space. The alternative would allow for a total of 2,244,240 square feet of building space on the site, including 1,268,048 square feet of office space, 952,592 square feet of laboratory space, and 23,600 square feet of materials storage and warehouse space.
5. The **Lakeside Drive Open alternative** assumes that the 2012 Master Plan would be implemented as currently proposed, but that Lakeside Drive would remain open between Reef Drive and Vintage Park Drive.

The No Project alternative is considered the environmentally superior alternative in the strict sense that environmental impacts associated with its implementation would be the least of all the scenarios examined (including the proposed project). However, the No Project alternative would fail to achieve any of the project's objectives. The secondary environmentally superior alternative would be the Existing Entitlements alternative, which would reduce overall development on the site by approximately 1,137,120 square feet. This reduction in development intensity would also reduce the impacts of the project on traffic congestion, noise, and air quality. The Lakeside Drive Open alternative would be the third most environmentally superior alternative because it would not cause the State Route (SR) 92 freeway segment between US 101 and Mariners Island Boulevard/Edgewater Boulevard to degrade to unacceptable levels during the AM peak hour, and would avoid impacts to the Lincoln Centre and North Foster City Shuttle routes.

G. SUMMARY TABLE

Information in Table I-1, Summary of Impacts and Mitigation Measures, has been organized to correspond with the environmental issues discussed in Chapter IV. The table is arranged in four columns: (1) impacts; (2) level of significance prior to mitigation; (3) mitigation measures; and (4) level of significance after mitigation. Levels of significance are categorized as follows:

LTS	Less Than Significant
S	Significant
SU	Significant and Unavoidable

For a complete description of potential impacts and recommended mitigation measures, please refer to the specific topical discussions in Chapter IV.

Table I-1: Summary of Impacts and Mitigation Measures

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
III. Planning Policy			
PLAN-1: The proposed 2012 Master Plan would conflict with noise policies adopted to avoid or mitigate an environmental impact.	S	PLAN-1: Implement Mitigation Measures NOI-1a and NOI-1b. See Section IV.H, Noise.	SU
A. Land Use			
There are no significant Land Use impacts.			
B. Visual Quality			
VIS-1: The proposed project would create additional sources of day and nighttime light and glare in Foster City.	S	VIS-1a: The specific reflective properties of project building materials shall be assessed by the City during Design Review prior to approval of each Specific Development Plan for the proposed project. Design review shall ensure that the use of reflective exterior materials is minimized and that proposed reflective material would not create additional daytime or nighttime glare. Glare shall be minimized per Section 17.068.080 of the Zoning Code.	LTS
		VIS-1b: Specific lighting proposals shall be submitted and reviewed as part of each Specific Development Plan for each new building on the project site and shall be approved by the City prior to issuance of a building permit. This review shall ensure that any outdoor night lighting for the project is downward facing and shielded so as not to create additional nighttime glare. Lighting shall conform to the performance standards established by Section 17.68.080 of the Zoning Code.	
C. Population, Employment, and Housing			
There are no significant Population, Employment, and Housing impacts.			

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
D. Geology, Seismicity, and Soils			
GEO-1: Project occupants would be subject to seismic shaking hazards.	S	GEO-1: Prior to the issuance of any site-specific grading or building permits, a design-level geotechnical investigation, in compliance with Foster City guidelines, shall be prepared by a licensed professional and submitted to the City Building Inspection Division for review and approval. The geotechnical investigation shall include a finding that the proposed development fully complies with the CBC, as amended by Foster City ordinances and Building Division requirements. The CBC and applicable Foster City ordinances were developed to ensure that compliant structures would be "earthquake-resistant," not "earthquake-proof." The CBC is intended to protect people inside buildings by preventing collapse and allowing for safe evacuation. Structures built according to code should resist minor earthquakes undamaged, resist moderate earthquakes without significant structural damage, and resist severe earthquakes without collapse. The report shall determine the proposed project's geotechnical conditions and address potential seismic hazards. The report shall identify building techniques appropriate to minimize seismic damage. In addition, the following guidance for the design-level geotechnical investigation shall be addressed: • Analysis presented in the geotechnical report shall conform to the California Division of Mines and Geology recommendations presented in the Guidelines for Evaluating Seismic Hazards in California. Briefly, the guidelines recommend that the report include: a site screening evaluation; evaluation of on- and off-site geologic hazards; quantitative evaluation of hazard potential; detailed field investigation; estimation of ground-motion parameters; evaluation of landslide, liquefaction, lateral-spreading and ground-displacement hazards; and recommendations to reduce identified hazards. • All recommendations, design criteria, and specifications set forth in the design-level geotechnical investigation shall be implemented as a condition of project approval.	LTS

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
GEO-2: Damage to structures or property related to man-made fill, unstable soils, or unstable subsurface materials resulting in settlement or differential settlement could occur.	S	GEO-2: The designers of the proposed project's building foundations and improvements (including sidewalks, roads, driveways, parking areas, and utilities) shall consider the site to be underlain by Bay Mud and/or non-engineered fill. The design-level geotechnical investigation shall include measures to ensure that potential damage related to unstable soils, including compressible materials and non-uniformly compacted fill, is minimized. Substantial settlement is expected across the site during the life of the project. Future settlement from placement of new loads, as well as existing loads, shall be taken into account in the design of all structures and utilities. Mitigation options may range from removal of the problematic soils, and replacement, as needed, with properly conditioned and compacted fill to design and construction of improvements to withstand the forces exerted during the expected settlement. All mitigation measures, design criteria, and specifications set forth in the site-specific design-level geotechnical report, and the City of Foster City Building Division standards, shall be followed to reduce impacts associated with problematic soils.	LTS
GEO-3: Damage to structures or property of the proposed project related to expansive (shrink-swell) and corrosive soils could occur.	S	GEO-3a: The design-level geotechnical investigation shall include an evaluation of the potential for expansive soils on the site and shall include measures to ensure potential damage related to expansive soils is avoided. Mitigation options may range from removal of the problematic soils, and replacement, as needed, with properly conditioned and compacted fill to design and construction of improvements to withstand the forces exerted during the expected shrink-swell cycles. All design criteria and specifications set forth in the design-level geotechnical investigation shall be implemented to reduce impacts associated with problematic soils.	LTS

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
GEO-3 *Continued*		GEO-3b: The design-level geotechnical investigation shall include an evaluation of the potential for corrosive soils on the site. If the results indicate corrosive soil conditions, appropriate measures to mitigate these conditions shall be incorporated into the design of project improvements that may come into contact with site soils. Wherever corrosive soils are found in sufficient concentrations, recommendations shall be made 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. In general, these recommendations are expected to include, but not be limited to, the following provisions. • Protect buried iron, steel, cast iron, ductile iron, galvanized steel, and dielectric coated steel or iron (including all buried metallic pressure piping) against corrosion from soil. • Protect buried metal and cement structures in contact with earth surfaces from chloride ion concentrations. • Use sulfate-resistant concrete mix for all concrete in contact with the ground. • Consult a corrosion expert during the project's detailed design phase to design the most effective corrosion protection. In addition, all recommendations of the geotechnical investigations shall be implemented.	
E. Hydrology and Water Quality			
HYD-1: Construction period and operation period project activities could result in degradation of water quality in Vintage Lake, Foster City Lagoon, and the San Francisco Bay by reducing the quality of stormwater runoff.	S	HYD-1a: Consistent with the requirements of the Statewide Construction General Permit, the project applicant shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential adverse impacts to surface water quality through the project construction period. The SWPPP, which shall be prepared for the entire project site, shall be designed to address the following objectives: 1) all pollutants and their sources, including sources of sediment associated with construction, construction site erosion, and all other activities associated with construction activity are controlled; 2) where not otherwise required to be under a	LTS

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HYD-1 *Continued*		RWQCB 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 4) authorized non-stormwater discharges from construction activity adhere to the Best Available Technology and Best Conventional Technology (BAT/BCT) standard; 5) calculations and design details as well as BMP controls for site run-on are complete and correct; and 6) stabilization BMPs installed to reduce or eliminate pollutants after construction are completed. The SWPPP shall be prepared by a Qualified SWPPP Developer. 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 or the Caltrans Storm Water Quality Handbook Construction Site BMPs Manual. The SWPPP shall include a construction site monitoring program that identifies requirements for dry weather visual observations of pollutants at all discharge locations and, as appropriate depending on the project Risk Level, sampling of the site effluent and receiving waters (receiving water monitoring is only required for some Risk Level 3 dischargers). A Qualified SWPPP Practitioner (QSP) shall be responsible for implementing the BMPs at the site. The QSP shall also be responsible for performing all required monitoring and BMP inspection, maintenance and repair activities. If the project is Risk Level 2 or 3, the project applicant shall also prepare a Rain Event Action Plan as part of the SWPPP.	

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HYD-1 *Continued*		HYD-1b: The project sponsor shall fully comply with the San Mateo Countywide Water Pollution Prevention Program, which maintains compliance with the NPDES Stormwater Discharge Permit. Responsibilities include, but are not limited to, designing BMPs into project features and operations to reduce potential impacts to surface water quality associated with operation of specific development projects undertaken as part of the 2012 Master Plan. These features shall be included in the drainage plan and final development drawings for individual projects. Specifically, the final design shall include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development. Applicable requirements of the San Mateo Countywide Water Pollution Prevention Program, as outlined in the December 2011 C.3 Stormwater Technical Guidance manual (or updated version) shall be incorporated into project designs, unless the City is specifically exempted from such requirements. Rainwater harvesting and reuse, and passive, low-maintenance BMPs (e.g., grassy swales, porous pavements) are preferred in all areas. Higher-maintenance BMPs 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 of all BMPs must be specified (as the City will not assume maintenance responsibilities for these features). The project sponsor 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 shall be promptly removed. In addition, an annual report documenting the inspection and any remedial action conducted shall be submitted to the Public Works Department and/or Building Inspection Division for review and approval. The SWPPP and drainage system maintenance plan must be approved by the City prior to approval of the grading plan.	

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HYD-1 *Continued*		HYD-1c: The project sponsor shall comply with all requirements of the City's Standard Conditions of Approval (COA). At a minimum, in accordance with the COAs, a hydrology/hydraulic analysis shall be completed on the existing storm drain system to verify that it is adequately sized to accommodate the runoff from the project. Modifications to the system shall be funded by the project sponsor, as needed. In addition, the existing storm drains shall be cleaned as necessary.	
F. Hazards and Hazardous Materials			
HAZ-1: Upset and accidents involving hazardous materials releases and transport and use during construction activities could result in adverse effects to public health or the environment.	S	HAZ-1a: 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 feasible. 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 leaks shall be 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.	LTS
		HAZ-1b: 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, and required personal protective equipment, as appropriate, in responding to the emergency. The contractor(s) shall submit these procedures to the City for approval prior to demolition or development activities.	

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HAZ-1 *Continued*		Compliance with these mitigation measures may occur in coordination with compliance with the Storm Water Pollution Prevention Plan and Best Management Practices required for the proposed project, as the measures identified above are also intended to protect the water quality of runoff from the site. See Section IV.E, Hydrology and Water Quality, for additional detail.	
HAZ-2: Exposure of construction workers and the public to existing or previously unknown contamination in soil and/or groundwater, and other safety hazards encountered during site grading and excavation activities, or exposure to hazardous materials following project development could result in adverse health effects.	S	HAZ-2a: If previously unknown contaminated soil and/or groundwater is encountered at any time during construction activities (e.g., identified by odor or visual staining, or if any underground storage tanks, abandoned drums, or other hazardous materials or wastes are encountered), the contractor(s) shall ensure that all appropriate response measures are taken to protect human health and the environment. A contingency plan for sampling and analysis of previously unknown hazardous substances shall be prepared by the contractor(s), with the approval of the City, prior to grading and earthwork activities. As part of this contingency plan, soil and/or groundwater samples shall be collected by a qualified environmental professional (e.g., Professional Geologist, Professional Engineer) prior to further work in the area, 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 a qualified environmental professional and submitted to the appropriate regulatory agency. The 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 or regulatory agency, as appropriate.	LTS

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HAZ-2 *Continued*		HAZ-2b: 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 groundwater (e.g., RWQCB Environmental Screening Levels (ESLs)). The engineered fill shall be characterized by a qualified environmental professional via representative sampling in accordance with U.S. EPA's SW-846 Test Methods, 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 Building Division for approval prior to transporting engineering fill onto the project site.	
		HAZ-2c: 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, 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 and submitted to the City for approval prior to commencement of demolition or development activities. The Waste Disposal and Hazardous Materials Transportation Plan may be prepared as an addendum to the Waste Management Plan required by Ordinance 523.	

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
G. Transportation and Circulation			
TRANS-1: The addition of project traffic would increase the average delay during the AM peak hour by 5 seconds at the intersection of Norfolk Street/East Third Avenue, which would operate at unacceptable LOS D (delay in excess of 45 seconds) under Cumulative Conditions.	S	TRANS-1: The project sponsor shall implement the TDM Program described in Appendix G of the TIA in accordance with the C/CAG TDM Requirements. As documented in Table G-1 of Appendix G, the TDM Program would reduce project vehicle trips by at least 8 percent. The traffic counts used to determine the site-specific trip generation rates were collected in 2008, when Gilead Sciences' transit mode share was 6.5 percent. Since 2008, the transit mode and van pool share has increased from 6.5 to 15.3 percent due to increased shuttle service. Gilead Sciences shall maintain this transit mode share through completion of the proposed project, which would result in an 8 percent reduction in vehicle trips added to the roadway network compared to modeled conditions (and a continued 15.3 percent transit mode split). With this reduction, the intersection of Norfolk Street/East Third Avenue would operate with 46 seconds of delay (compared to 45 seconds without the proposed project). Therefore, with implementation of the TDM Program, the proposed project would increase the intersection delay at Norfolk Street/East Third Avenue by less than 4 seconds, and this impact would be reduced to a less-than-significant level. The City shall require the implementation of an appropriate TDM Program for the life of the proposed project to reduce cumulative impacts on area roadways.	LTS
TRANS-2: The addition of project traffic would cause the freeway segment of eastbound SR 92 between US 101 and Mariners Island Boulevard/Edgewater Boulevard to degrade from acceptable LOS E to unacceptable LOS F during the AM peak hour resulting in a significant project contribution under Cumulative Conditions.	S	TRANS-2: The project sponsor shall implement Mitigation Measure TRANS-1. With the TDM Program in place, the mainline segment of eastbound SR 92 between US 101 and Mariners Island Boulevard/Edgewater Boulevard would operate at an acceptable LOS E during the AM peak hour.	LTS

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRANS-3: The proposed project would affect the routes of the Lincoln Centre shuttle and the North Foster City shuttle by closing Lakeside Drive.[1]	S	TRANS-3: The operator shall reroute these shuttles to avoid the closed-off portion of Lakeside Drive. The project sponsor shall pay for the costs associated with rerouting these shuttles. This mitigation measure shall be completed before the closure of Lakeside Drive. The North Foster City shuttle shall be re-routed to Chess Drive and Vintage Park Drive (rather than continuing north along Lakeside Drive). The Lincoln Centre shuttle route shall be re-routed to Mariners Island Boulevard via Reef Drive (rather than continuing south along Lakeside Drive), or to an alternative location that is mutually agreeable to Gilead Sciences and the Peninsula Traffic Congestion Relief Alliance. Implementation of this mitigation measure would restore the continuity of the shuttle routes and maintain shuttle access to the project site. The travel times of the shuttles are not expected to increase as a result of these changes as the shuttle travel distance would remain the same.	LTS
TRANS-4: The proposed project would add ridership demand to shuttles that are over-capacity.	S	TRANS-4: The project sponsor shall contribute to expansion of existing shuttle services or provide new shuttle services to local transit hubs, such as the East Hillsdale Caltrain Station and the Millbrae BART/Caltrain station, at a level commensurate with the project's shuttle ridership demand attributable to buildout and operation of one or more project elements (i.e., a net increase of 341 shuttle riders at project buildout). Gilead Sciences shall prepare an analysis of its projected shuttle ridership, develop a plan for how the ridership will be accommodated, and submit the plan to the City for approval during the use permit process. Contributions to expand existing shuttle service or provide new shuttle service shall be made concurrent with approval of a Specific Development Plan/Use Permit.	LTS

[1] This impact would occur only if Lakeside Drive is closed from Reef Drive to Vintage Park Drive.

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRANS-5: Project construction activities could interfere with circulation patterns.	S	TRANS-5: 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.	LTS

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
H. Noise			
NOI-1: Construction period activities would create significant temporary noise impacts on existing noise sensitive land uses adjacent to the site.	S	NOI-1a: The construction contractor(s) shall designate a "noise disturbance coordinator" who shall be responsible for responding to any local complaints about construction noise. The contractor(s) shall provide the City with the name and contact information of the coordinator. The disturbance coordinator shall determine the cause of the noise complaints (e.g., beginning work too early, bad muffler) and institute reasonable measures to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.	LTS
		NOI-1b: The construction contractor(s) shall implement the following measures at the project site during all demolition and construction activities: • Construction activities shall be limited to the hours of 8:00 a.m. to 5:00 p.m. on weekdays unless deviations from this schedule are approved in advance by the City. Non-construction activities may take place between the hours of 7:00 a.m. and 8:00 p.m. on weekdays and 9:00 a.m. and 4:00 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 7:00 a.m. and 8:00 a.m., except that when post-tension slab foundations are being poured, the concrete pumper may be set up but no concrete may be poured. Forklifts may operate on-site between the hours of 5:00 p.m. and 6:30 p.m. on weekdays. The Community Development Director may temporarily approve construction activities outside of the approved hours. • During all project site excavation and on-site grading, fit all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards. • Locate stationary noise generating equipment such as air compressors or portable power generators as far as possible from sensitive receptors. Construct temporary noise barriers to screen stationary noise-generating equipment when located near adjoining sensitive land uses. Temporary noise barriers could reduce construction noise levels by 5 dBA.	

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
NOI-1 *Continued*		• 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. • Utilize "quiet" air compressors and other stationary noise sources where such technology exists. • Route all construction traffic to and from the project site via designated truck routes and prohibit construction-related heavy truck traffic in residential areas where feasible. • Control noise from construction workers' radios to a point that they are not audible at existing residences bordering the project site. • Prepare and submit to the City for approval a detailed construction plan identifying the schedule for major noise-generating construction activities. • Pre-drill foundation pile holes to minimize the number of impacts required to seat the pile. • Use multiple pile driving rigs to expedite pile driving activities. • Use "acoustical blankets" to shroud the pile hammer. Implementation of these measures would reduce construction-related noise levels by 5 to 10 dBA. This reduction would be expected to reduce construction noise levels to below the City's threshold for construction noise impacts on noise sensitive land uses. Therefore, with implementation of this mitigation measure, project-related construction noise impacts would be reduced to a less-than-significant level.	

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
NOI-2: Mechanical equipment used as part of the project may generate noise levels that would exceed the noise level standards in the Foster City Municipal Code.	S	NOI-2: At the time that specific buildings envisioned under the Master Plan are proposed, the project sponsor shall conduct a design-level acoustical analysis to ensure that mechanical equipment noise resulting from the project complies with applicable General Plan policies and Municipal Code noise level limits. The acoustical analysis shall include a calculation of noise levels resulting from the proposed equipment at the nearest sensitive receiving land uses, an assessment of noise levels relative to applicable standards, and recommendations to control noise levels in accordance with the applicable limits. The report shall be completed and submitted to the Community Development Department for approval prior to the issuance of building permits.	LTS
NOI-3: Project-related traffic would create a clearly noticeable permanent change in the noise environment.	S	Implement Mitigation Measure TRANS-1.	SU
I. Air Quality			
AIR-1: Construction of the proposed project would generate air pollutant emissions that could violate air quality standards.	S	AIR-1: Consistent with guidance from the BAAQMD, the following actions shall be required of construction contracts and specifications for the project, as applicable, and Gilead Sciences shall ensure compliance with these actions: • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt tracked-out onto public roads adjacent to the project site shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (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.	LTS

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
AIR-1 *Continued*		• Construction equipment idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 2 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of the 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 the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • The project applicant shall post a publicly-visible sign with the telephone number and person to contact at the City of Foster City regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations. • All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or a moisture probe. • All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph. • Vegetative ground cover (e.g., fast-germinating native grass seed) or other plants that offer dust mitigation shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established. • The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time. The above measures would reduce construction-period air pollutant emissions to a less-than-significant level.	

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
AIR-2: Operation of the proposed project would generate air pollutant emissions that would exceed the BAAQMD criteria and violate air quality standards.	S	AIR-2: The project sponsor shall implement the TDM Program outlined in Mitigation Measure TRANS-1. Implementation of this measure would reduce trip generation by 8 percent beyond the TDM trip reduction accounted for in the project trip generation rates. The resulting emissions are shown in Table IV.I-9, which indicates that emissions would remain above the significance threshold. Therefore, this impact is considered significant and unavoidable.	SU
AIR-3: Operation of the proposed project would result in a significant cumulative net increase in criteria pollutant emissions.	S	AIR-3: Implement Mitigation Measure AIR-2.	SU
AIR-4: Construction of the proposed project would result in exposure of sensitive receptors to substantial pollutant concentrations.	S	AIR-4: For any phase of project development that includes buildings within 1,000 feet of a residential dwelling unit, prior to issuing building permits, a construction health risk assessment shall be conducted to assess emissions from all construction equipment during that phase of construction. Equipment usage shall be modified as necessary to ensure that equipment use would not result in a carcinogenic health risk of more than 10 in 1 million. If multiple buildings would be constructed simultaneously, a combined health risk assessment may be prepared.	LTS
AIR-5: Operation of the proposed project would result in exposure of sensitive receptors to substantial pollutant concentrations.	S	AIR-5: All future generator installations shall be located a minimum of 500 feet from any residential dwelling units or a health risk assessment shall be conducted for the proposed generators, with results indicating that any future generator installations and test schedules would not result in a carcinogenic health risk in excess of the following levels: • Increased non-cancer risk of greater than 1.0 on the non-hazard index (chronic or acute); • Ambient $PM_{2.5}$ increase greater than 0.3 µg/m^3 annual average; • Increased cancer risk greater than 100.0 in one million from all sources within 1,000 feet; • Increased non-cancer risk of greater than 10.0 on the non-hazard index (chronic) from all sources within 1,000 feet; or • Ambient $PM_{2.5}$ increase greater than 0.8 µg/m3 annual average from all sources within 1,000 feet.	LTS

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
AIR-6: Operation of the proposed project would generate air pollutant emissions that would exceed the BAAQMD criteria and violate air quality standards, resulting in an inconsistency with the Clean Air Plan.	S	AIR-6: Implement Mitigation Measure AIR-2.	SU
J. Public Services, Utilities, and Recreation			
There are no significant Public Services or Utilities impacts.			
K. Global Climate Change			
GCC-1: Operation of the proposed project would exceed applicable GHG emissions thresholds.	S	GCC-1: Gilead Sciences shall prepare and submit a Campus-wide Sustainability Plan, for approval by the Community Development Director, that identifies the specific design and operational measures that will be implemented to meet the 4.6 metric tons of CO_2e per employee per year standard. The Campus-wide Sustainability Plan may include a combination of energy, water, solid waste, and transportation measures and shall include specific implementation and monitoring measures, confirmation of which shall be submitted to the Community Development Director upon request.	LTS

Source: LSA Associates, Inc., 2012.

II. PROJECT DESCRIPTION

This chapter describes the Gilead Sciences Integrated Corporate Campus Master Plan (project) that is evaluated in this Subsequent Environmental Impact Report (EIR). The proposed project would amend the Vintage Park General Development Plan (the boundaries of which are shown in Figure II-1) to include the 2012 Gilead Sciences Corporate Campus Master Plan. The 2012 Gilead Sciences Corporate Campus Master Plan is a long-term plan for the physical development of the Gilead Sciences biopharmaceutical campus, and would include new office, laboratory, and material storage/warehouse space.

The following sections include a discussion of: the project's background and previous environmental review; existing conditions at the site; project objectives; the physical and operational characteristics of the proposed project; changes to the project analyzed in the 2010 Gilead Sciences Corporate Campus Master Plan EIR (which this document supplements); and the intended uses of this Subsequent EIR.

A. BACKGROUND AND PRIOR ENVIRONMENTAL REVIEW

This section describes the planning and environmental review background of the proposed project.

1. 2010 Master Plan Background

The project site is located in the Vintage Park General Development, a 132-acre mixed-use development primarily consisting of office and research and development uses (see Figure II-1). The Gilead Sciences corporate headquarters have been located on the project site since early 1988.

In 2008, Gilead Sciences proposed a Master Plan for a portion of the larger Vintage Park. That Master Plan was ultimately approved in 2010. The 2010 Master Plan was intended to provide for the long-range planning and development of the South Campus,[1] an approximately 40-acre portion of the current project site. Figure II-1 shows the project site location and Figure II-2 shows an existing aerial view, with the North and South Campuses delineated. The 2010 Master Plan includes the following specific elements:

- An increase in building space on the South Campus from 629,154 square feet to 1,200,480 square feet (a net increase of 571,326 square feet);

[1] The term "South Campus" refers to the approximately 40-acre area covered by the 2010 Master Plan in the larger Vintage Park plan area and is contrasted with the "North Campus" – also in Vintage Park – which was planned and partially developed by Electronics for Imaging (EFI) in the late 1990s. In the 2010 Master Plan, the South Campus included Buildings 300 and 310, as shown in Figure II-2. In the 2012 Master Plan, these buildings would be located in the North Campus, as shown in Figure II-4. The boundary lines of the North and South Campuses were redrawn as part of the 2012 Master Plan.

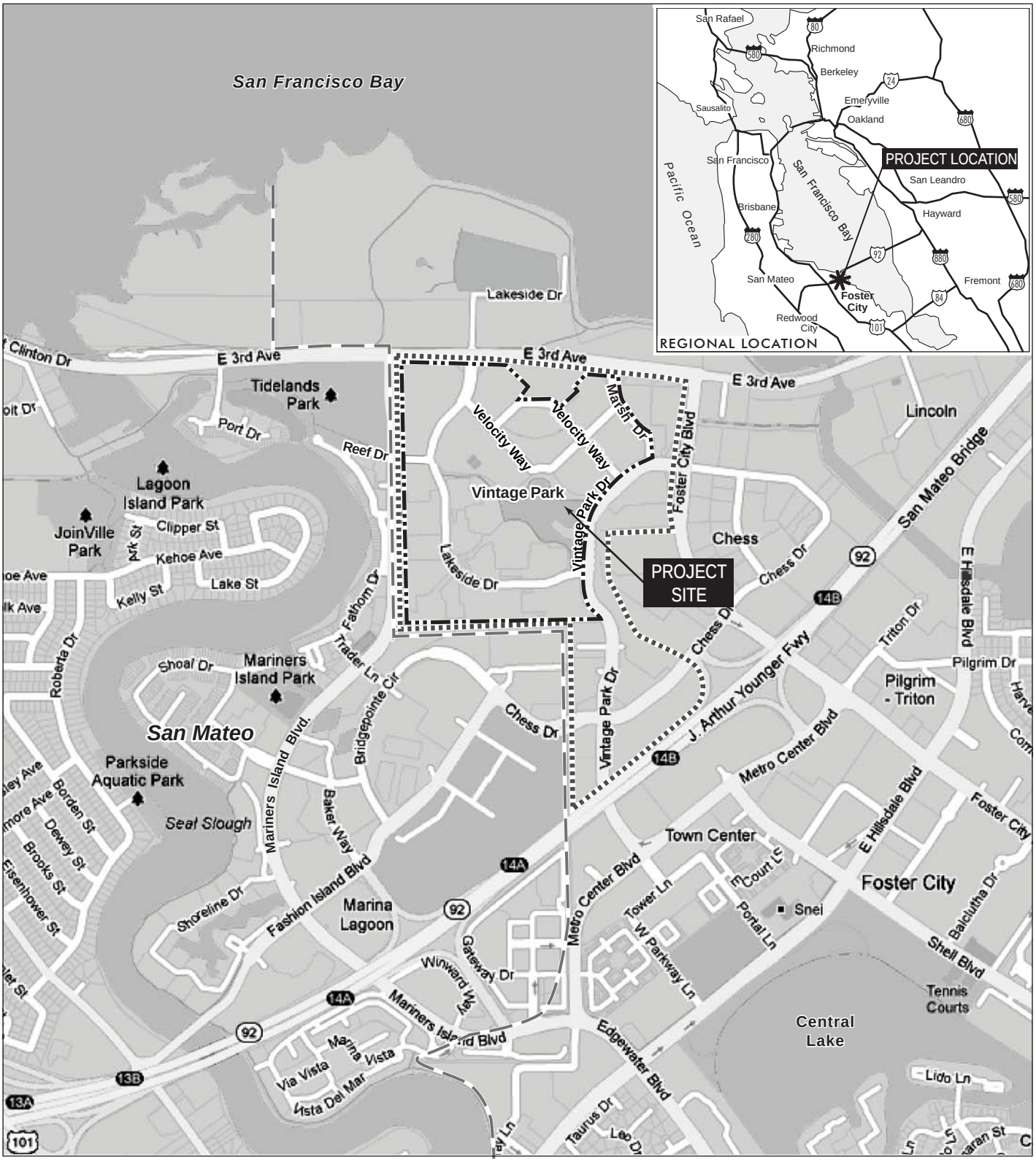

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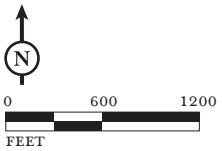
FIGURE II-1



Project Site

Vintage Park

City Boundary

Gilead Sciences Integrated
Corporate Campus Master Plan Subsequent EIR

Project Site Location

SOURCES: GOOGLE MAPS; LSA ASSOCIATES, INC., 2012.

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LSA

FIGURE II-2

Project Site

335 Existing Buildings

North Campus
(Former EFI Property)

South Campus
(2010 Master Plan)

Building Under Construction

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Gilead Sciences Integrated
Corporate Campus Master Plan Subsequent EIR
Existing Aerial View

SOURCES: TERRASERVER, 2-3-12; LSA ASSOCIATES, INC., 2012.

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- Demolition of up to eight of the existing office and laboratory buildings and construction of up to eight new buildings (such that the campus would ultimately contain up to 17 buildings);
- Provision of 3,060 parking stalls (a net increase of 1,067 stalls from existing levels), including 1,315 spaces in parking garages and 1,745 spaces in surface lots; and
- The partial closure of Lakeside Drive and conversion of this portion of the public street to a private street owned and maintained by Gilead Sciences, to provide additional landscaping and enhance pedestrian circulation within the campus.

The 2010 Master Plan addresses development that could occur over a 15- to 20-year project buildout period, beginning in 2010 and ending in 2025 to 2030. The 2010 Master Plan governs general planning of the South Campus (including building square footage and massing), but does not establish the specific location, size, style, or structure of individual buildings.

2. 2010 Master Plan EIR

A Draft EIR was prepared to evaluate the potential effects of the 2010 Master Plan and was made available for public review on January 21, 2009. The public hearing on the Draft EIR was held on February 5, 2009.[2] The Final EIR was certified and the project was approved on February 16, 2010.[3] As part of project approval, the City adopted a Statement of Overriding Considerations for the four significant and unavoidable impacts identified in the Final EIR:

> PLAN-1: The proposed 2010 Master Plan would conflict with transportation policies in the General Plan adopted to avoid or mitigate an environmental impact.
>
> PLAN-2: The proposed 2010 Master Plan would conflict with noise policies adopted to avoid or mitigate an environmental impact.
>
> TRANS-1: The addition of Gilead Sciences traffic would increase the average delay during the AM peak hour by 4 seconds at the intersection of Foster City Boulevard/Marlin Avenue, which is expected to operate at unacceptable level of service (LOS) F under Cumulative Conditions.
>
> NOI-1: Construction period activities could create significant temporary noise impacts on existing noise sensitive land uses adjacent to the site.

In addition to the No Project alternative, the Final EIR included an analysis of the following alternatives to the 2010 Master Plan:

[2] LSA Associates, Inc., 2009. *Gilead Sciences Corporate Campus Master Plan Environmental Impact Report (Public Review Draft)*. January.

[3] LSA Associates, Inc., 2009. *Gilead Sciences Corporate Campus Master Plan Environmental Impact Report, Response to Comments Document*. July.

- The Lakeside Drive Open alternative, which assumed the same development layout and configuration as in the proposed 2010 Master Plan, except that Lakeside Drive would not be subject to closure and privatization.
- The Reduced Density alternative, which assumed a reduction of 25 percent in the amount of total building square footage on the site. This alternative would result in a total of up to 900,360 square feet of office and laboratory space on the South Campus, a net increase of 428,495 square feet over the existing buildings.
- The Consolidated Building (Two Office Building) alternative, which assumed the same amount of interior square footage would be constructed on the campus as proposed in the 2010 Master Plan. However, this alternative would house all the office and research and development uses in five buildings, instead of eight. The office uses would be located in one eight-story and one ten-story building located near Vintage Lake. The research and development laboratory uses would be located in one three-story building that would border Mariners Island Boulevard and one four-story building that would be located at the southwestern intersection of Vintage Park Drive and Lakeside Drive.

The Reduced Density alternative was identified as the environmentally superior alternative (after the No Project alternative), primarily because the Reduced Density alternative would avoid the significant impact associated with cumulative traffic congestion at the intersection of Foster City Boulevard and Marlin Avenue.

After certification of the Final EIR, the 2010 Master Plan underwent a series of changes for which two addenda[4] to the certified Final EIR were prepared. These addenda are described below.

2011 Addendum (Addendum #1).[5] Addendum #1 was prepared primarily for proposed changes to New Lab Building-1 (NLB-1)[6] located in the southeastern corner of the site. The structure would change from a three-story (73 feet in height at the top of the roof screen) 90,375-square-foot building to a four-story (90 feet in height at the top of the roof screen/penthouse) 192,054-square-foot building. Other proposed campus features, including the location of a parking structure and truck access roads, were also changed. The total square footage of development remained the same, with a minimum of 445,432 square feet of laboratory uses and a maximum of 755,048 square feet of office uses (requiring a total of 3,022 parking spaces). On August 4, 2011, the Planning Commission found that Addendum #1 to the Final EIR adequately analyzed the environmental impacts associated with the proposed changes to NLB-1. See Figure II-2 for the existing aerial view of the site, and the footprint of NLB-1 as evaluated in Addendum #1. NLB-1 is considered part of the baseline for the purpose of the environmental analysis in this Subsequent EIR, along with existing facilities on the project site.

[4] As noted in Chapter I, Introduction and Summary, use of an addendum to a certified EIR is allowed when a revised project would result in no new potentially significant impacts beyond those identified in the initial EIR.

[5] Foster City, City of, 2011. *Addendum No. 1 to Final Environmental Impact Report for Gilead Sciences Corporate Campus Master Plan.* July.

[6] New buildings within the 2010 Master Plan are referred to as either NLB, for "new lab building," or NOB, for "new office building," along with a corresponding number. This naming convention was continued for the two addenda prepared for the 2010 Master Plan.

2012 Addendum (Addendum #2).[7] Since the approval of the 2010 Master Plan and Addendum #1, Gilead Sciences expanded its commercial product line into new therapeutic areas and increased its emphasis on research and development activities, requiring further changes to the Master Plan. Addendum #2 evaluated the substitution of one of the three office buildings adjacent to Vintage Lake (New Office Building-3 [NOB-3] in the 2010 Master Plan) with a two- to eight-story laboratory building (NLB-2, as shown in Figure II-3). To remain within the allowable amount of development, as identified in the 2010 Master Plan and Addendum #1, the new laboratory building (NLB-2) absorbed the building square footage allocated to another proposed laboratory building elsewhere on the campus (NLB-3 in the 2010 Master Plan). Addendum #2 also added a Pilot Laboratory adjacent to the eight-story laboratory building. Addendum #2 maintained the same level of development proposed as part of the 2010 Master Plan and changed in Addendum #1 (a total of 1,200,480 square feet) with a minimum of 445,432 square feet of laboratory uses and a maximum of 755,048 square feet of office uses. On July 19, 2012, the Planning Commission recommended City Council approval of Addendum #2 to the Final EIR and found that Addendum #2 adequately analyzed the environmental impacts associated with substitution of one of the three office buildings adjacent to Vintage Lake with a two- to eight-story laboratory building and changes to the layout of the Master Site Plan. On September 20, 2012 the City Council adopted Resolution 2012-68, finding that Addendum #2 adequately analyzed impacts related to amendments to the General Development Plan. On September 24, 2012, the City Council adopted Ordinance No. 569, approving the amendment to the Gilead Sciences Corporate Campus Master Plan. See Figure II-3 for the amended General Development Plan, as evaluated in Addendum #2.

3. Subsequent Land Purchases

Following completion of the 2010 Master Plan, Gilead Sciences purchased an additional approximately 32 acres of campus space from Electronics for Imaging (EFI), which comprises the North Campus (as shown on Figure II-2). The North Campus includes a five-story office building located at 301 Velocity Way. As part of the acquisition of the North Campus, Gilead acquired by assignment a Development Agreement entered into between EFI and the City on July 10, 1997, which is in effect until the earlier date of April 10, 2013, or the effective date of an amended and restated Development Agreement for the project analyzed in this Subsequent EIR. In addition to the Development Agreement, a General Development Plan/Rezoning was approved for the North Campus on May 19, 1997 (and amended on July 17, 2000), which allows for a total of 1,000,000 square feet of office, research and development, light assembly, exercise, cafeteria and childcare uses, including the already-developed 303 Velocity Way building (295,000 square feet), which is owned by Gilead Sciences as of November 1, 2012. The environmental effects of the General Development Plan/Rezoning for the North Campus were evaluated in the *Electronics for Imaging, Inc. Vintage Park Development Environmental Impact Report (SCH# 96102060).*[8]

[7] LSA Associates, Inc., 2012. *Addendum No. 2 to the Gilead Sciences Corporate Campus Master Plan Final Environmental Impact Report.* February.

[8] Brady and Associates, 1997. *Electronics for Imaging, Inc. Vintage Park Development Draft Environmental Impact Report.* January.

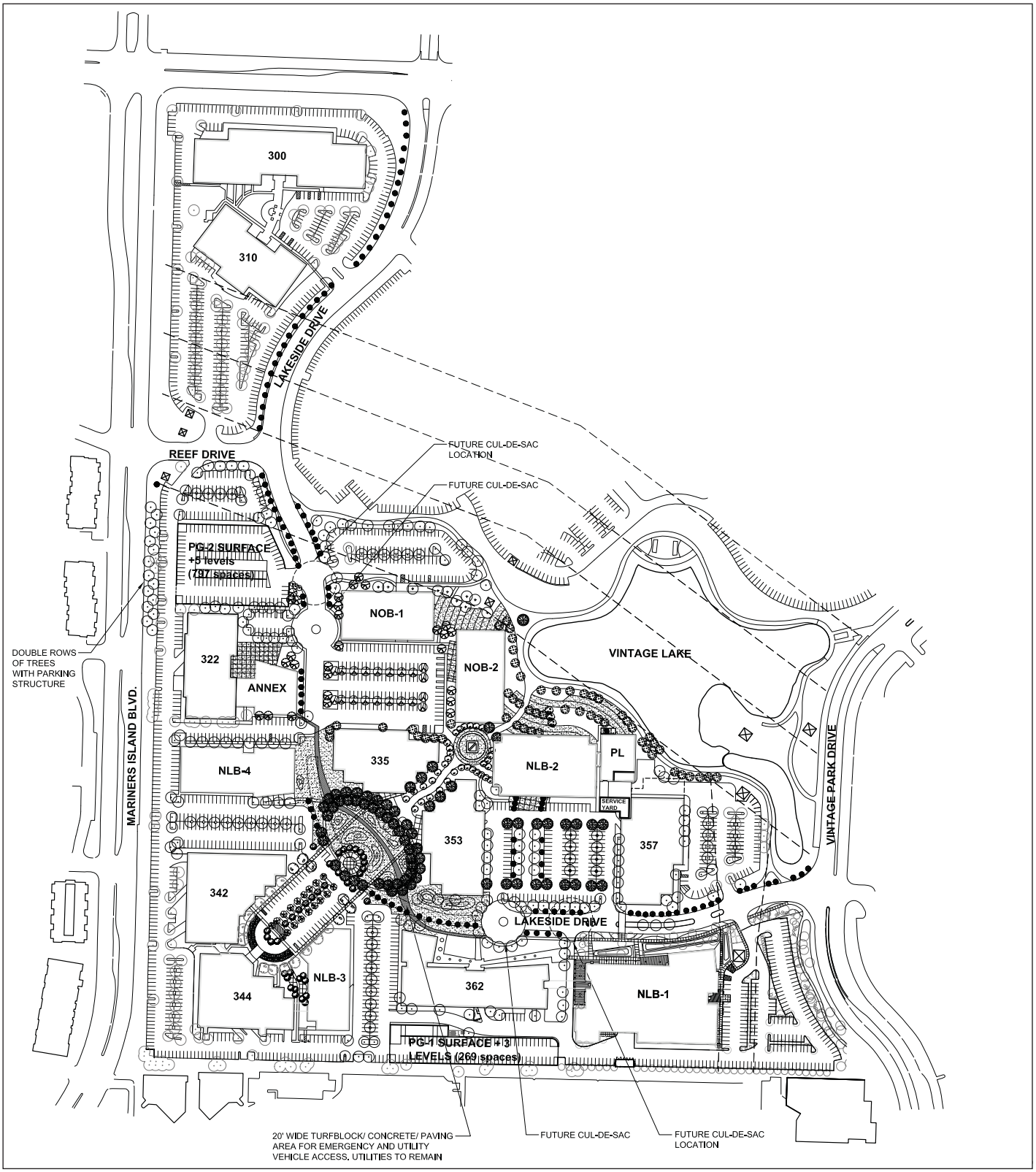

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FIGURE II-3

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Gilead Sciences Integrated
Corporate Campus Master Plan Subsequent EIR
Maximum Building Envelope,
2012 Addendum (Addendum #2)

SOURCE: DES ARCHITECTS-ENGINEERS, MAY 2012.

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The integrated master plan for the South Campus and North Campus is the subject of this Subsequent EIR. As of November 1, 2012, Gilead Sciences owns Building 303 on Velocity Way. However, that building is not a part of the project site.

B. PROJECT SITE

The following section describes the project site's location, surrounding land uses, and site characteristics. Gilead Sciences, a biopharmaceutical company, occupies the entire project site. The Foster City campus comprises the Gilead Sciences corporate headquarters. The primary business market areas for Gilead Sciences include drugs for HIV/AIDS and chronic hepatitis, cardiovascular conditions (such as pulmonary arterial hypertension and resistant hypertension) and respiratory diseases (such as influenza and cystic fibrosis).

1. Location

The 72.59-acre project site is located in Foster City, within the Vintage Park General Development Plan. Foster 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. Vintage Park, as stated previously, is a 132-acre mixed-use development located in the northwestern corner of Foster City. Figure II-1 shows the project site's regional and local context.

Regional vehicular access to the project site is provided via the Foster City Boulevard exit from State Route 92 (SR 92), just over ¼-mile southeast of the project site, and the East Third Avenue exit from Highway 101, to the northwest of the site. Local access to the project site is provided via Foster City Boulevard, East Third Avenue, Vintage Park Drive, and Mariners Island Boulevard.

2. Surrounding Land Use

The project site is located in an urban area and is surrounded by a mixture of uses including:

- The former EFI headquarters (303 Velocity Way) and Mariners Point Golf Course to the north;
- Office and light industrial uses to the east;
- Home Depot, Hilton Garden Inn, and Bridgepointe Shopping Center (City of San Mateo) to the south; and
- A mix of multi-family and single-family residential uses and the lagoon to the west of Mariners Island Boulevard (City of San Mateo).

Existing land uses within the project site are depicted in Figure II-2, and land uses around the project site are illustrated in the aerial photo included as Figure IV.A-1 in Section IV.A, Land Use.

3. Site Characteristics

The project site is generally level and is bounded by East Third Avenue to the north, Vintage Park Drive and Marsh Drive to the east, a variety of retail and office uses to the south, and Mariners Island Boulevard to the west.

At the time the 2010 Master Plan was originally proposed, the approximately 40-acre project site consisted of 17 buildings on 15 parcels (Assessor's Parcel Numbers (APNs): 094-901-290, -300, -310, -340, -370, -380, -390, -400, -410; and 094-904-290, -300, -310, -320, -330, -340). These buildings and parcels collectively comprise the South Campus (see Figure II-2). After approval of the 2010 Master Plan, two buildings were demolished. One building (NLB-1) is being constructed as of October 2012 on the site of the two demolished buildings. Thus there are currently 16 existing or under-construction buildings on the South Campus.

The 2012 Master Plan would integrate the North Campus and South Campus. The approximately 33-acre North Campus consists of one building,[9] surface parking lots, vacant land, and Vintage Lake on eight parcels (APNs: 094-122-050, -060, -070, -080, -110, -120, -130, and -150). Thus, the approximately 73-acre integrated North and South Campuses have a total of 17 existing buildings and 23 parcels. The project site is completely developed except for three vacant parcels (APNs: 094-122-050, -060, and -150) in the North Campus.

a. Existing Buildings. The project site is developed with office and research and development uses along with associated surface parking and landscaping. There are 15 mostly one- and two-story buildings on the South Campus. NLB-1 (currently under construction) will be four stories. The North Campus contains one five-story building (Building 301). Table II-1 summarizes information about the existing buildings on the project site; these buildings are shown in Figure II-2. The parcels on the site are owned by Gilead Sciences.

b. Other Land Uses. The existing buildings on the project site are primarily used for office, laboratory, and accessory uses; campus uses include the handling of hazardous materials typically used in biopharmaceutical research. No animal testing is conducted in the project site. Two cafeterias are located in buildings on the project site and are intended to encourage employees to stay on campus for meals. One fitness center offers programs that include walking, table tennis, yoga classes, and health and wellness seminars. In addition, there is a 150-person auditorium used primarily for lectures and presentations for employees and visitors. The auditorium is located in Building 362 (along the southern edge of the project site). A major landscape feature of the site is Vintage Lake, a man-made lake located near the center of the site.

c. Employment. As of 2012, the Gilead Sciences campus had a staff of approximately 1,800 employees (globally, Gilead Sciences employs a total of 4,500 people). Of the 1,800 employees based in Foster City, approximately 667 work in sales and typically operate away from the project site. In 2008, Gilead's 10-year strategic plan projected that the employee count at the Foster City campus would grow to approximately 3,100 by the year 2018. Of these 3,100 total employees, it was estimated that approximately 600 would typically work away from the project site.

[9] The project site excludes the building at 303 Velocity Drive (APN #094-122-140), which Gilead Sciences owns as of November 1, 2012. The building is not part of the proposed project.

d. Open Space, Landscaping and Plazas. Approximately 59 percent of the North Campus and approximately 79 percent of the South Campus (not including the surface area of Vintage Lake or the paved portion of the Lakeside Drive right-of-way) is covered with impervious surfaces, in the form of paved surface parking lots and one-, two-, four- and five-story buildings, as shown on Figure II-2. Approximately 69 percent of the combined North and South Campuses are covered with impervious surfaces. The North Campus, with the exception of Building 301, is composed of surface parking lots and vacant land. Open space is provided around the perimeter of Vintage Lake, where ground cover and trees have been planted on either side of a path that circles the lake. In addition, trees and other landscaping are located in and around surface parking lots and in between buildings.

Table II-1: Existing Buildings

Building Number	Building Use	Building to be Removed	Stories	Building Square Footage
300	Office	No	2	87,560
301	Office	No	5	163,000
310	Office	No	2	53,440
320	Office/Laboratory	Yes	1	25,728
322	Office	Yes	2	42,048
324	Laboratory	Yes	1	22,272
331	Office	Yes	1	20,737
333	Office	Yes	2	37,104
335	Laboratory	Yes	1	24,768
342	Laboratory	Yes	1	31,000
344	Laboratory	Yes	1	29,763
346	Laboratory	Yes	1	18,117
353	Laboratory	Yes	1	27,648
355	Office	Yes	2	54,828
357	Laboratory	No	1	33,408
362	Laboratory	No	2	63,260
NLB-1	Laboratory	No	4	192,054
			Total	**926,735**

Note: 303 Velocity Way is not part of the project site. NLB-1 is under construction as of May 2012.

Source: DES Architects + Engineers, 2012.

e. Circulation. The interior of the site is primarily accessed by Lakeside Drive and Velocity Way, with access from the north via East Third Avenue, from the east via Marsh Drive and Vintage Park Drive, and from the west via Reef Drive and Mariners Island Boulevard. Pedestrian facilities include sidewalks along Lakeside Drive, Reef Drive, and Velocity Way. In addition, pedestrian trails are located along the northern shoreline of Vintage Lake, and walkways are provided between campus buildings.

f. Parking. The site currently contains 3,847 parking stalls (1,962 in the South Campus and 1,885 in the North Campus), as shown on Figure II-2. All the parking stalls are located in surface parking lots. These surface parking lots are located around each building on the campus, and each is accessible from Lakeside Drive or Velocity Way.

As part of the 2009 sale of the North Campus, EFI retained access to parking on the project site to serve Building 303. On January 19, 2009, Gilead Sciences entered into a Reciprocal Easement Agreement and Declaration of Covenants, Conditions and Restrictions (REA) with EFI. The REA granted EFI an easement to utilize parking spaces on the project site. Gilead Sciences retained the right to relocate the parking easement area to another location within 300 feet of the entrance to Building 303, as required by the Foster City Municipal Code, with 30 days written notice to EFI. The REA remained in effect until November 1, 2012, when Gilead Sciences assumed ownership of Building 303.

4. Land Use Designations

The following subsection provides a brief overview of land use designations within the project site. Chapter IV, Planning Policy, provides additional discussion of applicable planning policies.

a. City of Foster City General Plan. The existing General Plan designation of the project site is Research/Office Park. Areas with this designation contain office, research and development, and manufacturing establishments whose operations are relatively clean and quiet. The General Plan offers some guidance regarding the floor area ratio (FAR) of existing buildings in the Vintage Park area; however there are no FAR standards for new development. The General Plan states that existing land use intensities within Vintage Park have an FAR generally ranging from 0.2 to 0.6 and most land uses designated Research/Office Park have an FAR of 0.2 to 0.4. The General Plan further states that vacant Vintage Park sites are anticipated to have an FAR of up to 1.0. The City is currently updating its 1993 General Plan, including the Land Use and Circulation Element, which is expected to be available for public review in early 2013. However, the General Plan designation of the project site is not expected to change.

b. City of Foster City Zoning. The project site is zoned Commercial Mix/Planned Development (CM/PD). The CM District is intended to be combined with the PD Combining District, and only allows those uses specified within the General Development Plan required in connection with the PD zoning district approval. The PD District and CM District are designed to accommodate various types of development and were established to allow flexibility in design. Under this zoning designation, a Specific Development Plan/Use Permit is required to specify permissible uses, area, bulk, yard, and height regulations. Specific findings must be recommended by the Planning Commission (and adopted by the City Council) in order to approve or conditionally approve a General Development Plan, as identified in Section 17.36.030 of the City's Zoning Ordinance. A General Development Plan is required to be a graphic and schematic plan with a number of required components, including a map showing proposed land uses, buildings, open space, and a circulation system. Refer to Chapter IV, Planning Policy, for additional detail about the PD District process.

c. Vintage Park Master Plan. The project site was originally developed as part of the Vintage Park Master Plan,[10] which was first approved in 1981. The original Vintage Park Master Plan and associated Design Guidelines (first approved in 1984) envisioned a business and working community tightly integrated with the various land uses within and surrounding the site. The Vintage Park Master Plan, as originally proposed, included executive offices, commercial/retail, research and development, and light industrial uses. The various uses were to be integrated with open space to create a park-like setting.

C. PROJECT OBJECTIVES

The proposed project would result in the redevelopment of portions of an approximately 73-acre campus with a mix of office uses, laboratories, materials storage/warehouse, and ancillary land uses. The objectives of the proposed project are to:

- Allow for the development of a unified corporate campus;
- Allow Gilead Sciences the flexibility to respond to its dynamic business needs in the arrangement of buildings and uses throughout the campus while limiting off-site traffic impacts;

[10] The Master Plan is considered a General Development Plan, per City zoning regulations.

- Accommodate a total of 5,500 employees;
- Provide a safe pedestrian-oriented environment;
- Provide an amount of parking on-site that reflects expected demand;
- Develop the campus in a manner that promotes walkability and with buildings that conserve energy and water;
- Reduce the administrative burdens on the City through a flexible General Development Plan;
- Develop the campus and buildings to be consistent with the Vintage Park Design Guidelines; and
- Maintain flexibility in the timing of development, and designation and location of land uses to support Gilead Sciences' dynamic business needs in laboratory, office, and ancillary support space.

D. PROPOSED PROJECT

This section provides a description of the proposed project based on information provided to LSA Associates, Inc., by the City and Gilead Sciences in the spring of 2012. The proposed project is intended to establish a set of guiding principles for long-range planning on the project site in order to ensure integrated development of the North Campus and South Campus.

On November 29, 2011, Gilead Sciences submitted a request to amend the Vintage Park General Development Plan to integrate the approved South Campus with the newly-acquired North Campus. The 2012 Master Plan, as shown in conceptual form in Figure II-4, is intended to incorporate the additional parcels and respond to the business needs of Gilead Sciences for up to an approximately 15- to 20-year buildout period (2013 through 2028 to 2033).[11] The development diagram shown in Figure II-4 illustrates the maximum buildout potential of the project, and not specific building massing or footprints. Figure II-5 shows a perspective of this conceptual plan.

This Subsequent EIR focuses on the changes between existing conditions and the currently-proposed 2012 Master Plan. These changes are summarized in Table II-2. Upon certification, this Subsequent EIR would supersede the EIR for the 2010 Master Plan.

The 2010 Master Plan (as modified by Addendum #1 and Addendum #2) anticipated the demolition of up to six of the existing buildings (Buildings 320, 324, 331, 333, 346, 355), as shown on Figure II-2)[12] and the construction of up to seven[13] new office and laboratory buildings (NOB-1, NOB-2, NLB-2, NLB-3, NLB-4, an Annex, and Pilot Lab), and two parking garages, as shown in Figure II-3.

[11] The Development Agreement for the project, which is under negotiation as of October 2012, is expected to be generally consistent with the overall project buildout time frame assumed in this Subsequent EIR.

[12] Note that Buildings 366 and 368 were demolished as part of the construction of NLB-1 and thus do not appear in Figure II-2.

[13] The seven new buildings listed here do not include New Lab Building-1 (NLB-1), which is currently under construction.

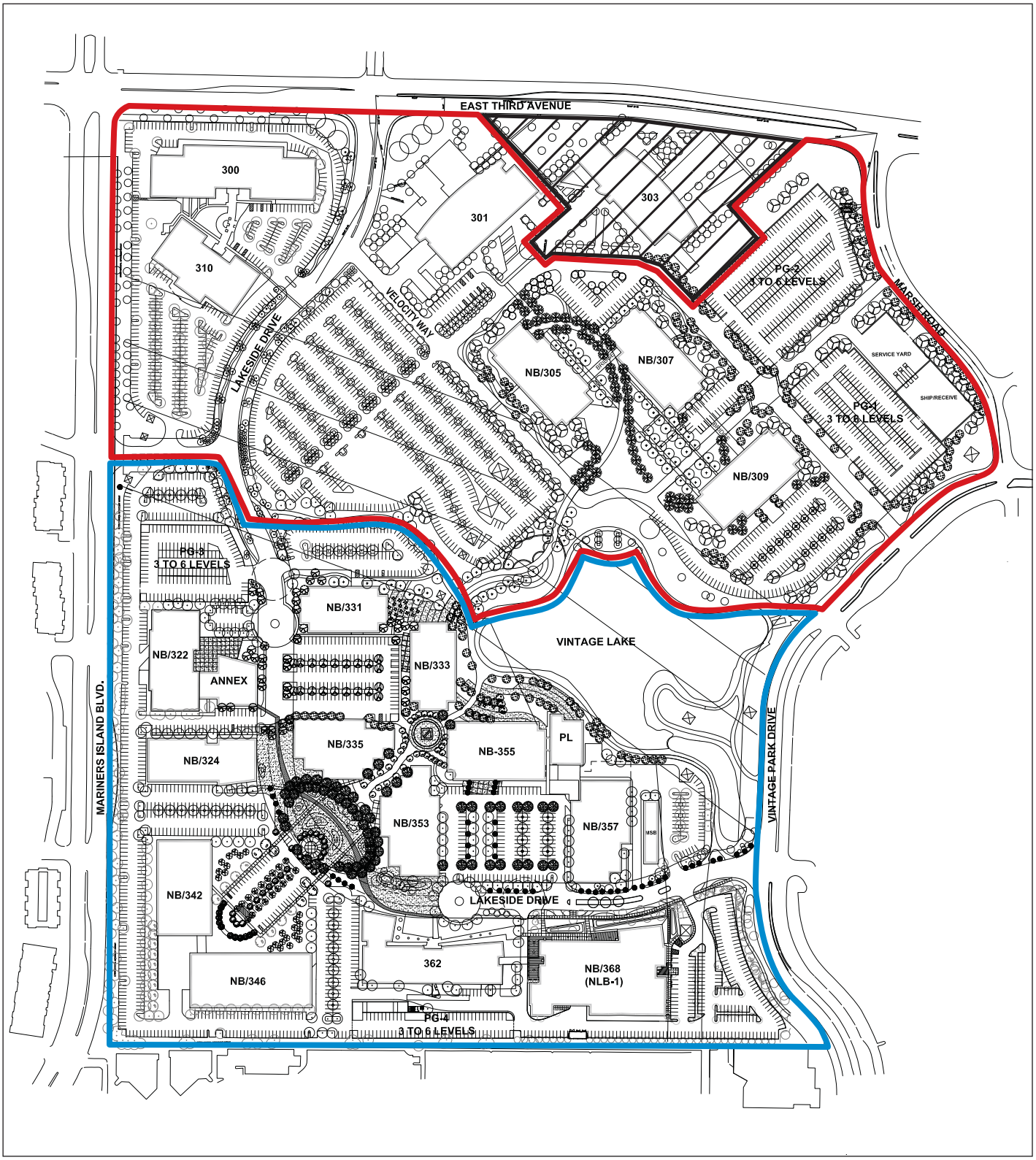

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FIGURE II-4

North Campus

South Campus

Not Part of Application

N

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FEET

Gilead Sciences Integrated

Corporate Campus Master Plan Subsequent EIR

Maximum Building Envelope, 2012 Master Plan

SOURCE: DES ARCHITECTS-ENGINEERS,MAY 2012.

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The intent of this General Development Plan is to establish a set of guiding principles for long-range planning that enables Gilead and the City of Foster City to integrate planning objectives. Because of the strategic nature of the plan, the planning horizon (twenty years) and the dynamic nature of Gilead's business, flexibility during implementation is extremely important. Accordingly although this Master Plan provides for a general guide for the placement, design of site buildings and other campus development; it does not establish specific location, size, style/structure or uses of individual buildings which will follow as specific development plans over the next twenty years.

LSA

FIGURE II-5

NOT TO SCALE

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Site Perspective - View from the Northwest

SOURCE: DES ARCHITECTS/ENGINEERS, JULY 2012; LSA ASSOCIATES, INC., 2012.

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After buildout of the 2010 Master Plan (including the changes analyzed in the two addenda), the approximately 40-acre project site would contain a total of up to 17 buildings and 3,022 parking spaces. The 2012 Master Plan would demolish 12 buildings, of which six would be replaced (NB/322, NB/335, NB/342, NB/353, NB/357 and a Pilot Lab, as an annex to Building NB/355). In addition, the 2012 Master Plan would add a material storage building in the South Campus. The 2012 Master Plan would also construct an additional four buildings (NB/305, NB/307, NB/309, and a Shipping/Receiving Center with associated service yard) and two parking garages, all in the North Campus. In addition, the 2012 Master Plan would increase the intensities and heights of several buildings proposed in the 2010 Master Plan. After buildout, the 2012 Master Plan would contain up to a total of 22 buildings and 6,050 parking stalls on approximately 73 acres.

Table II-2 summarizes the key changes between the 2010 and 2012 Master Plans. The specific components of the currently-proposed project are described in more detail following the table.

Table II-2: Summary of the Changes between the 2010 Master Plan (as Modified by Addendum #2) and 2012 Master Plans

Characteristic	2010 Master Plan	2012 Master Plan
Campus Size/ Building Use	• A 40-acre site with up to 1,200,480 square feet of building space comprising: o 755,048 square feet of office space; and o 445,432 square feet of laboratory space.	• A 73-acre site with up to 2,500,600 square feet of building space comprising: o 1,524,000 square feet of office space; o 953,000 square feet of laboratory space; and o 23,600 square feet of material storage/ warehouse space.
Demolition	• Up to six existing buildings (178,786 square feet).[1]	• Up to 12 existing buildings (367,421 square feet).[1]
New Buildings	• Two up to ten-story office buildings; • One up to eight-story laboratory building; • Two up to four-story laboratory buildings; • One up to four-story pilot laboratory; and • One up to two-story annex.	• Six up to ten-story buildings; • Three up to six-story buildings; and • Eight up to four-story buildings.
Employees	• Up to 3,100 employees.	• Up to 5,500 employees.
Parking Ratio	• Up to 3,022 parking spaces, with a parking ratio of: o 1 space per 250 square feet of office space. o 1 space per 833 square feet of laboratory space.	• Up to 6,050 parking spaces, with a parking ratio of: o 1 space per 250 square feet of office space. o 1 space per 833 square feet of laboratory space. o 1 space per 500 square feet of manufacturing and warehouse space.
Parking Stalls/ Structures	• Up to two four- and six-level parking structures. • Surface parking lots located adjacent to buildings.	• Up to four three- to six-level parking structures. • Surface parking lots located adjacent to buildings.
Shipping	• Main truck dock in the southeast corner of the site, with access off the eastern portion of Lakeside Drive.	• Main service yard and shipping/receiving in the northeast corner of the site, with access off the Marsh Road and Vintage Park Drive.

[1] Not including two buildings demolished to allow for construction of NLB-1.

[2] Not including NLB-1, which is currently under construction.

Source: LSA Associates, Inc., 2012.

The 2012 Master Plan would guide the general planning of the project site (including total square footage and types of uses) but would not establish the specific uses, location, size, style, or structure of individual buildings. Development details would be specified as part of subsequent approvals for individual development projects undertaken as part of implementation of the proposed project, such as

site-specific development plan/use permits and design review. These specific projects would undergo subsequent review, as appropriate, following certification of this program-level Subsequent EIR. If a specific project would not result in environmental impacts beyond those identified in the Subsequent EIR, no further review may be required.

1. Office/Research and Development Uses

In total, the 2010 Master Plan (as modified by Addendum #2) would result in the demolition of up to 178,786 square feet of building space, comprising six one- and two-story buildings. In addition, the 2010 Master Plan (as amended) would result in the construction of up to 1,200,480 square feet of building space, including a minimum of 445,432 square feet of laboratory uses and a maximum of 755,048 square feet of office uses. Office and research and development uses would be located in separate buildings on the campus. Up to two new ten-story office buildings and one eight-story laboratory building would be located along the western edge of Vintage Lake. The 2010 Master Plan also includes up to three new two- to four-story laboratories that would be located at various points along Lakeside Drive. An Annex (adjacent to NB/322) and a Pilot Lab (adjacent to NB/355) would be developed as well.

The 2012 Master Plan, by contrast, would demolish up to 367,421 square feet of building space, consisting of 12 existing one- and two-story office and laboratory buildings. These to-be-demolished buildings include the six remaining buildings that the 2010 Master Plan identified for possible demolition (Buildings 322, 335, 342, 344, 353 and 357) and do not include the two buildings that were demolished to allow for construction of NLB-1.

The 2012 Master Plan would increase allowable development by 1,300,120 square feet, to up to 2,500,600 square feet of building space. This includes up to 1,524,000 square feet of office space (an increase of 768,952 square feet from the 2010 Master Plan); 953,000 square feet of laboratory space (an increase of 507,568 square feet from the 2010 Master Plan); and up to 23,600 square feet of material storage/warehouse space (no material storage/warehouse space was included in the 2010 Master Plan). The allocation of building space within the North Campus and South Campus for the 2010 and 2012 Master Plans is summarized in Table II-3. Table II-4 lists the individual buildings that could be developed as part of the 2012 Master Plan.

Table II-3: Development Summary

Campus	Use	Square Footage 2010	Square Footage 2012
North Campus	Office	N/A	1,024,000
	Material Storage/ Warehouse	N/A	18,500
South Campus	Office	755,048	500,000
	Laboratory	445,432	953,000
	Material Storage/ Warehouse	N/A	5,100
Integrated Campus	Office	755,048	1,524,000
	Laboratory	445,432	953,000
	Material Storage/ Warehouse	N/A	23,600
	TOTAL	**1,200,480**	**2,500,600**

Note: North Campus includes Buildings 300 and 310.
Source: DES Architects + Engineers, 2012.

Specific locations, square footages, and uses have not yet been assigned to each of these buildings, each of which represents a maximum envelope of development (i.e., the total square footage of these buildings, if developed to the maximum height per Table II-4 and Figure II-4, could exceed 2,500,600 square feet). Therefore, these buildings could be developed with any configuration of uses and intensities, as long as the maximum building envelope identified in Table II-3 and Figure II-4 (i.e., a maximum of 2,500,600 square feet of interior space) is not exceeded, and the maximum square footage identified for each use in Table II-3 is not exceeded.

2. Other Land Uses

In addition to office and research and development uses, the 2010 Master Plan includes buildings that would also contain accessory uses, including cafeterias, meeting spaces, manufacturing uses, and physical fitness facilities. The interior building space reserved for these accessory uses has not yet been identified, but would be encompassed by the 2,500,600 square feet of total building space. These uses would also be incorporated into the 2012 Master Plan. Hazardous materials commonly used in biopharmaceutical laboratory settings would continue to be used as part of the 2012 Master Plan. The project would also include a pilot plant, which manufactures small quantities of active pharmaceutical ingredients and preclinical/clinical trial support materials. The 2012 Master Plan would locate a shipping/receiving center and service yard in the northeast corner of the North Campus. The shipping/receiving center would be used as a location for centralized deliveries made by trucks for all campus buildings and the warehouse would be used for short term-storage of these deliveries. Laboratory items would be delivered directly to NB/368 (NLB-1). Gilead Sciences-owned vehicles would deliver items from the shipping/receiving center to each of the campus buildings.

Table II-4: Proposed New Buildings

Building Number	Stories	Maximum Height	
		At Roof	At Roof Screen
NB/322	2-4	68	90
NB/324	2-4	68	90
NB/331	1-10	170	192
NB/333	1-10	170	192
NB/335	2-6	102	124
NB/342	2-4	68	90
NB/346	2-4	68	90
NB/353	2-6	102	124
NB/355	1-10	170	192
Pilot Lab	2	64	86
NB/357	2-6	102	124
Annex (322)	1-2	40	62
NB/305	1-10	170	192
NB/307	1-10	170	192
NB/309	1-10	170	192
Ship/Receive	1-2	40	62
MSB	1-2	40	62

Notes: NB = New Building; MSB = Material Storage Building
Source: DES Architects + Engineers, 2012.

3. Employment and Expanded Operations

One purpose of the 2012 Master Plan is to accommodate the employee growth that is anticipated to meet the business needs of Gilead Sciences. Gilead Sciences expects that the employee count at the project site may grow to approximately 5,500 by project buildout in approximately 2028 to 2033. This represents an increase of 3,700 employees over current (2012) staffing levels. Of the 5,500 employees, it is estimated that approximately 1,650 (30 percent) would typically work away from the project site.

Total employment under the 2010 Master Plan was projected to be 3,100, with 600 (approximately 19 percent) typically working away from the project site. Of the 1,800 existing employees based in Foster City, approximately 667 (37 percent) typically work away from the project site.

Compared with existing operations, expanded facility operations would result in increases of regulated hazardous material use, water use, average daily vehicle trips, air pollutants, and greenhouse gases. The significance of the impacts from expanded operations is discussed in Chapter V of this Subsequent EIR.

4. Open Space, Landscaping, and Plazas

The 2012 Master Plan would integrate the landscape design for the South Campus with the North Campus. Vintage Lake would function as the central recreation/open space area and vista for the integrated campus. The campus path would cross through the area surrounding Vintage Lake and connect to paths bordering the edge of the lake. The area immediately bordering Vintage Lake is anticipated to have the greatest amount of pedestrian activity. This area would be designed with flowering plum trees, a central plaza, located between the NB/333, -335, -353 and -355 building cluster, and other plazas used to accommodate cafeteria and outdoor dining and outdoor events. To transition from these activity centers, pedestrian paths would extend through the project site. In addition, a double row of trees would be planted along Mariners Island Boulevard, where a new parking structure would be located, to buffer adjacent residential uses. In addition, along Vintage Park Drive a sidewalk would be maintained with a view of Vintage Lake. Figure II-6 depicts the proposed landscape plan. As part of the 2012 Master Plan, impervious site coverage would increase from approximately 69 percent of the site (under existing conditions) to approximately 72 percent. Under the 2010 Master Plan, approximately 81 percent of the site coverage would be impervious.

5. Circulation

Under existing conditions, primary ingress and egress to and from the project site is provided by East Third Avenue at Lakeside Drive, by Mariners Island Boulevard at Reef Drive, and by Vintage Park Drive and Lakeside Drive. These primary access points would be retained as part of the 2012 Master Plan. The existing primary access points would be retained as part of the 2010 Master Plan and 2012 Master Plan. The 2010 Master Plan proposed changing the circulation pattern of the site through the privatization and closure of a portion of Lakeside Drive from Reef Drive to Vintage Park Drive. The 2012 Master Plan retains the closure and privatization of Lakeside Drive from Reef Drive to Vintage Park Drive, as originally proposed in the 2010 Master Plan. In addition, the 2012 Master Plan incorporates privatization of the segment of Lakeside Drive from East Third Avenue to Reef Drive, and the segment of Reef Drive between Mariners Island Boulevard and Lakeside Drive, as described below.

Closing the section of Lakeside Drive from Reef Drive to Vintage Park Drive is designed to increase pedestrian safety and unify the campus. The partial road closure and privatization is intended to slow traffic on that portion of Lakeside Drive, reduce the potential for vehicle/pedestrian collisions, and facilitate the movement of employees throughout the campus by removing the need to cross a public thoroughfare. On February 16, 2010, the City Council passed Resolution 2010-21 approving the vacation of the portion of Lakeside Drive and adjoining public utility and landscape reserve easements. This portion of Lakeside Drive would be closed as soon as practical. The closed portion of Lakeside Drive would be converted into an open space area with a pedestrian walkway and would not be open to the public. Under existing conditions, sidewalks extend from the Vintage Park Drive entrance along the existing Lakeside Drive pathway and throughout the entire campus, ending at East Third Avenue.

In November 2012, as an action independent of the proposed project, Gilead Sciences assumed ownership and maintenance responsibility for the remainder of Lakeside Drive and the segment of Reef Drive between Mariners Island Boulevard and Lakeside Drive. The 40-foot-wide Lakeside Drive would remain open from East Third Avenue through Reef Drive to the proposed building labeled NB/331, where it would terminate into a proposed cul-de-sac. South of the cul-de-sac, a 24-foot-wide private asphalt drive would be constructed to access adjoining future parking lots. The portion of

KEY NOTES:

1. CENTRAL GREEN SPACE.
2. PEDESTRIAN SIDEWALK.
3. NEW SIDEWALK.
4. FLOWERING PLUM TREES AT PARKING LOT ENTRY DRIVES.
5. PLAZA TO ACCOMODATE CAFETERIA/OUTDOOR DINING.
6. EXISTING TREES AND LANDSCAPE TO BE ADAPTED FOR LOWER WATER INTENSITY.
7. ORNAMENTAL GRASSES.
8. CENTRAL PLAZA.
9. TURFBLOCK/ CONCRETE PAVING AT EMERGENCY AND UTILITY VEHICLE ACCESS EASEMENT.
10. DOUBLE ROW OF TREES AT PARKING STRUCTURE.
11. CAMPUS WALKWAY AND CART PATH.
12. OUTDOOR DINING AND LARGE EVENT SPACE.

GENERAL NOTES:

1. LANDSCAPE IMPROVEMENTS TO BE PHASED WITH ASSOCIATED BUILDING CONSTRUCTION PROJECTS
2. PLANTINGS TO BE MULTI-LAYERED TO ACHIEVE YEAR ROUND INTEREST AND GREENERY

LSA

FIGURE II-6

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feet

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Landscape Plan

SOURCE: DES ARCHITECTS/ENGINEERS, JUNE 2012.

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Lakeside Drive from the intersection of Vintage Park Drive to a second proposed cul-de-sac near NB/353 would also remain open. Both cul-de-sacs would be 100 feet in diameter (with 50-foot radii). A 24-foot wide emergency vehicle access drive would be constructed to connect the private asphalt drive to the southern cul-de-sac, and would be constructed out of "Grasscrete" (a type of pervious paving that consists of concrete with holes covering approximately half of the surface that are filled with grass or other pervious material/vegetation) or a similar material.[14] This emergency access road would be closed to all through traffic except for emergency vehicles. Figure II-7 depicts the proposed circulation plan.

This Subsequent EIR also evaluates the effects of the proposed project under a scenario in which Lakeside Drive would remain open for its entire length through the project site.

There are currently three shuttle stops on the project site that are operated by the Peninsula Traffic Congestion Relief Alliance and serve the Hillsdale Caltrain Station and the Millbrae BART/Caltrain Stations: 300-310 Lakeside Drive; 301-303 Velocity Way; and 335-353 Lakeside Drive. The first two shuttle stops would remain in place with implementation of the proposed project, but the stop currently located at 335-353 Lakeside Drive would be relocated to 355-357 Lakeside Drive.

6. Parking

The specific composition of Gilead Science's business leads to employment densities (workers per 1,000 square feet) that are lower than are found in a typical office or laboratory facility, thus suggesting the appropriateness of customized parking requirements. The 2010 Master Plan reflects the applicant's goal of providing a parking space for every full-time employee, and providing parking facilities that take into account the employment characteristics of Gilead Sciences (e.g., low employment densities typical of biopharmaceutical facilities and approximately 30 percent of employees working off-site on any given day). Accordingly, Gilead Sciences proposed that Section 17.62.060 of the Foster City Municipal Code be amended to allow reduced parking ratios for biopharmaceutical research laboratories (a category that at that time did not exist). On March 1, 2010, the City Council approved Ordinance No. 555, which added Section 17.36.060 to the Foster City Municipal Code. Section 17.36.060 allowed biopharmaceutical research laboratories to use reduced parking ratios. The actual ratios were to be approved by the City at the time of approval or amendment of the General Development Plan. Through Ordinance 554, which approved the 2010 Master Plan, the City approved the use of a ratio of 1 parking space per 833 square feet of laboratory space and 1 space per 250 square feet of office space.[15] The 2010 Master Plan would provide 3,022 parking stalls at buildout.

In addition, the 2010 Master Plan incorporated two reductions for the purposes of calculating parking requirements. The first, referred to as an "efficiency factor," recognizes that not all of a building's square footage is usable. In an office, for example, equipment such as heating and air conditioning, boilers, and insulation reduce the amount of usable space. An efficiency factor of 85 percent was used to approximate the actual usable square footage proposed in the 2010 Master Plan.

[14] Foster City, City of, 2010. Resolution 2010-10. Website: citydocs.fostercity.org/viewftr.aspx?cabinet=ResOrdMO&docid=230664.

[15] Pursuant to Section 17.62.060 (B)(1)(b) of the Foster City Municipal Code, 1 space per 250 square feet is the parking ratio for office uses.

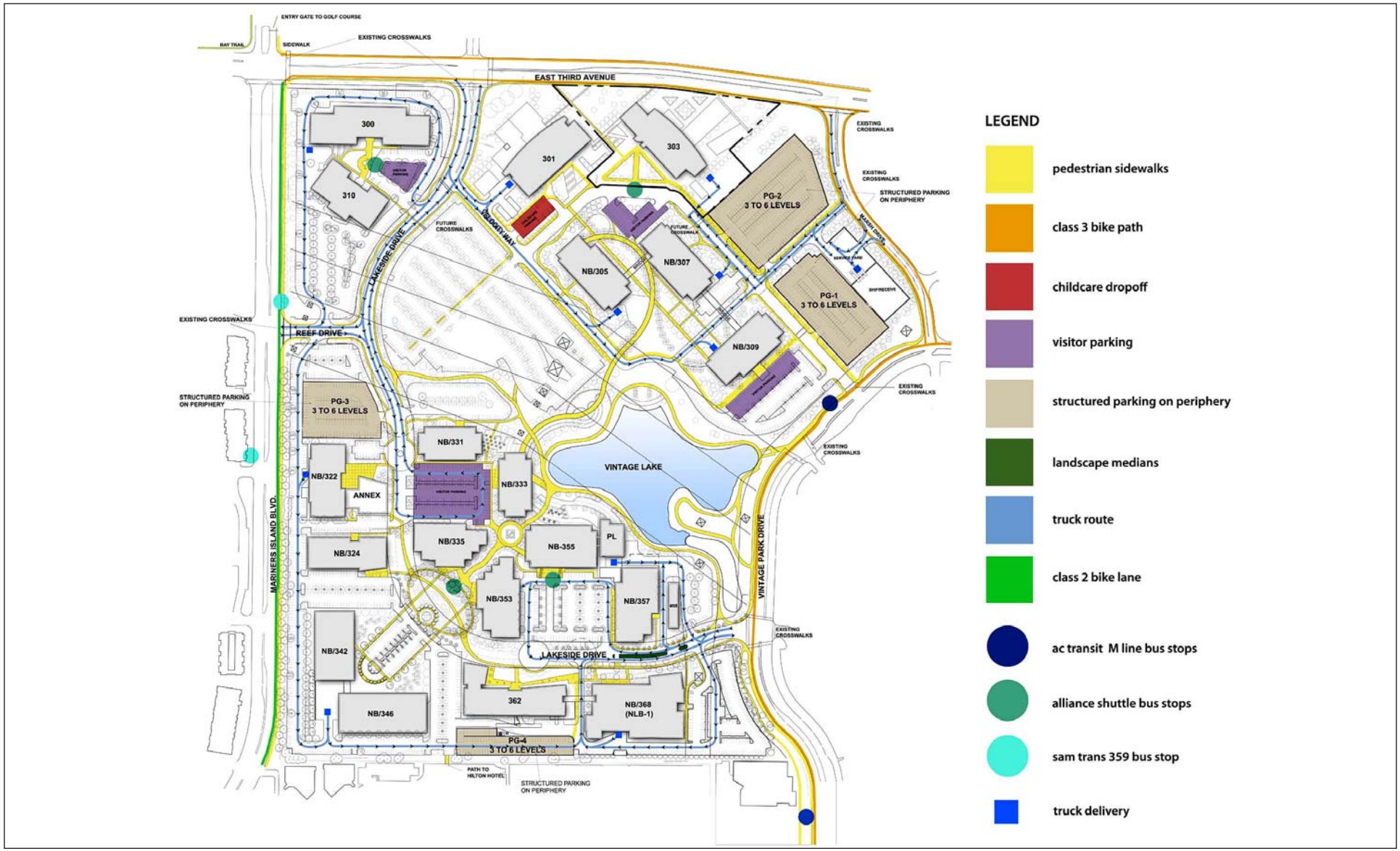

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FIGURE II-7

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Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Circulation Plan

SOURCE: DES ARCHITECTS/ENGINEERS, JUNE 2012.

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The 2012 Master Plan would continue to rely on these parking ratios and a 15 percent reduction for implementation of a Transportation Demand Management (TDM) Plan, as permitted in Section 17.62.060 of the Foster City Municipal Code; in addition, it would apply a ratio of 1 parking space per 500 square feet for manufacturing, warehouse, and other similar uses. Similar to the parking ratio for office uses, the manufacturing/warehouse/other ratio parking ratio is based on the Foster City Municipal Code.[16]

The 2012 Master Plan would include 6,050 parking spaces, including 842 spaces that would be shared with existing uses at the 303 Velocity Way building (which is located outside the project site). The North Campus (not including the 842 shared spaces) would contain 2,954 spaces and the South Campus would contain 2,254 spaces. See Chapter IV.G, Transportation and Circulation, for a detailed discussion of the parking supply and demand associated with the proposed project. The site currently contains 3,847 parking stalls (1,962 in the South Campus and 1,885 in the North Campus), all of which are located in surface parking lots around each building on the project site.

As part of the 2009 sale of the North Campus, EFI retained access to parking on the project site. On January 19, 2009, Gilead Sciences entered into an REA with EFI. The REA granted EFI an easement to utilize parking spaces within the shared parking lots. Gilead Sciences retained the right to relocate the parking easement area to another location on the property with 30 days' written notice to EFI. The REA was terminated when Gilead Sciences assumed ownership of Building 303 on November 1, 2012.

Under the 2012 Master Plan, parking would be provided in structured lots and surface lots. The 2010 Master Plan includes two parking structures: a six-level structure where Reef Drive connects to Lakeside Drive and a four-level structure at the southern boundary of the site. The 2012 Master Plan would retain both structures, which – as currently proposed – would range from three to six levels. The 2012 Master Plan also includes two additional parking structures in the North Campus west of Marsh Road, between East Third Avenue and Vintage Park Drive. These parking structures would be between three and six levels. Parking spaces, including the required shared stalls for Building 303, would be allocated among the parking structures as follows (see Figure II-4 for the location of these structures and Figure II-7 for the relationship of proposed parking facilities to the overall circulation system):

- Parking Garage 1 (North Campus, northeast corner of the project site): 925 spaces
- Parking Garage 2 (North Campus, northeast corner of the project site): 1,175 spaces
- Parking Garage 3 (South Campus, adjacent to Mariners Island Boulevard): 658 spaces
- Parking Garage 4 (South Campus, adjacent to southern boundary of the project site): 412 spaces

In addition to the 3,170 garage parking spaces, a total of 2,880 surface parking spaces would be provided on the project site, including 1,696 spaces on the North Campus and 1,184 spaces on the South Campus. In addition, 62 motorcycle spaces and 308 bicycle parking spaces would be provided on the site. Specific locations for these motorcycle and bicycle parking spaces have not yet been identified. The total numbers of proposed vehicle, motorcycle, and bicycle parking spaces would

[16] Foster City, City of, 2010. Municipal Code Section 17.62.060 (B)(5)(a).

meet or exceed the requirements of the Foster City Municipal Code. Please refer to Section IV.G, Transportation and Circulation, for a discussion of proposed parking supply and demand.

Currently, there are 3,847 parking stalls on the project site (1,962 on the South Campus and 1,885 on the North Campus). Given the existing mix of uses, there is a surplus of 816 parking spaces (including 488 spaces on the South Campus and 328 spaces on the North Campus). If and when campus development continues, the project applicant would add parking to the site when the parking supply declines to the proposed campus parking ratio and when employees have fully utilized the available on-site parking. New parking spaces would be developed in sequence with building development based on the type of use, as shown in Table II-5.

Table II-5: Parking Ratios

Land Use	2010 Parking Ratio	2012 Parking Ratio
Office	1 space per 250 square feet	1 space per 250 square feet
Laboratory	1 space per 833 square feet	1 space per 833 square feet
Manufacturing/ Other	N/A	1 space per 500 square feet
Warehouse	N/A	1 space per 500 square feet

Source: DES Architects + Engineers, 2012.

7. TDM Plan

As part of the project, Gilead Sciences would continue to implement a TDM Plan to encourage reduced reliance on single-occupancy motor vehicles for work-related trips. For the purpose of this analysis, the TDM Plan is identical to that proposed as part of the 2010 Master Plan and does not include a specific trip reduction goal. The TDM Plan includes the following elements:

- Bicycle lockers and racks
- Showers and changing rooms
- Continued financial support of the Peninsula Traffic Congestion Relief Alliance (which operates two shuttle routes in the area) and the addition of a lead-time bus (half hour bus in addition to the current hourly bus) on the North Foster City Center Route and Lincoln Center Route, as warranted
- Subsidized public transit tickets
- Carpool program
- Vanpool program
- Commute assistance center
- Employee commute survey (to inform future changes to the TDM Plan)
- Video conference centers
- On-site amenities, such as dry cleaning pickup and delivery, exercise facilities, and child care
- Guaranteed ride home program for commuters that use alternate forms of transportation

8. Utilities and Infrastructure

The South Campus and North Campus currently support office and research and development uses. New development proposed as part of the project would connect to existing water, sanitary sewer,

storm water drainage, energy, and telecommunications infrastructure. As part of the February 16, 2010 City resolution approving vacation of the portion of Lakeside Drive between Reef Drive and Vintage Park Drive, the water mains, storm drain, sanitary sewers, and one wastewater lift station located within the right-of-way were also privatized. In November 2012, as an action independent of the proposed project, Gilead Sciences assumed ownership and maintenance responsibility for the segment of Lakeside Drive between East Third Avenue and Reef Drive, and Reef Drive between Mariners Island Boulevard and Lakeside Drive. Gilead Sciences is responsible for the utilities and infrastructure on Lakeside Drive and Reef Drive within the approximately 73-acre project site. However, the Foster City Fire Department maintains the right to flush the hydrants within the site on an annual basis. Pacific Gas and Electric (PG&E) easements for electrical and gas service would remain for proposed buildings so that PG&E can access and maintain its infrastructure. The 2012 Master Plan would not alter these arrangements.

9. Site Demolition

The 2010 Master Plan would include the demolition of up to six structures (178,786 square feet of interior building space), not including two buildings that were demolished to make way for NLB-1 in 2011 (57,473 square feet of interior building space). The 2012 Master Plan would result in the demolition of six additional structures and associated paved areas (in total, up to 12 existing structures would be demolished on the site). Total demolition under the 2012 Master Plan would comprise 367,421 square feet of interior building space.

Construction debris, such as old foundations, pavement, utilities, and structures, would be collected and hauled off-site. The project sponsor estimated that the 2010 Master Plan would generate approximately 2,021 tons of construction waste, approximately 84 percent of which would consist of concrete debris, including slabs on grade, wall footings, pile caps, and tilt-up exterior walls. Under the 2012 Master Plan, the total construction waste would increase to approximately 3,143 tons, approximately 84 percent of which would consist of concrete debris, including slabs on grade, wall footings, pile caps, and tilt-up exterior walls. The remaining demolition debris associated with development of the 2012 Master Plan would consist of a variety of materials, including roof materials, windows, doors, light fixtures, ceiling materials, partitions, and steel columns. The proposed project would be subject to Foster City Municipal Code Chapter 15.44, which requires certain construction and demolition projects to divert a minimum of 50 percent of debris from landfills. The ordinance requires that a Waste Management Plan be submitted and approved as a condition for the building permit.

10. Project Construction and Phasing

The 2012 Master Plan would be completed over an up to approximately 15- to 20-year period extending to 2028 to 2033, in accordance with the projected business needs of Gilead Sciences. The project applicant began construction of NLB-1 in 2011. The construction period for each building would last approximately 12 to 18 months. The project applicant would be required to submit site-specific plans for each new building proposed on the campus for review and approval by the City.

E. DISCRETIONARY CITY ACTIONS

The proposed project would require the discretionary actions discussed below and summarized in Table II-6.

1. Amendment to the Vintage Park General Development Plan (Master Plan)/Rezoning

On November 29, 2011, the project applicant applied for rezoning (RZ-11-004) in the form of an amendment to the General Development Plan (or Master Plan) for Vintage Park. The project applicant proposes to rezone the site in order to expand the Master Plan area, increase allowable building square footage, and change the configuration of buildings to create an integrated Master Plan that would include the approximately 73 acres of land currently owned by Gilead Sciences. The General Development Plan/rezoning would be brought before the Planning Commission at a public hearing. The Planning Commission would then make a recommendation regarding approval of the General Development Plan, and this recommendation (if positive) would then be brought before the City Council at a separate public hearing. If the Planning Commission were to recommend against the rezoning proposal, the City Council would not take further action unless an interested party were to file an appeal of the Planning Commission's decision.

2. Development Agreement

Project approvals would include amending and restating the Development Agreement for the South Campus, between the project applicant and the City, to include the North Campus. The Development Agreements would provide, among other things, for vesting of entitlements and local land use approvals, and would set forth certain respective rights and obligations of the applicant and the City relating to implementation of the 2012 Master Plan.

3. Subdivision

Similar to the 2010 Master Plan, under the 2012 Master Plan, existing lot lines would need to be modified as existing buildings are removed and new buildings are constructed. Because buildout of the proposed 2012 Master Plan would be completed over an up to approximately 15- to 20-year period, lot line adjustments would occur at the time use permits for new buildings are obtained. The project applicant would work with the City to ensure the adjusted lot lines are documented in accordance with the City's Municipal Code and Building Code requirements.

Table II-6: Required Permits and Approvals

Lead Agency	Permit/Approval
City of Foster City/ Estero Municipal Improvement District	• Environmental Review • Master Plan Approval • General Development Plan/Rezoning • Development Agreement • Specific Development Plan/Use Permit • Building Permits • Subdivision • Certificate of Conformity
Responsible Agencies	
San Francisco Bay Regional Water Quality Control Board (RWQCB)	• National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge

Source: LSA Associates, Inc., 2012.

F. SUBSEQUENT DISCRETIONARY ACTIONS

The 2012 Master Plan would guide the future physical development of the Gilead campus. It would not mandate any specific buildings or activities, but rather describe the entire anticipated development of up to approximately 2,500,600 square feet of office, laboratory, materials storage/warehouse, and ancillary uses through buildout of the campus.

Following approval of the 2012 Master Plan, the City would require the submittal of a Specific Development Plan/Use Permit before any development could occur on the project site. (A Specific Development Plan and Use Permit are considered to be the same entitlement in Foster City.) Assuming the project is phased, the Specific Development Plan/Use Permit would address the specific location and use for which development approval is requested. A Specific Development Plan/Use Permit includes information specified in Section 17.36.050 of the Zoning Ordinance. A Specific Development Plan/Use Permit is required for the approval of site development as well as the design of buildings. Specific Development Plans/Use Permits are reviewed and approved by the Foster City Planning Commission, and may be appealed to City Council.

Items that are required for a Use Permit Review application include, but are not limited to:

- Site Plan (existing and proposed), including:
  - Lot size, significant dimensions (setbacks, lot lines, etc.), property lines of subject and adjacent properties and identification of surrounding uses, easements (public and private), and utility companies' equipment;
  - Internal circulation – streets, sidewalks, driveways and parking and loading areas (public and private);
  - Building outlines, stating number of stories, for on-site buildings and those on adjacent property;
  - Landscape plan;
  - Parking configurations; and
  - Site data table including the percent and square footage of landscape coverage, paving coverage, building coverage, etc.;
- Engineering site grading plans, including proposed finished grades, all public improvements, and site drainage;
- Floor plans (existing and proposed) – complete floor plans showing door and window openings, room designations and dimensions of utility equipment locations and trash enclosures, specifying materials and colors;
- Elevations (existing and proposed) – full building elevations of all building sides with details of all wall penetrations such as windows, doors, vents, etc.; exposed equipment such as air conditioners, meters, piping, etc.; all decorative elements such as trim, equipment screens, molding, appliqués, etc.; and all appurtenant and accessory structures on the site plans specifying all building materials and colors; and
- Compliance with Provision C.3 of the City/County Association of Governments of San Mateo County Municipal National Pollution Discharge Elimination System Permit. Provision C.3 requires that new development and redevelopment projects mitigate, to the maximum extent practicable, water quality impacts to storm water runoff during construction and operation periods.

This Subsequent EIR is a Program EIR (prepared pursuant to Section 15168 of the *CEQA Guidelines*) that evaluates the effects of implementing the entire project over time, as described above. As specific activities are proposed to implement the 2012 Master Plan, the City will determine whether additional

environmental review is required, pursuant to Public Resources Code section 21166 and *CEQA Guidelines* sections 15162 and 15168(c). The City would make this determination by completing an Initial Study checklist (or equivalent document) at the time the subsequent specific activities are proposed. Additional environmental review would be required only if: 1) substantial changes are proposed in the project which would require major revisions of the Program EIR due to new or substantially more severe significant environmental effects; 2) substantial changes in circumstances occur which will require major revisions to the Program EIR due to new or substantially more severe significant environmental effects; or 3) new information, which was not known and could not have been known at the time the Program EIR was certified, shows that the project would have new or substantially more severe significant environmental effects, or that there are certain new mitigation measures or alternatives that the project proponent declines to adopt. If the City determines that the specific activity or structure does not require additional environmental review under this test, then the City may approve the activity as within the scope of the project covered by the Program EIR. However, if a specific activity or structure would require additional environmental review, then the City would review existing CEQA documentation for development of the 2012 Master Plan and would determine what level of supplemental review is required to evaluate the potential environmental impacts of individual projects.

G. USES OF THIS EIR

A number of permits and approvals, including the discretionary actions listed above, would be required before development of the proposed 2012 Master Plan is able to proceed. As lead agency for the proposed project, the City of Foster City would be responsible for the majority of approvals required for development. Other agencies also may have some authority related to the project and its approvals. A list of the permits and approvals that may be required by the City and other agencies is provided in Table II-6. This EIR is intended to be used by the City and other agencies when deliberating on required permits and approvals.

III. PLANNING POLICY

This chapter discusses the proposed 2012 Master Plan's relationship with local land use and planning policies. A project's inconsistency with a policy is only considered significant if that policy was adopted for the purposes of avoiding or mitigating an environmental effect. Policies are also addressed in select topical sections of the Subsequent EIR where applicable policies are intended to avoid or mitigate physical environmental effects.

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, and that consistency determinations are best made with a broad understanding of the often-competing policy objectives in a planning document. As a result, policy consistency determinations are ultimately made by the City's local decision-making body (e.g., Planning Commission or City Council). The analysis in this chapter is intended to provide decision-makers with a list of the goals and policies that are pertinent to the project and site, and a discussion and preliminary conclusion regarding whether the project is generally consistent with these identified goals and policies. These preliminary conclusions are intended to supplement decision-makers' own understanding of the various policy considerations.

The main guiding documents regulating land use and addressing planning issues within and around the project site include the following: City General Plan (particularly the Land Use and Circulation Element, the Parks and Open Space Element, Conservation Element,[1] and the Noise Element); City Zoning Ordinance; Gilead Sciences General Development Plan; Vintage Park Design Guidelines; Vintage Park Signage Guidelines; San Mateo County Comprehensive Airport Land Use Plan; and Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco Airport. The consistency of the proposed project with other non-land use and planning policies is addressed in the appropriate topical sections of the Subsequent EIR (e.g., Section IV.I, Air Quality). Applicable land use and planning policies from each of the documents listed above are described below.

A. FOSTER CITY GENERAL PLAN

This section describes relevant materials from the Foster City General Plan and discusses the proposed 2012 Master Plan's consistency with the goals, policies, and programs outlined therein. The City is currently updating the Land Use and Circulation Element of the 1993 General Plan. It is anticipated that the General Plan Update will be completed after review of the applications for the proposed 2012 Master Plan is concluded. The project is not expected to be inconsistent with the land use designations in the revised General Plan Land Use and Circulation Element because no major changes in land use are anticipated as part of the General Plan Update. The following discussion describes the 1993

[1] The policies contained in the Conservation Element are analyzed in Chapter IV, Setting, Impacts and Mitigation Measures, where appropriate.

General Plan, which currently governs planning in the City and on the project site, and the project's consistency with applicable policies.

1. Description

The Foster City General Plan (General Plan) is a comprehensive plan for the growth and development of the City. The General Plan includes policies related to: land use and circulation; housing; parks, open space and conservation; noise; and safety. These topics are addressed within individual elements of the General Plan. The following three elements of the City's General Plan include goals or policies that apply to the proposed project: Land Use and Circulation; Parks and Open Space; and Noise.

a. Land Use and Circulation Element. The Land Use and Circulation Element establishes a pattern for land use in Foster City. This element establishes a direct relationship between the timing, amount, type, and location of development with the traffic, and service and infrastructure demands generated by development. The overall vision of the Land Use and Circulation Element is to "maintain the integrity and high quality living environment of the City's residential neighborhoods; achieve a successful build-out that balances jobs and housing [and] 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."[2]

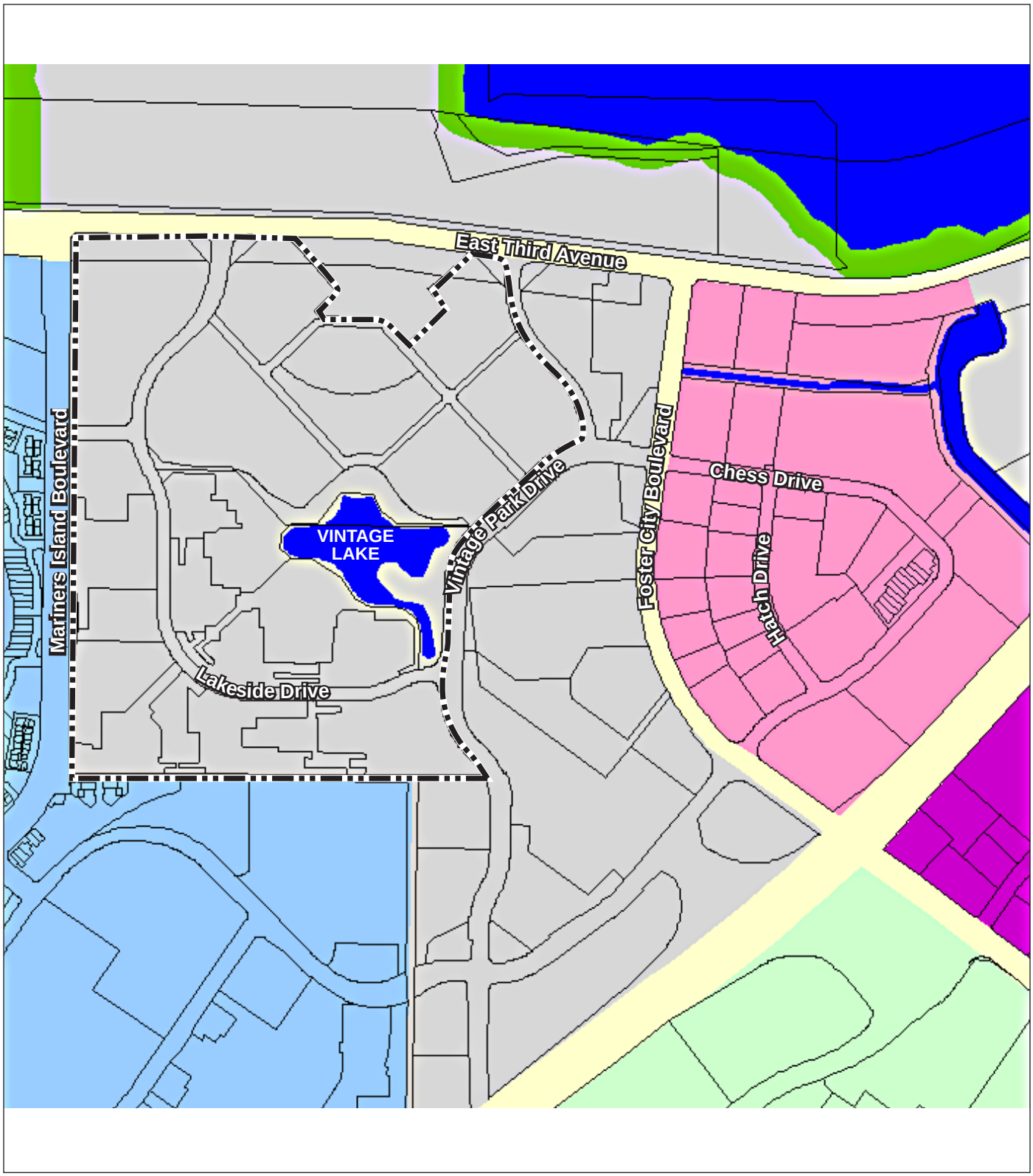
As shown in Figure III-1, the General Plan designation for the 2012 Master Plan area is Research/ Office Park. Areas with this designation contain office, research and development, and manufacturing uses whose operations are generally clean and quiet. The project site is located within the Vintage Park General Development Plan area of the City. (The Vintage Park General Development Plan, which was amended as part of the 2010 Master Plan, implements the Vintage Park Master Plan.) The Vintage Park area was originally intended to comprise executive offices, commercial/retail, research and development, and light industrial uses. The General Plan specifies the floor area ratio (FAR)[3] of existing buildings in the Vintage Park area; however the General Plan does not contain an FAR requirement for new development. The General Plan states that existing land use intensities within Vintage Park have an FAR generally ranging from 0.2 to 0.6 and that most land uses designated Research/Office Park have an FAR of 0.2 to 0.4.[4]

The Land Use and Circulation Element also comprehensively plans transportation infrastructure in the City by describing community objectives for the desired level of mobility, the relative willingness to pay for maintaining minimum levels of mobility, and priorities for allocating resources among competing transportation demands. The Land Use and Circulation Element also addresses specific transportation issues in the City, such as congestion, maintenance of public streets, emergency vehicle access, and traffic impacts on neighborhoods.

[2] Foster City, City of, 1993. *General Plan,* Chapter 3: Land Use and Circulation Element. June.

[3] FAR: Floor Area Ratio. FAR is a ratio of gross square footage of built structures to total site area.

[4] Foster City, City of, 1999, op. cit.



LSA

FIGURE III-1

Project Site
Town Center
Service Commercial
Open Space
Single Family
Research/Office Park
Light Industrial
Area Outside of Foster City

N

NOT TO SCALE

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Existing General Plan Designation

SOURCE: CITY OF FOSTER CITY, 2008; LSA ASSOCIATES, INC., 2012.

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b. Parks and Open Space Element. The Parks and Open Space Element addresses the preservation of parks and open space, and the conservation of natural resources within the City. The intent of this element 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 element sets a parkland standard of 5 acres per 1,000 residents.

c. Noise Element. The Noise Element identifies noise issues in the community and provides a basis for the noise regulations prescribed in City ordinances and implemented through the City's Code Enforcement Program. 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.

2. Consistency

Applicable planning-related policies in the General Plan, and the general consistency of these policies with the proposed project, are summarized in Table III-1.

a. Land Use and Circulation Element. As previously described, the project site and the rest of the Vintage Park area is designated as Research/Office Park. Land uses within the Research/Office Park designation typically consist of office, research and development, and manufacturing uses. The 2012 Master Plan would demolish up to 12 existing office, and research and development laboratory buildings, and would construct up to 17 new buildings that would contain similar office and research and development uses. As such, the 2012 Master Plan would not change the current land uses on the project site, which are consistent with the uses allowed under the existing land use designation.

As noted above, land use intensities in the Research/Office Park designation generally have an FAR of 0.2 to 0.6. Buildout of the 2012 Master Plan would result in an FAR of up to 0.79 (not including parking structures), which would be slightly higher than existing building densities in the Research/-Office Park designation. The FARs listed in the General Plan are intended to be recommendations, but are not requirements for new development (as the General Plan does not contain an FAR requirement for new development). The proposed increase in building intensity beyond the range specified in the General Plan would not result in significant environmental impacts in and of itself, although related design issues are evaluated in Section IV.B, Visual Quality.

While the proposed 2012 Master Plan would generally be consistent with the General Plan land use designation of the site, the specific mix and intensity of development on the project site would be reviewed and approved during the Specific Development Plan process (discussed below under the Foster City Zoning Ordinance). This review would ensure that the more intense proposed building pattern would be designed in a way that would be compatible with surrounding land uses. The proposed project is generally consistent with the goals and policies of the General Plan Land Use and Circulation Element, including policies pertaining to traffic congestion levels, as shown in Table III-1.

b. Parks and Open Space. Buildout of the 2012 Master Plan would accommodate a staff of 5,500 employees on the project site, which would be an increase of 3,700 employees over current staffing levels. As described in Chapter IV.C, Population, Employment, and Housing, the creation of these jobs could indirectly induce population growth in the City. The increase in the population of Foster City indirectly caused by the proposed 2012 Master Plan could increase demand for park and recreation facilities. As described in Chapter IV.J, Public Services, Utilities, and Recreation, taking into account park space and recreational waterways, and a 2009 population of 30,429, the City has an average of 10.7 acres of park and recreational facilities per 1,000 residents, far exceeding the City's standard of 5 acres per 1,000 residents.[5]

The proposed project would indirectly add residents to the City. In addition, while the proposed 2012 Master Plan would indirectly increase the regional population over the course of the approximately 15- to 20-year buildout period, this population increase would occur in areas throughout Foster City and surrounding cities. This dispersed population increase 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 and Open Space Element in a way that would create an adverse physical impact (e.g., physical deterioration of a park). Therefore, although the proposed project would not expand the City's supply of public park space, the City would continue to exceed its park provision standard of 5 acres per 1,000 residents and no significant physical impacts would result. In addition, the project would include approximately 21 acres of on-site landscaping, including open space around Vintage Lake. This private open space would be used by Gilead Sciences employees, and could reduce demand on public open space in the vicinity of the project site.

The City requires payment of a fee in lieu of land dedication, or a combination of a fee and land dedication, for residential developments that do not provide adequate open space, based on the 5 acres for every 1,000 residents standard. Since the proposed Master Plan does not include any residential units, the project would not be subject to this ordinance. However, any induced housing demand generated by the project that results in the development of new housing in the City would be subject to the ordinance.

[5] Foster City, City of, 2009. *General Plan, Chapter 5: Parks and Open Space Element*. July.

Table III-1: Applicable General Plan Goals, Policies, and Programs

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
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.	Buildout of the proposed project would create up to 3,700 new jobs on the project site. New employees generated by the project would marginally increase the demand for public services, such as fire and police services, along with utilities, such as water and wastewater (although this increase in demand would not require the construction of new treatment facilities). All these public services and utilities would be able to serve 2012 Master Plan development without major expansions of service or infrastructure.
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.	The design of the on-site circulation and parking areas represents a change from the current circulation pattern on the project site. The 2012 Master Plan would result in the partial closure of Lakeside Drive from Reef Drive to Vintage Park Drive (this closure was approved in 2010 but it has not yet occurred and so is analyzed as part of the 2012 Master Plan). The 2012 Master Plan also integrates the privatization of the segment of Lakeside Drive from East Third Avenue to Reef Drive, and the segment of Reef Drive between Mariners Island Boulevard and Lakeside Drive that is scheduled for consideration by City Council in November 2012. Refer to Chapter II, Project Description, for a detailed explanation of proposed changes. The privatization and closure of Lakeside Drive from Reef Drive to Vintage Park Drive would prevent the public from using Lakeside Drive as a cut-through route between Mariners Island Boulevard and Vintage Park Drive, but would not substantially reduce the effectiveness of the local road network (access to surrounding areas would be maintained via alternate routes around the site). Proposed roadway widths would be adequate to accommodate limited internal vehicle circulation and would be accessible to emergency vehicles. The partial closure of Lakeside Drive is proposed to increase pedestrian safety and circulation for Gilead employees, as well as create a more unified campus. In addition, the privatization of the remaining segment of Lakeside Drive and Reef Drive within the project site would not compromise public access, as the physical characteristics of these street segments would remain unchanged (although the segments would be owned by Gilead

Table III-1: Applicable General Plan Goals, Policies, and Programs

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
Goal LUC-I *Continued*		Sciences and not the City). As such, while the 2012 Master Plan would inhibit access by motorized vehicles through the site, it would improve pedestrian safety and allow for safe access and movement by a variety of transportation modes.
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 [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.	See Policy LUC-50, below.
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 design (land planning, architecture, etc.). A large portion of Vintage Park, the vacant lands north of East Third Avenue and the Lincoln Center area are designated for Research/Office Park use. The intensity of development found in Vintage Park and Lincoln Center is very similar, with Floor Area Ratios (FAR) generally ranging from .20 to .60 FAR in Vintage Park, and .26 to .56 FAR in Lincoln Center. The intensity of development for the East Third Avenue, Bridge Landing, and vacant Vintage Park sites is anticipated to have an FAR up to 1.0.	The 2012 Master Plan would result in the development of land uses that are consistent with the Research/Office Park land use designation. The proposed 2012 Master Plan would not introduce any new types of land uses to the project site. The proposed buildings would contain office and research and development uses, similar to the land uses currently on the campus. While the 2012 Master Plan would increase the intensity of office and research and development uses on the site (according to the General Plan, existing FAR in Vintage Park ranges from 0.20 to 0.60), the proposed buildings would have an FAR of 0.79 (not including parking structures). This FAR would be greater than the existing FAR in Vintage Park, but would not exceed the anticipated 1.0 FAR for the vacant areas of Vintage Park.

Table III-1: Applicable General Plan Goals, Policies, and Programs

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
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) Ensuring 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.	Individual projects proposed as part of the 2012 Master Plan would be subject to design review at the time of Specific Development Plan/Use Permit approval. Implementation of the recommended mitigation measures in Section IV.B, Visual Quality, would reduce potential impacts associated with light and glare to a less-than-significant level. At a conceptual level, the development anticipated by the 2012 Master Plan would not be inconsistent with the basic design criteria outlined in Policy LUC-38. Although proposed buildings could be more massive than existing buildings, they would not be out of scale with existing (remaining) buildings within and outside of the project site, and would not substantially block waterfront views.

Table III-1: Applicable General Plan Goals, Policies, and Programs

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
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 "D" 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 System Management (TSM). b. Street maintenance. c. Capital Improvement Program in 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.	As discussed in detail in Chapter IV.G, Transportation and Circulation, while the project would increase delay during peak traffic hours at intersections in Foster City, all intersections would operate at or above a LOS D. Thus, the project would be consistent with LUC-50's goal of maintaining LOS C or better during non-peak hours and LOS D or better during peak traffic hours.
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.	The 2012 Master Plan would provide for pedestrian circulation throughout the project site. Sidewalks are proposed to extend along all internal roadways in the project site, including the open portion of Lakeside Drive and on Velocity Way. In addition, a portion of Lakeside Drive would be closed to all non-emergency vehicles, and would be converted into an open space area with a pedestrian walkway, thereby improving pedestrian circulation and safety on the campus (although this segment would not be open to the public). Closing a portion of Lakeside Drive would interfere with the existing Class III bike path. However, the rerouting of this Class III bike route along Vintage Park Drive and Marsh Drive to Third Avenue, where it would connect with the existing Class III bike route on Third Avenue, would allow for continued bicycle access around the project site. The proposed closure of Lakeside Drive could also change access to the path connecting Lakeside Drive to Vintage Lake. However, access along the path would remain after implementation of the 2012 Master Plan.

Table III-1: Applicable General Plan Goals, Policies, and Programs

Goal or Policy Number	Goal or Policy Text	Project's Relationship to Goal or Policy
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 2012 Master Plan would include 308 bicycle parking spaces, in accordance with Policy LUC-59.
Parks and Open Space		
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 recreation 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.	The 2012 Master Plan includes open space around Vintage Lake and throughout the campus. Following the partial closure of Lakeside Drive, the road would be converted into an emergency access road, open space, and a pedestrian walkway that would provide access throughout the project site. The new open space areas would serve the employees of the campus.
Noise Element		
Policy N-5	*Mitigating Impacts on Surrounding Uses*. The City will require proposals to reduce noise impacts on adjacent properties through the following and other means, as appropriate: a. Screen and control noise sources such as parking, outdoor activities and mechanical equipment. b. Increase setbacks for noise sources from adjacent dwellings. c. Whenever possible do not remove fences, walls or landscaping that serve as noise buffers, although design, safety and other impacts must be addressed. d. Use soundproofing materials and double glazed windows. e. Control hours of operation including deliveries and trash pickup to minimize noise impacts.	The project would result in noise impacts on adjacent properties and is thus inconsistent with this policy both with and without mitigation. A review of traffic data indicates that the project would result in a substantial (3 A-weighted decibel (dBA) or greater) increase in noise above existing no project noise levels on area roadways. In addition, construction of the proposed project would cause noise levels to exceed 60 dBA Leq-hr (hourly average) and the ambient noise environment by at least 5 dBA Leq-hr during the multi-year construction period. These noise increases would exceed the City's significance criterion for construction period noise. Mitigation measures would reduce these impacts, but would not reduce noise levels along roadways to below the standard specified in the City's significance criterion. Refer to Section IV.H, Noise, for additional detail.

Sources: Foster City, City of, 1993. *General Plan.* May; LSA Associates, Inc., 2012.

c. Noise Element. Project-related traffic would result in a significant permanent increase in ambient noise levels, and would thus expose surrounding sensitive land uses, such as residential uses, to permanently increased noise levels. In addition, the project envisions a multi-year construction period, and this construction period would increase noise levels beyond those identified in the City's significance criteria as being substantial and adverse. See also Impacts NOI-1 and NOI-3 in Section IV.H, Noise).

Impact PLAN-1: The proposed 2012 Master Plan would conflict with noise policies adopted to avoid or mitigate an environmental impact. (S)

As discussed in more detail in Section IV.H, Noise, review of traffic data indicates that the project would result in a substantial (3 dBA or greater) increase in noise above existing noise levels under existing plus project conditions. In addition, construction of the proposed project would cause noise levels to exceed 60 dBA (decibels) Leq-hr (hourly average) and the ambient noise environment by at least 5 dBA Leq-hr during the multi-year construction period. These noise increases would exceed the City's significance criteria for operational and construction period noise, and could conflict with Policy N-5, which requires development projects to reduce noise impacts on adjacent properties. Implementation of the following mitigation measure would reduce the construction-period noise impact to a less-than-significant level, but the roadway noise impact would remain significant and unavoidable as no feasible mitigation exists to reduce the impact to a less-than-significant level.

> Mitigation Measure PLAN-1: Implement Mitigation Measures NOI-1a and NOI-1b. See Section IV.H, Noise. (SU)

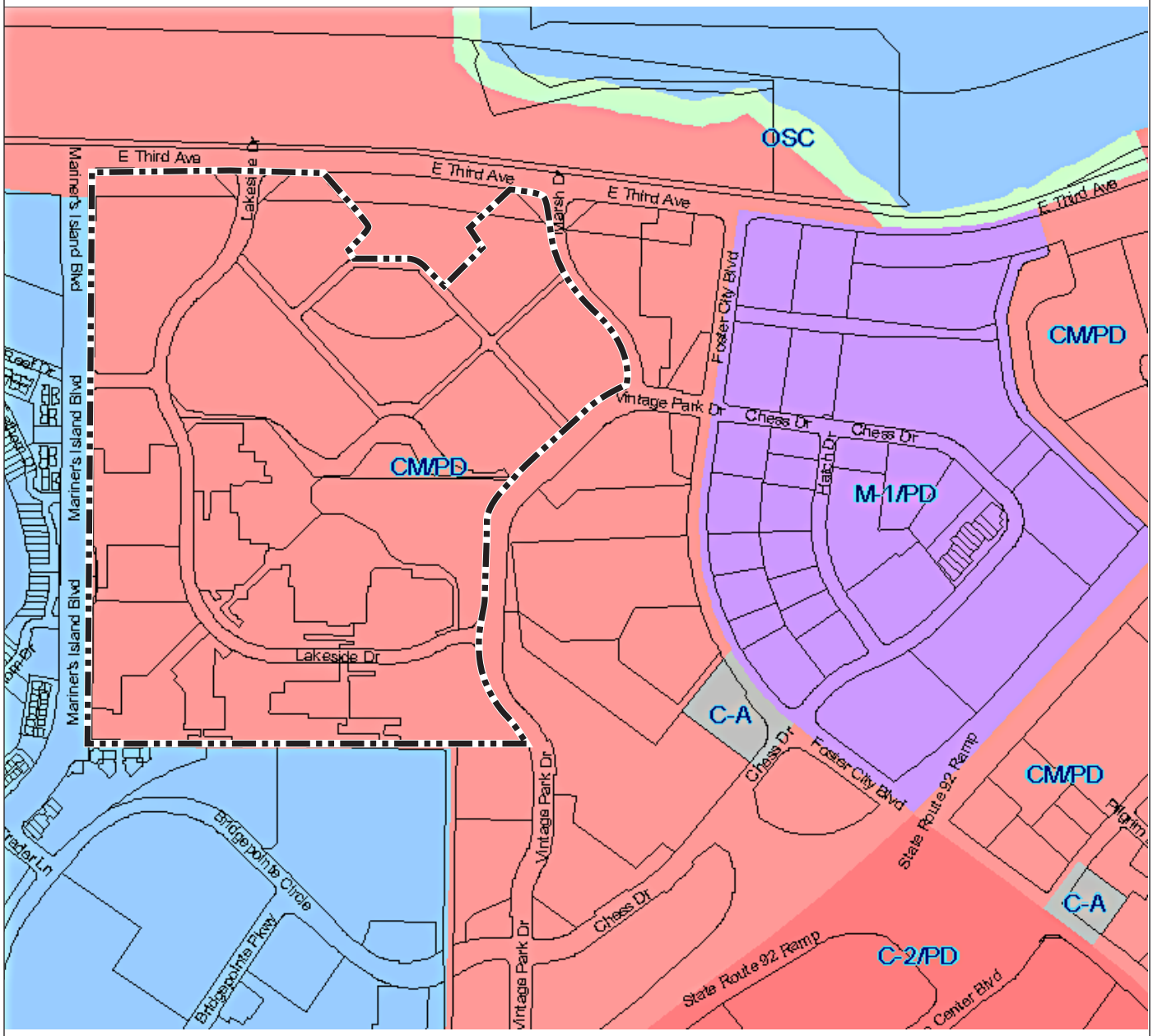
B. FOSTER CITY ZONING ORDINANCE

This section describes the Foster City Zoning Ordinance as well as the proposed project's consistency with applicable provisions of the Zoning Ordinance.

1. Description

The City of Foster City Zoning Ordinance (Zoning Ordinance) implements the policies of the General Plan and other City plans, policies, and ordinances. The Zoning Ordinance divides the City into districts, each of which is assigned different regulations. These regulations direct the construction, nature, and extent of land uses and building form. The project site is zoned Commercial Mix/Planned Development (CM/PD), as depicted in Figure III-2. The CM District is intended to be combined with the PD Combining District, and only allows those uses specified within the use permit required in connection with the PD zoning district approval. The PD District is designed to accommodate various types of development and is established to allow flexibility in design. With the exception of the off-street parking requirements, standards usually prescribed by the Zoning Ordinance may be waived in the PD District.

An application for a PD District must be accompanied by a General Development Plan (or Master Plan, as it is referred to in this Subsequent EIR); a Specific Development Plan/Use Permit would be required for each new building. The rezoning associated with the proposed project would entail an amendment to the existing 2010 Master Plan (or Vintage Park General Development Plan). Specific



LSA

FIGURE III-2

Project Site
Commercial Mix /PD*
Commercial Auto
General Business
Light Industrial
Open Space/Conservation
Area Located Outside Foster City

* PD = Planned Development

N

NOT TO SCALE

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Existing Zoning Designation

SOURCE: CITY OF FOSTER CITY, 2008; LSA ASSOCIATES, INC., 2012.

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findings must be made by the Planning Commission and City Council in order to approve or conditionally approve a new or amended General Development Plan, as identified in Section 17.36.030 of the City's Zoning Ordinance. A General Development Plan is required to be a graphic and schematic plan, and to include the following elements:

- Proposed land uses;
- Location of buildings, structures, and building groups;
- A tabulation of floor area ratios and maximum heights of proposed buildings;
- Proposed circulation systems, including preliminary street cross-sections;
- Proposed parks, playgrounds, school sites, and other open spaces;
- Location and type of existing and proposed landscaping and identification of any existing trees to be removed;
- Development phasing (for the entire project);
- Relation to future land uses in the surrounding area, as proposed in the General Plan; and
- Proposed off-street parking (ratio, locations, and total number of spaces).

In order for the new or amended General Development Plan to be approved, several findings must be made by the Planning Commission and City Council. The applicable findings are summarized in the list below.

- Development is consistent with the City's adopted General Plan;
- Uses proposed will not be detrimental to present and planned surrounding uses;
- Streets and thoroughfares are suitable and adequate to carry anticipated traffic;
- Existing or proposed utility services and facilities are adequate for the land use proposed;
- Proposed off-street parking ratios are consistent with the City's regulations; and
- Planned development will not have a detrimental and financial impact on the City or Estero Municipal Improvement District.

Following approval of a General Development Plan, the City requires the submittal of a Specific Development Plan/Use Permit before any development can occur on a project site. If the project would be phased, the Specific Development Plan/Use Permit can address the specific phase for which development approval is requested. A Specific Development Plan/Use Permit includes information specified in Section 17.36.050 of the Zoning Ordinance.

Design guidelines are required to accompany the Specific Development Plan/Use Permit. Section 17.36.080 of the Zoning Ordinance specifies the items that must be included in the Design Guidelines. In addition, an application for a Specific Development Plan/Use Permit in a PD District must be accompanied by a schedule identifying the approximate start date and completion date for construction.

2. Consistency

The proposed amendment to the existing 2010 Master Plan (General Development Plan) would be consistent with the intent of the PD Zoning District, which is to allow for flexibility in design to ensure that projects are designed creatively and comprehensively. The amended 2012 Master Plan identifies the configuration, location, and massing of buildings; the location of open space; the proposed circulation system; and other aspects of the physical development of the site, as required by Section 17.36.030 of the City's Zoning Ordinance.

At the time of Specific Development Plan/Use Permit approval, specific projects proposed as part of the 2012 Master Plan would be reviewed as part of the City's Design Review process to ensure that each project conforms to the design review criteria for office and research and development uses. As the 2012 Master Plan is conceptual in nature, at the time of Specific Development Plan/Use Permit approval, subsequent discretionary actions would require additional review (such as that using an Initial Study checklist) to determine whether the impacts of the Specific Development Plan/Use Permit are adequately covered under this Subsequent EIR. As proposed, the 2012 Master Plan is generally consistent with the provisions of the City's Zoning Ordinance.

C. GILEAD SCIENCES GENERAL DEVELOPMENT PLAN (MASTER PLAN)

This section describes the existing Gilead Sciences General Development Plan, also known as the 2010 Master Plan, which would be superseded by the 2012 Master Plan. The 2010 Master Plan is part of the Vintage Park General Development Plan.

1. Description

As described in detail in Chapter II, Project Description, Gilead Sciences proposed the 2010 Master Plan for its 40-acre corporate campus in 2008. The 2010 Master Plan has been modified by two subsequent Addenda. After these modifications, the 2010 Master Plan would allow for the development of up to 1,200,480 square feet of building space comprising a minimum of 445,432 square feet of laboratory space and a maximum of 755,048 square feet of office space. In addition, 3,022 parking spaces would be provided within the 2010 Master Plan area.

2. Consistency

The proposed 2012 Master Plan (which is the subject of this Subsequent EIR) would replace the 2010 Master Plan. The 2012 Master Plan is in the form of a General Development Plan, as required by Section 17.36.030 of the City's Zoning Ordinance. The 2012 Master Plan is intended to expand the site to 73 acres, and allow for the development of up to 2,500,600 square feet of building space on the project site, including 1,524,000 square feet of office space, 953,000 square feet of laboratory space, and 23,600 square feet of materials storage/warehouse space. In addition, up to 6,050 parking spaces would be provided on the site. With implementation of the proposed project, no conflicts would occur with the 2010 Master Plan, as that 2010 Master Plan would be replaced with the 2012 Master Plan.

D. VINTAGE PARK DESIGN GUIDELINES AND VINTAGE PARK SIGNAGE GUIDELINES

The following discussion provides a description of the Vintage Park Design Guidelines (Guidelines), as well as the proposed project's consistency with applicable goals of the Guidelines. The Vintage Park Signage Guidelines are also briefly mentioned, although these guidelines will apply only to future phases of the project once their detailed plans identify specific locations, size, and materials for signage.

1. Description

The amended Vintage Park Design Guidelines were adopted on July 5, 2012 to guide development in the Vintage Park General Development Plan area (design guidelines for the area were initially adopted in 1984). During the design review process, the Guidelines are used by the City when reviewing projects located in Vintage Park. The Vintage Park General Development Plan and associated Design Guidelines envision a business and working community tightly integrated with the various land uses within and surrounding the site. In addition, the Guidelines envision development in Vintage Park as comprising pharmaceutical, offices, research and development, light industrial, hotel, restaurants, and retail land uses. The Guidelines intend development in Vintage Park to be integrated into a planned framework of open space systems that collectively create a park-like setting. The majority of the open space areas in Vintage Park are intended to serve the community by allowing for pedestrian, bicycle, and vehicular circulation.

The objectives of the Guidelines are listed below:

- Maintain over the longer term the design quality and compatibility of all projects within the park;
- Attract employers to Foster City by providing a high quality office/research/industrial park;
- Enhance Foster City's image as a master planned, well-designed City;
- Create a quality mixed use development within a "park-like" setting that organizes the mixed land uses, is economically feasible, and shares recreational amenities and parking;
- Develop a unified hierarchy of site functions and elements including circulation systems, recreational amenities, public and private access, and landscape forms and details; and
- Design a development that is not only unique and supportive of a wide range of uses, but is also flexible enough to accommodate changing market demands and unforeseen desires.

In addition, the Guidelines include the following sustainable design goals:

- Promote walking, biking and using public transportation;
- Encourage building design that responds to the environmental context;
- Encourage using high recycled-content building materials or finishes;
- Reduce water use by water efficient landscaping and drought tolerant vegetation; and
- Reduce energy use and the carbon footprint of new building and site development.

2. Consistency

The proposed 2012 Master Plan would be consistent with the intent of the Vintage Park Design Guidelines. The project would result in the construction of new buildings that contain office and laboratory uses, as originally envisioned in the Vintage Park General Development Plan. The flexibility intrinsic to the 2012 Master Plan would allow Gilead Sciences to grow over time and respond to market demands.

In addition, the proposed project would generally be consistent with the goals described above. The partial closure of Lakeside Drive would create a green space corridor, enhance the park-like setting of the campus, and de-emphasize the use of automobiles (and improve pedestrian circulation). Access to Vintage Lake would be preserved, even with the partial closure of Lakeside Drive (as accessible pathways would continue to connect to the shoreline of the Lake). In addition, the proposed project would result in a wider variety of building heights than currently exists on the site.

The project would disrupt the existing Class III Bike Route on Lakeside Drive. However, the rerouting of this Class III bike route along Vintage Park Drive and Marsh Drive to Third Avenue, where it would connect with the existing Class III bike route on Third Avenue, would allow for continued bicycle access around the project site, and would increase trip length by only approximately 0.1 mile. In addition, pedestrian trail access from Lakeside Drive to the trail along Vintage Lake would be maintained such that the trail can be accessed from Reef Drive.

Since the proposed 2012 Master Plan is conceptual in nature, site designs have not yet been proposed for specific buildings on the campus. As previously described, at the time of Specific Development Plan/Use Permit approval, specific projects proposed as part of the 2012 Master Plan would be reviewed as part of the City's Design Review process to ensure that each project conforms to the design review criteria for office and research and development uses under the Guidelines. In addition, proposed signage would be subject to the Vintage Park Signage Guidelines. As the proposed project is conceptual in nature, at the time of Specific Development Plan/Use Permit approval, subsequent discretionary actions would require additional review to determine whether the impacts of the Specific Development Plan/Use Permit are adequately covered under this Subsequent EIR. As proposed, the 2012 Master Plan is generally consistent with the provisions of the Vintage Park Design Guidelines.

E. COMPREHENSIVE AIRPORT LAND USE PLANS

Three public airports serve San Mateo County: the Half Moon Bay Airport (HAF), the San Carlos Airport (SQL), and the San Francisco International Airport (SFO). The project site is located within the vicinity of both SQL and SFO, each of which is governed by its own Comprehensive Airport Land Use Plan (CALUP). A description of the proposed 2012 Master Plan's relationship to and consistency with the each CALUP is provided below.

1. Overview

State law requires an airport land use commission to prepare and adopt a CALUP for each public-use airport in the county.[6] The CALUP is a tool used by airport land use commissions to fulfill their purpose of promoting airport/land use compatibility. The purpose of a CALUP 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.

A CALUP 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. SQL and SFO are within the jurisdictions of the San Mateo County Comprehensive Land Use Plan[7] (County CALUP) and the Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco Airport[8,9] (SFO CALUP), respectively. CALUPs apply to geographic areas near the airports. Applicable CALUP policies for both airports are discussed below. Noise- and hazards-related considerations associated with these airports are specifically addressed in more detail in those topical sections of this Subsequent EIR.

a. San Carlos Airport. The County CACLUP establishes two Airport Influence Areas (AIAs). Area A denotes locations where a real estate disclosure notice regarding the proximity of the nearby airport must be provided to a buyer or lessee of property within the boundary. Projects within Area A do not require detailed review. Area B denotes locations that are within either the mapped height restriction area for this airport or the 55 decibel (dB) Community Noise Equivalent Level (CNEL) aircraft noise contour. Area B defines the thresholds for triggering review and evaluation of proposed developments in proximity to the airport with respect to safety and noise compatibility.[10] As shown in Figure III-3, the project site is located approximately 4 miles north of SQL and is within Area A. As such, no further detailed review is called for.

In addition, certain types of land uses are recognized by the Airport Land Use Commission as hazardous to air navigation in the vicinity of SQL. 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 a 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 a straight final approach toward a landing.
- Any use that would generate smoke or rising columns of air.

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

[7] City/County Association of Governments of San Mateo County, 1996. *San Mateo County Comprehensive Airport Land Use Plan.* December.

[8] City/County Association of Governments of San Mateo County. 2012. *Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport.* July.

[9] Note that the SFO CLUP updates and supersedes Chapter V in the County CLUP, which originally governed SFO.

[10] City/County Association of Governments of San Mateo County, 1996, op. cit.

- Any use that would attract large concentrations of birds within approach/climb-out areas.
- Any use that would generate electrical interference that may interfere with aircraft communications or aircraft instrumentation.

b. San Francisco International Airport. The SFO CALUP also establishes two AIAs. Similar to the SQL CALUP, Area A shows locations where projects do not require detailed review. Area B is a combination of the outer boundaries of the Noise (CNEL 65 dB) and Safety Zone boundaries, the Federal Aviation Administration (FAA) height notification boundaries (i.e., 14 CFR Part 77 Conical Surface) or the outer boundary of the Terminal Instrument Procedures (TERPS) Approach and One-Engine Inoperative (OEI) Departure Surfaces.

The project site is located approximately 5 miles south of SFO and is located within Area B of the AIA, as shown in Figure III-4. Thus, the City of Foster City is included among the municipalities for which the Airport Land Commission exercises its statutory duties to review proposed land use policy actions (e.g., new or amended general plans or specific plans) and land use development proposals for consistency with the Noise, Safety, and Airspace Protection/Height Limitation elements of the SFO CALUP. To be compatible, a development must be consistent with the relevant policies contained in each element. In addition, a real estate disclosure notice regarding the proximity of the nearby airport would need to be provided to a buyer or lessee of property within the boundary.

Similar to SQL, proposed land uses with characteristics that may cause visual, electronic, or wildlife hazards, particularly bird strike hazards, to aircraft taking off or landing at SFO or in-flight are incompatible in Area B of the AIA. Specific development characteristics that may create hazards to aircraft in flight and which are deemed incompatible with airport uses include:

- Any sources of glare, such as highly reflective buildings or building features, or bright lights, including search lights or laser displays, which would interfere with the vision of pilots making approaches to SFO.
- Distracting lights that that could be mistaken by pilots on approach to SFO for airport identification lighting, runway edge lighting, runway end identification lighting, or runway approach lighting.
- Sources of dust, smoke, or water vapor that may impair the vision of pilots making approaches to SFO.
- Sources of electrical interference with aircraft or air traffic control communications or navigation equipment, including radar.
- Land uses that, as a regular byproduct of their operations, produce thermal plumes with the potential to rise high enough and at sufficient velocities to interfere with the control of aircraft in flight. Upward velocities of 4.3 meters (14.1 feet) per second at altitudes above 200 feet above the ground shall be considered as potentially interfering with the control of aircraft in flight.

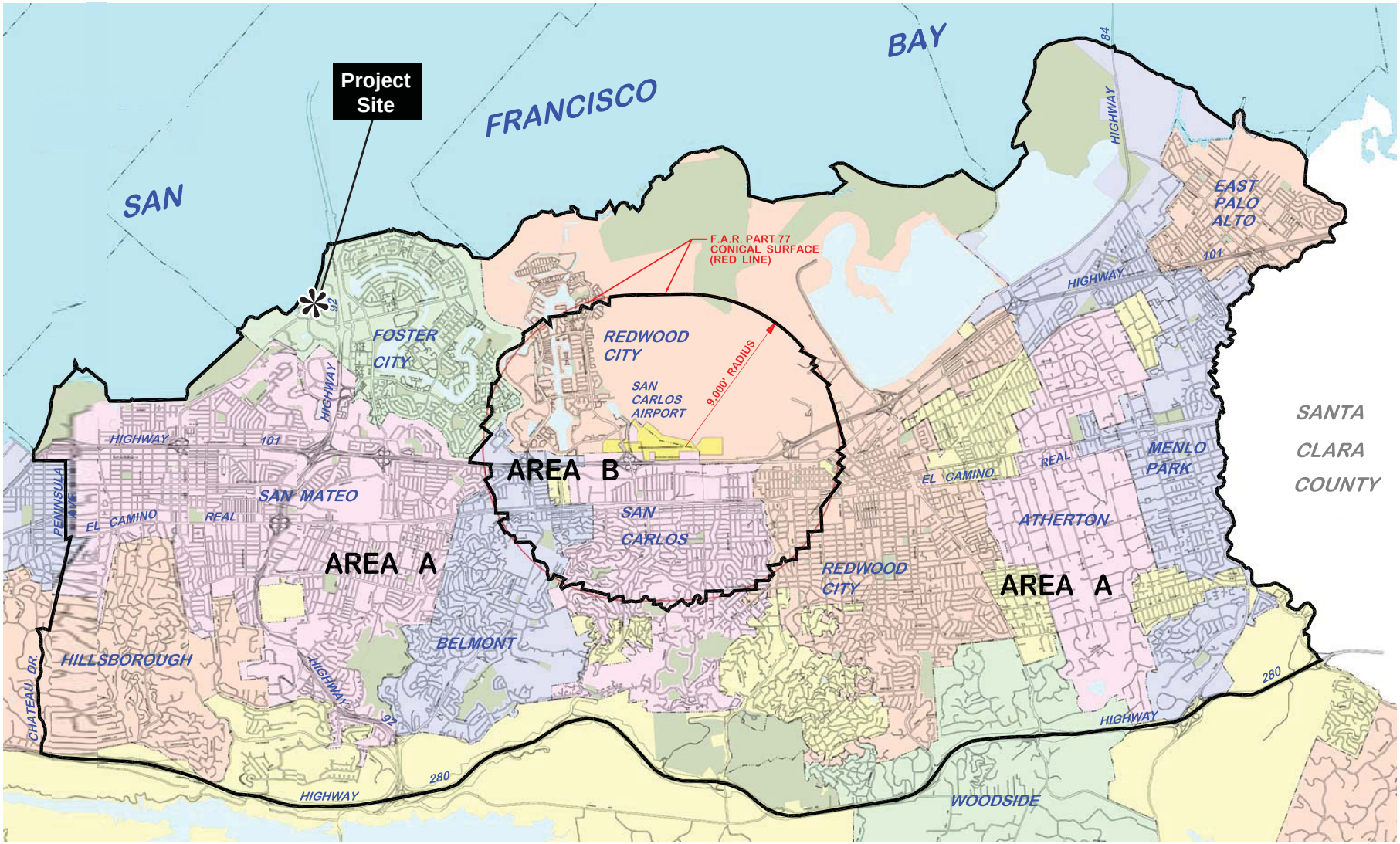

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FIGURE III-3

Area A: Airport Influence Area (AIA) Boundary
(Real Estate Disclosure Only)

Area B: CCAG/ALUC Review Area Boundary
(Real Estate Disclosure and Formal CCAG/AUC Review)

✻ Project Site

N

NOT TO SCALE

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

San Carlos Airport Influence Area Boundaries

SOURCE: CITY/COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY, 2004

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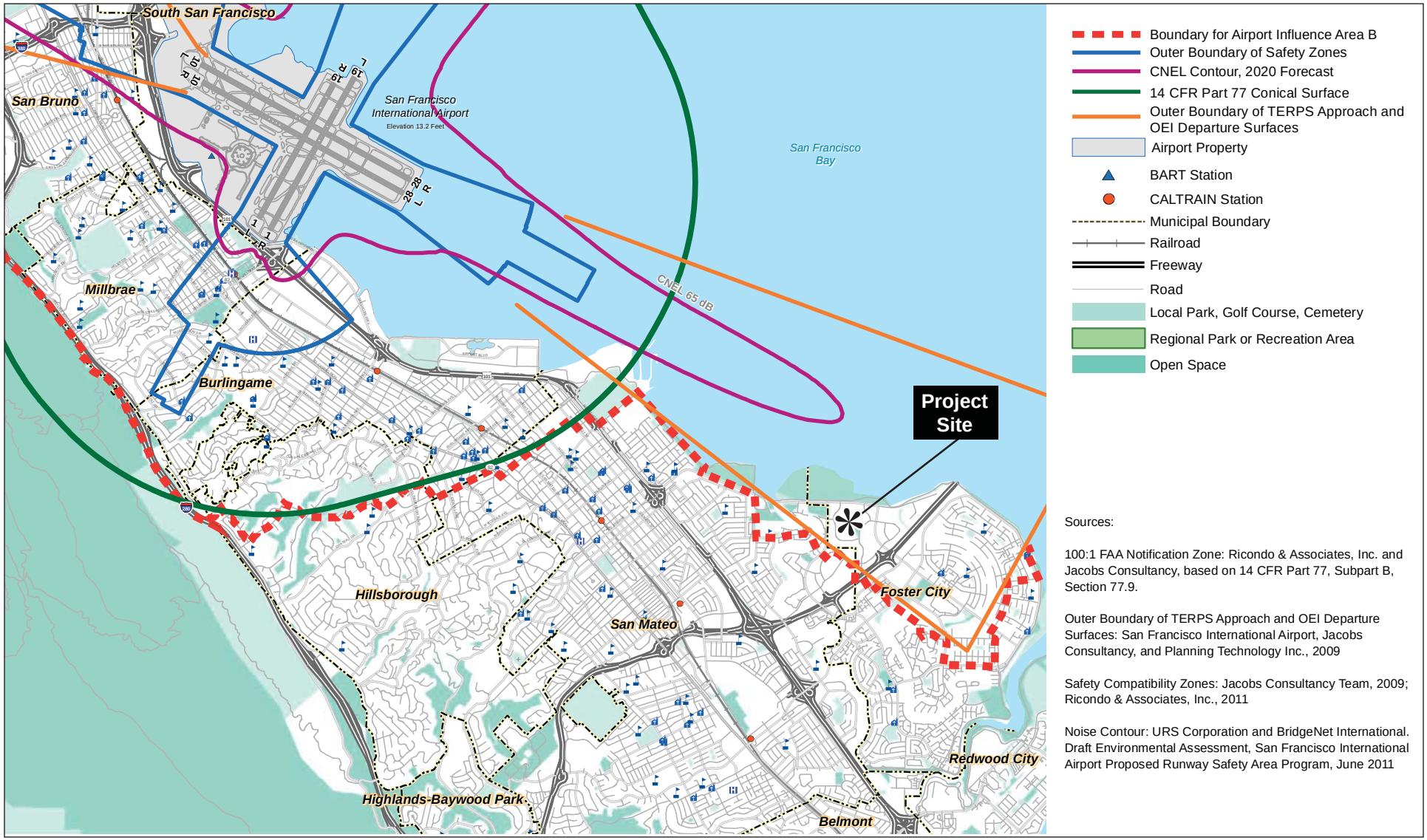

LSA

FIGURE III-4

Area A: Airport Influence Area (AIA) Boundary (Real Estate Disclosure Only)

Area B: CCAG/ALUC Review Area Boundary (Real Estate Disclosure and Formal CCAG/AUC Review)

* Project Site

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MILES

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

San Francisco International Airport Influence Area Boundaries

SOURCE: CITY/COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY, JULY 2012.

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- Any use that creates an increased attraction for wildlife, particularly large flocks of birds, that is inconsistent with FAA rules and regulations, including, but not limited to, FAA Order 5200.5A, Waste Disposal Sites On or Near Airports, FAA Advisory Circular 150/ 5200-33B, Hazardous Wildlife Attractants On or Near Airports, and any successor or replacement orders or advisory circulars. Exceptions to this policy are acceptable for wetlands or other environmental mitigation projects required by ordinance, statute, court order, or Record of Decision issued by a federal agency under the National Environmental Policy Act.

2. Consistency

The following section evaluates the 2012 Master Plan's consistency with both the SQL and SFO CALUPs.

a. San Carlos Airport. As described previously, the proposed project would be located approximately 4 miles north of SQL in Area A of the AIA. Area A denotes locations that are both outside the 55 decibel (dB) CNEL aircraft noise contour and the mapped height restrictions, and, thus, would not require detailed review by the Airport Land Use Commission. It is anticipated that the materials used to construct the proposed 2012 Master Plan buildings would be similar to those used in the most recently-constructed building on the campus, and would not create conflicts with design restrictions regarding light or generation of glare. The project would not include uses hazardous to air navigation. If firms other than Gilead Sciences were to purchase or lease buildings on the site (an action which is not proposed as part of the 2012 Master Plan), the real estate transfer documents would be required to disclose that the property is located within the AIA of the SQL.

b. San Francisco International Airport. As described previously, the project site is located approximately 5 miles south of SFO and is located within Area B of the AIA. However, the proposed project is located outside of the mapped 2020 CNEL noise contours, safety compatibility zones, and height restrictions. Because the project site is outside these areas, it would not be subject to the policies of the Noise, Safety and Airspace Protection/Height Limitation elements, even though it would be formally reviewed by the Airport Land Use Commission.

In general, the buildings on the site, which could be built to a maximum height of 192 feet at the roof screen, would be compliant with the relevant airspace protection criteria specified in the Federal Aviation Regulations Part 77 for SFO. To ensure that the 2012 Master Plan would not result in aviation-related hazards and would conform to County policy and practice to protect the airspace in the vicinity of each airport in the County, Gilead Sciences would be required to submit the building plans for specific building projects to the Federal Aviation Administration (FAA) for a formal airspace impact evaluation, per the Federal Aviation Regulations Part 77 review process. Submittal of plans to the FAA would occur when a Specific Development Plan/Use Permit is submitted for specific development proposals on the site, following approval of the 2012 Master Plan. Because the project is currently proposed at a conceptual level, building height and configuration would not be precisely identified until a Specific Building Plan/Use Permit is sought by Gilead Sciences.

The results of the FAA airspace impact evaluation would then be provided to Gilead Sciences and the City. The City would consider the FAA airspace impact evaluation prior to deciding whether to approve specific building projects in the project site.

It is anticipated that the materials used to construct 2012 Master Plan buildings would be similar to those used in the building currently under construction within the project site (NLB-1), and would not create conflicts with design restrictions regarding light or generation of glare. As noted above, the project would not include uses hazardous to air navigation. If firms other than Gilead Sciences were to purchase or lease buildings on the site (an action which is not proposed as part of the 2012 Master Plan), the real estate transfer documents would be required to disclose that the property is located within the AIA of the SFO. Therefore, the 2012 Master Plan would not conflict with the SFO CALUP.

IV. SETTING, IMPACTS AND MITIGATION MEASURES

This chapter contains an analysis of each potentially significant environmental issue that has been identified for the Gilead Sciences Integrated Corporate Campus Master Plan, and, as such, constitutes the major portion of the Subsequent EIR. Sections A through K of this chapter describe the environmental setting of the project site as it relates to each specific issue. The impacts resulting from implementation of the proposed project and mitigation measures that would reduce impacts of the project, as appropriate, are also presented in each of the sections.

DETERMINATION OF SIGNIFICANCE

Under CEQA, a significant effect is defined as a substantial, or potentially substantial, adverse change in the environment. The *CEQA Guidelines* direct that this determination be based on scientific and factual data. Each impact and mitigation measure section of this chapter is prefaced by a summary of criteria of significance. These criteria have been developed using the *CEQA Guidelines* and applicable City policies, such as the Foster City General Plan (General Plan).

1. Issues Addressed in the Subsequent EIR

The following environmental issues are addressed in this chapter:

A. Land Use
B. Visual Quality
C. Population, Employment, and Housing
D. Geology, Seismicity, and Soils
E. Hydrology and Water Quality
F. Hazards and Hazardous Materials
G. Transportation and Circulation
H. Noise
I. Air Quality
J. Public Services, Utilities, and Recreation
K. Global Climate Change

Preliminary analysis, including review of comments received during the Subsequent EIR scoping period, review of the conclusions of the 2010 Master Plan EIR, evaluation of aerial maps, and discussions with City staff, has determined that the proposed project would not result in significant impacts to agriculture and forestry resources, biological resources, cultural and paleontological resources, shade and shadow, and mineral resources. Consequently, these issues are not examined in this chapter of the Subsequent EIR. Chapter VI, Other CEQA Considerations, briefly discusses each topic and supports the conclusion that the project would not result in significant environmental effects related to these topic areas.

2. Format of Issue Sections

Each environmental topical section comprises two primary parts: (1) Setting, and (2) Impacts and Mitigation Measures. An overview of the general organization and the information provided in the two parts is provided below:

- **Setting.** The Setting section for each environmental topic generally provides a description of the applicable physical setting, or baseline (e.g., existing land uses, soil conditions, traffic conditions) for the 2012 Master Plan area and its surroundings in March 2012, at the beginning of the environmental review process. An overview of regulatory considerations that are applicable to each specific environmental topic is also provided.
- **Impacts and Mitigation Measures.** The Impacts and Mitigation Measures section for each environmental topic presents a discussion of the impacts that could result from implementation of the proposed 2012 Master Plan. The section begins with the criteria of significance, which establish the thresholds to determine whether an impact is significant. The latter part of this section presents the impacts from the proposed project and mitigation measures, as appropriate. The impacts of the proposed project are organized into separate categories based on their significance according to the criteria listed in each topical section: less-than-significant impacts (which do not require mitigation measures) and significant impacts (which do require mitigation measures).

Impacts are numbered and shown in bold type, and the corresponding mitigation measures are numbered and indented. Impacts and mitigation measures are numbered consecutively within each topical analysis and begin with an acronymic or abbreviated reference to the impact section (e.g., LAND). The following symbols are used for individual topics:

LAND	Land Use
VIS	Visual Quality
POP	Population, Employment, and Housing
GEO	Geology, Seismicity, and Soils
HYD	Hydrology and Water Quality
HAZ	Hazards and Hazardous Materials
TRANS	Transportation and Circulation
NOI	Noise
AIR	Air Quality
UTL	Public Services and Utilities
GCC	Global Climate Change

Impacts are also categorized by type of impact, as follows: Less-Than-Significant, Significant, and Significant and Unavoidable. The following notations are provided after each identified significant impact and after identification of mitigation measures:

LTS	Less Than Significant
S	Significant
SU	Significant and Unavoidable

A. LAND USE

This section describes existing land uses within and in the vicinity of the 2012 Master Plan area, and evaluates potential land use impacts that could result from the proposed project. The project's consistency with land use policies adopted for the purpose of environmental protection is discussed in Chapter III, Planning Policy.

1. Setting

The following setting information provides an overview of the land uses within the project site and surrounding areas. The section begins with a discussion of the regional and local land use setting, and then provides more specific information about the project site and its vicinity. Land uses around the project site are identified in the aerial photo provided in Figure IV.A-1. Photographs of the site and surrounding area are provided throughout this section as Photo IV.A-1 through Photo IV.A-3.

a. Regional Setting. The project site is located on the San Francisco Peninsula within Foster City, as shown in Figure II-1 in Chapter II, Project Description. 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. Foster City is located in San Mateo County and 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. Major transportation corridors in the area include US 101 and SR 92. Foster City is located in Silicon Valley, which is known for its high density of technology companies and technology-related innovation.

b. Local Setting. Foster City is a planned community consisting of distinct neighborhoods organized around open spaces and water bodies connecting to San Francisco Bay. The City was designed in the 1960s as a suburban community with a clear community center and an industrial base to support required services. The City was constructed on reclaimed marshlands devoted to dairy farming, and evaporation ponds. Development of the City has been shaped by the mainly water-oriented constraints of filled marshlands, including Marina Lagoon on the west, Belmont Slough on the east, and Foster City Lagoon. Foster City Lagoon extends into the center of Foster City.

The project site is located in the Vintage Park neighborhood, a 132-acre mixed-use development primarily consisting of office and research and development uses (Figure II-1 depicts the boundaries of Vintage Park). Vintage Park is described below in more detail. The focal point of Vintage Park is Vintage Lake, a man-made lake located within the project site. The project site, including Vintage Lake, are located approximately 2,400 feet north of Foster City's Town Center (Metro Center), an approximately 100-acre neighborhood consisting of high density mixed uses, including office, residential, and retail uses.

The approximately 73-acre project site is generally bounded by East Third Avenue to the north, Vintage Park Drive and Marsh Drive to the east, Home Depot and other commercial uses to the south, and Mariners Island Boulevard to the west, as shown in Figure IV.A-1. Regional vehicular access to the project site is provided via the Foster City Boulevard exit from SR 92, approximately ¼-mile southeast of the project site, and the East Third Avenue exit from Highway 101, to the northwest of the site. Local access to the site is provided via Foster City Boulevard, East Third Avenue, Mariners Island Boulevard, Marsh Drive and Vintage Park Drive.

c. Existing Conditions and Land Uses on the Project Site. The project site was originally developed as part of the Vintage Park Master Plan (General Development Plan). The Vintage Park Master Plan and Design Guidelines guide the development of the site, and were first approved by the City Council in 1981 and 1984, respectively, and have been amended since that time. The Vintage Park Master Plan was approved for the entire 132-acre Vintage Park area, which includes the Electronics for Imaging (EFI) campus and the project site. The Vintage Park Master Plan, as originally proposed, included executive offices, residential condominiums, commercial/retail, research and development, and light industrial uses. The Vintage Park Master Plan and Design Guidelines were amended after EFI requested certain changes, including removal of housing from the plans, an increase in the total number of parking spots, a change in building heights, and a modification of development phasing. The 2010 Master Plan included further amendments to the Vintage Park Master Plan and Design Guidelines. These amendments included the addition of traffic calming options for the campus, the illustration of façade design guidelines for parking structures, and modifications to the recommended plant list. Ordinance 554, approved on March 1, 2010, adopted the 2010 Master Plan and amendments to the Vintage Park Master Plan and Design Guidelines. Further amendments to the Design Guidelines and Signage Guidelines were adopted in 2012.

Land uses on the project site are characterized by 15 one- and two-story office and laboratory buildings on the South Campus (i.e., the area comprising the 2010 Master Plan) and one five-story office building on the North Campus (i.e., the remaining portion of the project site, generally to the north of Vintage Lake). NLB-1, which is currently under construction, will be four stories. The boundaries of the North Campus and South Campus are shown on Figure IV.A-1.

Surface parking lots are located around each building on the project site, and each building is accessible from Lakeside Drive and Velocity Way. The structures on the site were built from approximately the mid-1980s to 2007 (NB\368 (NLB-1) is still under construction) and total approximately 926,735 square feet of interior building space. These buildings contain a mix of office and laboratory uses. Shared surface parking lots – generally serving small groups of buildings – are located throughout the site. Landscaping on the site is located within and around parking lots, Lakeside Drive, building perimeters, and walkways connecting the southeast corner of the campus to and surrounding Vintage Lake. The shoreline of Vintage Lake is also landscaped. Information about existing uses located throughout the project site is provided in Table II-1 in Chapter II, Project Description. Photo IV.A-1 depicts a typical office building located on the project site.

Photo IV.A-1: Typical project site office building.

The existing General Plan designation of the project site is Research/Office Park, which allows for generally clean and quiet office, research and development, and manufacturing establishments. The project site is zoned Commercial Mix/Planned Development (CM/PD) on the Foster City Zoning Map.

LSA

FIGURE IV.A-1

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0 450 900
FEET

Project Site
North Campus
South Campus

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Land Uses in the Plan Area

SOURCE: GOOGLE EARTH, NOVEMBER 2011; LSA ASSOCIATES, INC., 2012.

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d. Land Uses in the Vicinity of the Project Site. The following section describes the land uses found in the vicinity of the project site, as shown in Figure IV.A-1. The project site is located near the northern boundary of Foster City, where urban uses transition to open space along the shoreline of San Francisco Bay.

(1) Land Uses to the North. The project site is bordered to the north by East Third Avenue and the former EFI building (a view of which is shown in Photo IV.A-2). As of November 1, 2012, Gilead Sciences assumed ownership of this building, which is not part of the project site. Gilead Sciences may lease a portion of the building to EFI. Velocity Way forms a loop in the North Campus, connecting to Lakeside Drive to the west and Marsh Drive and Vintage Park Drive to the east. Across East Third Avenue are the Mariner's Point Golf Links and Bay Marshes Open Space. The former EFI campus consists of a 10-story building fronting East Third Avenue. The San Francisco Bay is located immediately beyond the golf course.

Photo IV.A-2: View of Buildings 301 and 303.

(2) Land Uses to the East. The easternmost portion of the project site is bordered by Vintage Park Drive and Marsh Drive, beyond which are light industrial, office, and parking uses. East of the project site, at the intersection of Vintage Park and Lakeside Drive, is a site that contains several one-story buildings, although most of the site is devoted to parking and storage. Foster City Boulevard, which extends north to the San Francisco Bay shoreline, and south towards the northern limits of Town Center, is located further east of this site. Buildings around Foster City Boulevard in the vicinity of the site are generally one- to two-stories tall and contain office and light industrial uses.

(3) Land Uses to the South. To the south of the project site is a major commercial district in the City of San Mateo. Land uses immediately adjacent to the site to the south include a Home Depot and a six-story Hilton Garden Inn, both of which are located on Chess Drive. South of Chess Drive is the Bridgepointe Shopping Center, which includes big box stores, such as Target and Staples, and expansive surface parking lots. No roads connect the southern boundary of the project site to the Bridgepointe Shopping Center.

(4) Land Uses to the West. The project site is bordered by the four-lane Mariners Island Boulevard to the west. Land uses across Mariners Island Boulevard include a mix of one-, two-, and three-story multi-family and single-family residential uses (as shown in Photo IV.A-3), and the Marina Lagoon. These residential uses and lagoon are located in the City of San Mateo. Tidelands Park, consisting of mostly undeveloped open space, is located adjacent to the northwest corner of the project site. In addition, a 76-unit condominium project has been approved (but

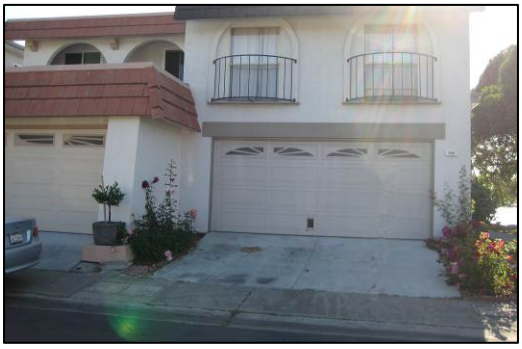
Photo IV.A-3: Typical residential development along Mariners Island Boulevard.

not yet developed) at the southwest quadrant of Mariners Island Boulevard and East Third Avenue, adjacent to Tidelands Park.

2. Impacts and Mitigation Measures

The following section presents a discussion of the 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 to determine whether an impact is significant. The latter part of this section presents the land use impacts that would result from the proposed project. All such impacts would be less than significant (significant planning policy-related impacts are discussed in Chapter III).

a. Criteria of Significance. The proposed project would have a significant impact if it would:

- Disrupt or divide the physical arrangement of an established community;
- Alter the type or intensity of land use on a project site, causing it to be substantially incompatible with surrounding land uses or the overall character of surrounding neighborhoods;
- Fundamentally 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 or zoning ordinance), adopted for the purpose of avoiding or mitigating an environmental effect, and where such conflict would actually result in an adverse physical change in the environment; or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

b. Less-Than-Significant Impacts. Less-than-significant impacts of the proposed project are discussed below. Potential conflicts with land use policies and regulations are addressed in Chapter III, Planning Policy.

(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. For example, the construction of an interstate highway through an existing community could constrain travel from one side of the community to another.

The proposed 2012 Master Plan would result in the removal of up to 12 existing buildings, totaling 367,421 square feet of office and research and development uses, and several surface parking lots. The project site would ultimately contain up to 2,500,600 square feet of office and laboratory uses, four structured parking lots, surface parking lots, open space along Vintage Lake, and other open space and landscaped areas. After implementation of the 2012 Master Plan, building square footage would more than double from existing conditions, from 926,735 square feet to up to 2,500,600 square feet of building space (a net increase of 1,573,865 square feet of building space).

No new roadways would be constructed as part of the 2012 Master Plan, although the proposed project includes the closure of a portion of Lakeside Drive from Reef Drive to Vintage Park Drive. That closure, which would preclude both public motor vehicle and pedestrian access into the site, was

approved as part of the 2010 Master Plan (Resolution 2010-21 (February 16, 2010)). However, the effects of the closure are discussed here since, as of spring 2012, the roadway segment has not yet been closed. The purpose of the partial closure is to facilitate the movement of employees throughout the campus by removing the need to cross a public thoroughfare, and to increase pedestrian safety.

In addition, as an action independent of the 2012 Master Plan that was approved in November 2012, Gilead Sciences assumed ownership and maintenance responsibility for the remainder of Lakeside Drive and Reef Drive. The 40-foot-wide roadway would remain intact from East Third Avenue through the intersection with Reef Drive, up to the proposed building labeled NB/331, where it would terminate at a proposed cul-de-sac. South of the cul-de-sac, a 24-foot-wide private asphalt drive would be constructed to access adjoining future parking lots. The portion of Lakeside Drive from the intersection of Vintage Park Drive to a second proposed cul-de-sac near the building labeled NB/353 would also remain intact. Emergency vehicles would be able to drive along the entire length of Lakeside Drive, and private pedestrian pathways would link the two cul-de-sacs.

The partial closure of Lakeside Drive would impede access through the project site by non-emergency vehicles and the public. However, a 2008 transportation study of three projects proposed in Foster City (including the 2010 Master Plan), which examined the effects of partially closing Lakeside Drive, shows that relatively few vehicles use Lakeside Drive as a cut-through route.[1] Pedestrian use of the roadway as a cut-through route is also thought to be infrequent (no through-traveling pedestrians were observed by members of the EIR team during repeated site visits). While the public would not be able to drive or bike through the site, the major roads that border the site, including Vintage Park Drive, East Third Avenue, and Mariners Island Boulevard, would not be altered. Motor vehicles, bikes, and pedestrians would be able to use these other roadways to access land uses surrounding the project site, but would not be allowed to cut across the campus. Therefore, the partial closure of Lakeside Drive would not divide an established community.

An existing pedestrian pathway provides access to Vintage Lake. There are multiple access points to the trail, including a western trailhead approximately 170 feet from the intersection of Reef Drive and Lakeside Drive. From this point, the trail extends southeasterly, along a curvilinear route, along the southern edge of Vintage Lake. An eastern trailhead is also on Lakeside Drive, approximately 55 feet from the intersection of Vintage Park Drive and Lakeside Drive. Two possible guard stations are proposed as part of the closure of Lakeside Drive.

Therefore, the net effects of the closure of a segment of Lakeside Drive would be a slightly longer vehicle/bike trip for certain non-Gilead travelers who might have typically used Lakeside Drive to access points beyond the 2012 Master Plan area, and diminished access for cyclists and pedestrians using the public trail to Vintage Lake. However, closure of Lakeside Drive would not substantially impede access to neighborhoods and open space in Foster City around the project site.

The primary users of Lakeside Drive are Gilead and EFI employees (who may continue to use Building 303 even though it has been purchased by Gilead Sciences). Since the portion of Lakeside Drive serving the former EFI campus (i.e., the segment of the road between Reef Drive and East Third Avenue) would remain open to the public (although privately owned and maintained by Gilead

[1] Fehr & Peers, 2008. *Final Report, Foster City Multi-Project Traffic Analysis.* December.

Sciences), the partial closure of Lakeside Drive would not obstruct EFI employees from reaching their campus. As such, the partial closure of Lakeside Drive would not impede access to the two campuses by employees, visitors, and other associated vehicles.

Pedestrian access for Gilead employees would be improved as a result of the 2012 Master Plan due to the reduction of vehicle traffic and an enhanced pedestrian environment (including through the conversion of a portion of Lakeside Drive into an open space area with a pedestrian walkway). Sidewalks are proposed to extend from the Vintage Park Drive entrance along the proposed Lakeside Drive pathway, and throughout the entire campus, ending at East Third Avenue.

(2) Land Use Conflicts. As previously described, the project site is surrounded by a variety of land uses, including office park uses and open space to the north; office and light industrial uses to the east; retail and hotel uses to the south; and single-family and multi-family residential uses and open space to the west. Most of the surrounding uses are separated from the project site by major roadways, including Mariners Island Boulevard and Vintage Park Drive. The project site is currently developed with 16 one-, two-, and five-story office and laboratory buildings (and one four-story building under construction) and associated surface parking and landscaping. The proposed project would not introduce new land uses to the project site (although uses accessory to office and laboratory uses, such as cafeteria and gymnasium uses beyond those that already exist, may be incorporated into certain buildings). These accessory land uses would not represent a substantial change in land use, as similar uses are currently present within the project site. After implementation of the 2012 Master Plan, the project site would continue to be used by Gilead Sciences for biopharmaceutical research and development, and no conflicts with surrounding uses would occur. The project would intensify use of the site through the reuse of surface parking lots for multi-story buildings and parking garages. Although taller and more massive structures would increase the intensity of land use in the project area, the redeveloped uses would not create land use conflicts with existing on-site and surrounding land uses. The 2012 Master Plan area is an appropriate place for intensified uses because it is buffered from surrounding lower-scale residential uses to the west by Mariners Island Boulevard. As such, the proposed project would not result in incompatible uses. Potential conflicts related to air quality and noise are discussed in Sections IV.H, Noise and IV.I, Air Quality and of this Subsequent EIR.

(3) Conflict With Land Use Policies. The proposed project would be generally consistent with applicable land use plans and policies, but would conflict with policies related to noise that were adopted for the purpose of avoiding or mitigating significant environmental impacts. Refer to Chapter III, Planning Policy, for additional detail.

(4) Conflict with Habitat Conservation Plan. The project site is not located within any habitat conservation plan or natural community conservation plan area and would not conflict with any such plan.

c. Significant Impacts. Implementation of the proposed project would not result in significant land use impacts beyond those that relate to policy conflicts that are discussed in Chapter III, Planning Policy.

d. Cumulative Impacts. The proposed project would redevelop the site with up to 2,500,600 square feet of interior office and laboratory building space, an increase of up to 1,573,865 square feet

from existing conditions. The proposed project would not introduce any new land uses to the project site, but would increase the intensity of development. However, an increased intensity of uses 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 (including the planned residential development in the City of San Mateo to the west of the site that is summarized in Chapter IV.C, Population, Employment, and Housing). 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 changes are generally consistent with the City's goals and policies that are found in the General Plan. These policies include ones promoting the growth of businesses in the City and the use of land in a way that is sensitive to surrounding neighborhoods.

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B. VISUAL QUALITY

This section evaluates the effects of the proposed 2012 Master Plan on visual resources in the vicinity of the project site. This analysis also considers the proposed 2012 Master Plan's consistency with applicable visual resources-related policies. Photographs are included to illustrate the site's visual qualities. Visual simulations that show "before" and "after" representations of proposed 2012 Master Plan buildings and landscape changes have been prepared for five representative vantage points in the vicinity of the site, along with a visual animation of a trip through the campus, which can be found in a CD attached to the back cover of the Subsequent EIR (see Appendix F). The visual simulations are intended to convey an impression of the location, scale, and massing of the buildings that could be constructed at the project site, and to demonstrate potential effects of the proposed project on visual resources. As noted in Chapter I, Introduction and Summary, the 2012 Master Plan is currently proposed at a conceptual level, and individual developments within the 2012 Master Plan area would be subject to additional review, including supplemental visual study, as appropriate. The visual simulations and analysis in this section are based on the conceptual plans and massing studies prepared by the project sponsor in May 2012.

1. Setting

The following section describes the visual character of the project site and its surroundings, as well as views in the vicinity of the site. The project site is developed with 926,735 square feet of laboratory, office, and ancillary uses, including the anticipated interior square footage of NLB-1, which is under construction. Approximately 69 percent of the site is covered with impervious surfaces (not including the surface area of Vintage Lake or the paved portion of the Lakeside Drive right-of-way), in the form of paved surface parking lots, building footprints, and other hard surfaces. Parking covers approximately 34 percent of the project site, and open space and landscaping cover approximately 31 percent of the site.

Representative views of the project site are provided in Figures IV.B-2 through IV.B-6. These photos correspond to the viewpoint locations (1 through 5) noted on Figure IV.B-1 for which visual simulations of the proposed project have been prepared. For a detailed description of the physical characteristics of the project site, refer to Section IV.A, Land Use.

a. Existing Visual Character of the Project Site. The project site is generally flat and consists of an approximately 73-acre area developed with 17 buildings (including one building that is under construction as of August 2012) that currently or will contain laboratory and office uses, and associated surface parking and landscaping. Of the existing buildings on the site, 15 buildings range from one to two stories in height and Building 301 is five stories. NLB-1, which is currently being constructed, will be four-stories. The building located at 303 Velocity Way, just to the north of the project site, is 10 stories. Mature trees are located throughout the project site, including along the site perimeter and internal roadways. Vintage Lake, an open body of water in the central portion of the site, is surrounded by open space and is a major visual element of the site.

b. Views from the Project Site. Views from the project site of surrounding land uses are limited from certain locations due to development on the project site and the flat terrain of the area. Existing one-, two-, five- and 10-story buildings, along with the trees that have been planted along exterior and interior roads, generally block views of surrounding areas to the north and east. Where view corridors do exist, they tend to be located at intersections near the edge of the project site. From Reef Drive and

Lakeside Drive looking west, there are unobstructed views of some of the residential uses located to the west of the project site; from Lakeside Drive and East Third Avenue looking north, the Mariner's Point Golf Links can be clearly seen; and viewpoints from the vicinity of Marsh Drive and East Third Avenue have views of the East Bay Hills. Views around the project site are discussed below.

(1) North of the Project Site. The project site is bordered to the north by the office building located at 303 Velocity Way and East Third Avenue. From the southern portion of the project site, views to the north are almost totally obstructed by the existing buildings and landscaping on the campus. However, the 10-story building located at 303 Velocity Way is a major landmark in the area and is visible throughout the project site. San Francisco Bay, located to the north of the site, is not visible from any ground-level viewpoint on the project site, due to existing buildings on the North Campus, the flat topography of the site, and the levee along the Bay shoreline. However, the San Mateo Bridge is visible along the northern edge of the project site.

(2) East of the Project Site. The project site is bordered to the east by Vintage Park Drive (a four-lane roadway) and Marsh Drive (a two-lane roadway). Views from the southeast portion of the site looking east are generally obstructed by trees planted along Vintage Park Drive. In particular, the one- and two-story office and light industrial buildings east of Vintage Park Drive are not visible from the project site due to the mature trees planted along Vintage Park Drive and the flat topography of the area. From the northwestern corner of the project site, views to the east include the building located at 303 Velocity Way.

(3) South of the Project Site. The southern boundary of the project site is bordered by Home Depot and the Hilton Garden Inn, both of which are located on Chess Drive in the City of San Mateo. Views south of the project site are generally obstructed by landscaping; however, there are views from the site of the back of the Home Depot, as well as the six-story Hilton Garden Inn.

(4) West of the Project Site. The project site is bordered to the west by Mariners Island Boulevard. One-, two-, and three-story single-family and multi-family residential uses line Mariners Island Boulevard to the west. Views of and across Mariners Island Boulevard are generally obstructed by existing landscaping and mature trees bordering the project site, although the roadway and adjacent residential uses are visible from portions of the campus. Tidelands Park, a major open space facility in the City of San Mateo to the west of the site, is also visible from the northwestern corner of the site.

c. Views of and Through the Project Site. The project site is visible from surrounding areas, although the generally low-slung buildings in the area appear to be visually contiguous with similar urban development surrounding the site. Key views of and through the project site from surrounding public areas are described below.

(1) Views from the San Mateo Bridge. Views of the project site from the portion of the San Mateo Bridge approximately ¼-mile east from the Francisco Bay shoreline are shown in Figure IV.B-2. From this viewpoint, views of the project site are partially obstructed by commercial buildings, including the 10-story building at 303 Velocity Way, mature trees within the golf course to the north of the site, and landscaping that has been planted around the perimeter of the project site. In the background are extensive views of the Santa Cruz Mountains.

LSA

FIGURE IV.B-1

N

0 650 1300
FEET

Project Site

Viewpoint Location

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Viewpoint Locations

SOURCES: GOOGLE EARTH, 2011; LSA ASSOCIATES, INC., 2012.

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Viewpoint 1: Existing view

Viewpoint 1: Visual simulation

LSA

FIGURE IV.B-2

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Visual Simulation from Viewpoint 1

SOURCE: ANDREW McNICHOL, 2012.

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Viewpoint 2: Existing view

Viewpoint 2: Visual simulation

LSA

FIGURE IV.B-3

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Visual Simulation from Viewpoint 2

SOURCE: ANDREW McNICHOL, 2012.

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Viewpoint 3: Existing view

Viewpoint 3: Visual simulation

LSA

FIGURE IV.B-4

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Visual Simulation from Viewpoint 3

SOURCE: ANDREW McNICHOL, 2012.

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Viewpoint 4: Existing view

Viewpoint 4: Visual simulation

LSA

FIGURE IV.B-5

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Visual Simulation from Viewpoint 4

SOURCE: ANDREW McNICHOL, 2012.

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Viewpoint 5: Existing view

Viewpoint 5: Visual simulation

LSA

FIGURE IV.B-6

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Visual Simulation from Viewpoint 5

SOURCE: ANDREW McNICHOL, 2012.

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(2) Views from the Intersection of Foster City Boulevard and Vintage Park Drive. Views of the project site from the intersection of Foster City Boulevard and Vintage Park Drive are depicted in Figure IV.B-3. The view of the project site is partially obstructed by mature trees, PG&E high-tension power lines, and existing office buildings, including the building located at 303 Velocity Way. No clear view corridor into and through the site exists from this viewpoint. A small portion of the Santa Cruz Mountains is visible in the distance from this vantage point.

(3) Views from Foster City Boulevard. Views of the project site from the portion of Foster City Boulevard on the State Route (SR) 92 overpass are shown in Figure IV.B-4. The view of the project site is distant from this location and is generally obstructed by mature trees, street lights, and existing commercial buildings, including the building located at 303 Velocity Way. However, the top three floors of Building 301 are visible from this vantage point. In addition, the Santa Cruz Mountains are visible around existing urban development and landscaping, although views of the mountains are fleeting.

(4) Views from Vintage Park Drive. Views of the project site from the portion of Vintage Park Drive on the SR 92 overpass are shown in Figure IV.B-5. The view of the project site is mostly obstructed by mature trees and landscaping features, street lights, and existing office buildings. No clear view corridors into and through the site exist from this location.

(5) Views from the Intersection of Mariners Island Boulevard and Reef Drive. Views of the project site from the intersection of Mariners Island Boulevard and Reef Drive are depicted in Figure IV.B-6. The views from this point are characterized by the high-tension power lines that cross the site, and vegetation around the perimeter of the site. No long-distance views are available from this location.

2. Regulatory Context

The following discussion describes relevant policies of the Foster City General Plan and the Vintage Park Design Guidelines.

a. Foster City General Plan. The Foster City General Plan contains the following policies related to the visual quality and character of development within the City.

Land Use and Circulation Element

- *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 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.

Parks and Open Space Element

- *Program 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; (2) provision of street furniture in public open spaces; and (3) impacts to waterfront views.
- *Policy PC-18: Access to Sunlight.* Consider the impact of new development on sunlight to existing public open spaces.

b. Vintage Park Design Guidelines. The Vintage Park Design Guidelines (Guidelines) were created to implement the Vintage Park Master Plan principles. During the design review process, the Guidelines are used by the City when reviewing projects located in Vintage Park. The Vintage Park Master Plan and associated Design Guidelines intend development in this area to be integrated into a planned open space system in a park-like setting. The Guidelines contain several policies related to the visual quality of the project site. Policies related to site planning are analyzed in this section because they are most applicable to the 2012 Master Plan, which is proposed at a conceptual level of design. Other policies that are applicable to site-specific design would need to be evaluated when individual projects are proposed within the 2012 Master Plan area. Site planning policies and the 2012 Master Plan's consistency with these policies are discussed below in Table IV.B-1.

3. Impacts and Mitigation Measures

This section analyzes impacts related to visual quality that could result from the proposed project. The subsection 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 impacts associated with the proposed project. Mitigation measures are recommended, as appropriate.

a. Criteria of Significance. The proposed project would have a significant effect on visual quality 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;
- Create an incompatible change to the skyline of the City; or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

b. Less-Than-Significant Impacts. Development of the proposed project would result in the following less-than-significant impacts to visual resources.

(1) Scenic Vistas and City Skyline. The Parks and Open Space Element of the Foster City General Plan does not define important view corridors and scenic vistas in the vicinity of the project site. While views of the San Francisco Bay, Marina Lagoon, the San Francisco Bay shoreline, and the Santa Cruz Mountains would be loosely considered scenic, they are not formally identified as such in the General Plan. Because specific view corridors are not identified in the General Plan, changes in viewsheds due to development projects are typically not considered significant.

In consultation with City staff, five viewpoint locations were chosen for visual simulations of the proposed project. These viewpoint locations were chosen based on project site visibility and the locations that provide the most representative views of the project site. Figure IV.B-1 shows the viewpoint locations. Figures IV.B-2 through IV.B-6 show existing views of the project site and visual simulations of the proposed project from each of these five viewpoints.

The visual simulations were prepared using computer modeling and rendering techniques, and are based solely on site layout and maximum building height data provided by the project sponsor (because building materials, colors, architecture, and landscape schematics are not yet available for the proposed project, generic illustrations have been provided). Proposed building heights may vary slightly (no more than 5 feet) in order to meet building code requirements or to accommodate mechanical equipment. The potential addition of up to 5 feet of building height would not be considered a significant change to the visual quality of the buildings as it represents a small fraction of the total building height, and mechanical equipment would be located behind a parapet towards the center of each building. As noted previously, the analysis of impacts to existing views of the project site focuses on site views from public locations such as roadways. Each viewpoint shown in the figures is described and evaluated below.

Views from the San Mateo Bridge (Viewpoint 1). Figure IV.B-2 depicts the view looking towards the project site from the San Mateo Bridge, approximately ¼-mile east of the San Francisco Bay shoreline. The existing view from this location encompasses San Francisco Bay, commercial and office buildings, mature trees and other landscaping, and the Santa Cruz Mountains. The visual simulation of the proposed project shows new buildings that would be developed as part of the project, including 10-story buildings.

Existing structures and landscaping obstruct approximately 10 to 25 percent of views of the Santa Cruz Mountains from Viewpoint 1. Even though the east-facing foothills of the Santa Cruz Mountains contain extensive residential development, the low-rise nature of this development, and the forest cover of the hillsides has allowed for the preservation of a high degree of scenic integrity. Viewpoint 1 provides an expansive and only partially-obstructed view of the hillsides. However, the General Plan does not dictate that views of these hillsides be unaltered by urban development in the flat lands adjoining San Francisco Bay.

Implementation of the proposed project would obstruct much of the view of the Santa Cruz Mountains that is currently available through the project site from Viewpoint 1 on the San Mateo Bridge (views from points further to the east on the San Mateo Bridge would be less obstructed). However, views of the mountains from Viewpoint 1 would be available farther to the north of the project site and from numerous near-shoreline locations. After implementation of the project, the shoreline of San Francisco Bay would appear more urbanized, with a wall of buildings obstructing westerly views towards the mountains in this specific location. However, in the context of the continued availability of expansive mountain views from other locations, and the lack of formal protections for specific viewsheds in the General Plan, changes to views of the mountains from the San Mateo Bridge would not be considered significant. It should also be noted that the San Mateo Bridge is not located on a scenic highway designated as such by the State.

Views from the Intersection of Foster City Boulevard and Vintage Park Drive Looking West (Viewpoint 2). Figure IV.B-3 depicts the view of the project site from the intersection of Foster City Boulevard and Vintage Park Drive. The view of the project site from this viewpoint is obstructed by mature trees, PG&E high-tension power lines, and existing office buildings. A small portion of the Santa Cruz Mountains is visible in the distance from this vantage point. The visual simulations shown (with landscaping) in Figure IV.B-3 depict the shipping and receiving center, two up to six-story parking structures and Buildings NB/309 and NB/307.

The project would alter the existing skyline as seen from this viewpoint. However, the change would be consistent with the existing pattern of the skyline, which is interrupted by tall buildings, high-tension power lines, and light poles. In addition, the project would obstruct the existing view of the Santa Cruz Mountains. While this would be an adverse effect, the existing view of the mountains is already mostly obstructed (i.e., approximately 95 percent). Thus, while the project would incrementally reduce views of the mountains from this viewpoint, the effect would not be substantial.

Views from Foster City Boulevard Looking Northwest (Viewpoint 3). Figure IV.B-4 depicts the view from a portion of Foster City Boulevard on the SR 92 overpass. Existing views of the project site from this viewpoint are generally obstructed by mature trees, light poles, and existing commercial buildings. However, the top three floors of Building 301 are visible from this vantage point. The visual simulation, included in Figure IV.B-4, shows NB/309, NB/307 and NB/309, which would obstruct views of existing Building 301, but not the building located at 303 Velocity Way. Limited views of the Santa Cruz Mountains are available from this viewpoint, but the project would not substantially block such views. The project would change the City skyline as seen from this viewpoint by introducing taller and more massive buildings. However, this change to the skyline would not be considered adverse because it would not substantially change existing scenic views.

Views from Vintage Park Drive Looking North (Viewpoint 4). Figure IV.B-5 depicts the view from the portion of Vintage Park Drive on the SR 92 overpass. Existing views of the project site are obstructed by mature trees and landscaping, light poles, and existing office buildings. The visual simulation included in Figure IV.B-5 shows NB/309, NB/307 and NB/305, each of which would be 10 stories in height. Similar to the visual change depicted from Viewpoint 3, the project would change the City skyline as seen from Viewpoint 4 through the development of taller and more massive buildings. However, this change to the skyline would not be considered substantial and adverse because it would not substantially change existing scenic views. No views of the Santa Cruz Mountains are available from Viewpoint 4.

View from the Intersection of Mariners Island Boulevard and Reef Drive Looking East (Viewpoint 5). Figure IV.B-6 depicts the view from the intersection of Mariners Island Boulevard and Reef Drive. Existing views of the project site from this viewpoint are characterized by the PG&E high-tension power lines. This view would change with implementation of the proposed project as 10-story buildings are developed on the site. After project implementation, the view would be substantially more urbanized. However, this change would not be considered significant because the new buildings that would be visible with project implementation would not block scenic views.

(2) Scenic Resources Within a State Scenic Highway. Although sections of SR 92 are eligible for designation within the California Scenic Highway System, the scenic highway designation does not apply to SR 92 in the vicinity of the project site.[1] The project site is not located within the viewshed of a State scenic highway. Therefore, the proposed project would not damage scenic resources within a State scenic highway.

[1] California Department of Transportation, 2012. California Scenic Highway Program. Website: www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm. September 5.

(3) Visual Character. Development of the proposed project would change the visual character of the project site. Up to 12 existing buildings would be demolished and 17 buildings ranging in height up to 10 stories would be constructed, along with associated surface parking lots and up to four parking structures. Mature trees and existing landscaping would be removed from portions of the site and replaced with new trees and landscaping. The proposed project would also implement the partial closure of Lakeside Drive to daily motor vehicle traffic (as approved in 2010) and provide pedestrian walkways, sidewalks, and open space areas in place of roadways and other built areas. Buildout of the 2012 Master Plan would increase the number of employees on the campus, and would change the circulation pattern on the site. These changes would likely increase pedestrian activity in and around the site. The proposed 2012 Master Plan would increase the intensity of development on the site and would result in the development of a more unified campus with a stronger visual relationship to Vintage Lake.

The visual quality of the site would change with implementation of the project. In particular the interior of the site would appear much more intensely developed, and open views of the sky that are currently available would be blocked by taller and more massive buildings compared to current conditions. However, the adverse visual effects of the more intensive building massing proposed as part of the project would be moderated through the provision of landscaping between buildings and the retention of Vintage Lake as a prominent visual feature on the project site. The increased intensity of uses would thus not substantially adversely affect the existing visual quality of the site.

In general, the taller 10-story buildings would be clustered around Vintage Lake and shorter buildings would be located closer to the periphery of the site. The open visual character of Vintage Lake would provide relief to the more intense building massing in the interior of the site and the lower buildings on the periphery of the site would allow for a visual transition to the lower-height commercial, industrial, and residential development surrounding the site. While the visual character of the site would change with implementation of the 2012 Master Plan, this change would not be considered substantial and adverse with retention of Vintage Lake, the provision of landscaping on the site, and the configuration of building massing such that buildings step down towards the periphery of the site.

In addition, the proposed project would be subject to the Foster City Design Review process as part of the Specific Development Plan/Use Permit for each building. Building permits would not be issued until design approval has been obtained. Design review would ensure that the design of each building is consistent with the City's objectives and policies related to project design. Building height would be reviewed during the design process as well. Therefore, the proposed project would have a less-than-significant impact on the visual character of the project site and its surroundings.

(4) Policy Consistency. The proposed 2012 Master Plan would generally be consistent with applicable General Plan policies, in that specific projects would be subject to the City's design review process prior to approval of specific site plans (see Chapter III, Planning Policy, for a detailed discussion of the project's consistency with the Foster City General Plan). The proposed 2012 Master Plan would also generally be consistent with the Vintage Park Design Guidelines, as shown in Table IV.B-1.

Table IV.B-1: Vintage Park Design Guidelines Policy Consistency

Guideline	Guideline Text	Project's Relationship to Guideline
Goal 3.2-1	Create green space corridors and circulation systems that enhance movement throughout Vintage Park.	The proposed project would include landscaped, pedestrian pathways throughout the campus. These pathways would connect the various buildings and amenities within the project site, including Vintage Lake. In addition, the project would close a portion of Lakeside Drive, which would enhance pedestrian movement through Vintage Park for Gilead Sciences employees. While the closure of Lakeside Drive would partially remove a north/south route for non-Gilead employees, this route is not heavily traveled. Moreover, Mariners Island Boulevard and Vintage Park Drive provide alternate routes, including for bicyclists.
Goal 3.3-1	Create a major park-like setting and quality open space that is economically feasible, allows for community access to the site and provides recreational opportunities.	The proposed project would include open space and landscaped features between buildings and throughout the site. Pedestrian pathways would be located throughout the campus and would enhance the walkability of the site. Access to the Vintage Lake area via an existing pedestrian pathway would remain.
Goal 3.3-2	Maintain a water feature within Vintage Park or for sustainability, provide an open space recreation area that is landscaped with plant materials consistent with the Vintage Park plant palette which shall be reviewed by the Planning Commission.	Vintage Lake would be maintained as part of the project and would be surrounded by accessible open space. A plant palette for specific developments would be provided as part of future Specific Development Plan/Use Permits.
Goal 3.3-3	Provide pedestrian, bicycle and jogging/fitness pathways around the open space and links to other pedestrian feature-areas throughout the project.	Please refer to the analysis for Goal 3.2-1 and Goal 3.2-2. The 2012 Master Plan would provide pedestrian pathways through the project site.
Goal 3.4-1	Construct and maintain pedestrian, bicycle, jogging/fitness pathways within Vintage Park to connect the various park amenities as well as provide access to various destination points on and off the site.	Please refer to the analysis for Goal 3.2-1 and Goal 3.2-2. The 2012 Master Plan would provide pedestrian pathways through the project site. These pathways would connect the various buildings, parking facilities and amenities on site, including Vintage Lake. Pedestrian access would also be provided to roads extending off-site.
Goal 4.0-1	Create a contiguous environment with the orientation and placement of buildings.	The project would cluster taller, 10-story buildings around Vintage Lake and shorter buildings around the campus periphery. This proposed building orientation and configuration would not intrude on the open space surrounding Vintage Lake and would allow proposed buildings to step down in height to buildings surrounding the project site.

Table IV.B-1 *Continued*

Guideline	Guideline Text	Project's Relationship to Guideline
Goal 4.0-2	In multi-building projects, group buildings together to enhance pedestrian circulation and landscape continuity.	Please refer to the analysis for Goal 4.0-1.
Goal 4.0-3	Plan circulation patterns which are integral systems within the network of landscape corridors, recreational amenities, building massing and view opportunities.	Please refer to the analysis for Goal 3.2-1, Goal 3.2-2, and Goal 3.4-1. The internal circulation system is designed to provide framed views of Vintage Lake.
Goal 4.2-1	Create a contiguous environment with the orientation and placement of buildings.	Please refer to the analysis for Goal 4.0-1.
Goal 5.1-1	Building massing shall be in relation to adjacent buildings and compatible with the surrounding neighborhood.	Please refer to the analysis for Goal 4.0-1.
Goal 5.2-1	Create a diversity of building heights to enhance an integrated and cohesive campus image.	Building heights would range from two to 10 stories.
Goal 5.2-2	Assure that building height (of new projects) is compatible with buildings in the immediate vicinity.	Please refer to the analysis for Goal 4.0-1.
Goal 5.4-1	Shield rooftop equipment with a roof screen and/or penthouse and provide pleasant roof views from adjacent taller buildings.	The conceptual project plans identify roof screens and/or penthouses on all taller buildings.

c. Significant Impacts. Development of the proposed project would result in one significant impact.

(1) Light and Glare. The proposed project would include new sources of light in Foster City. One- and two-story buildings currently located on the project site are generally obstructed by mature trees and landscaping. With implementation of the project, buildings up to 10 stories in height would be developed on the site. These buildings would be visible against the City skyline and could increase light and glare.

<u>Impact VIS-1</u>: The proposed project would create additional sources of day and nighttime light and glare in Foster City. (S)

During daylight hours, pedestrians and motorists could experience some degree of glare due to light reflecting off the new building facades. During nighttime hours, lighting fixtures incorporated into the design of each building would add new sources of light to the nighttime sky. In order to reduce potential light- and glare- related impacts to a less-than-significant level, the following two-part mitigation measure shall implemented at the time that specific Development Plans are prepared:

<u>Mitigation Measure VIS-1a</u>: The specific reflective properties of project building materials shall be assessed by the City during Design Review prior to approval of each Specific

Development Plan for the proposed project. Design review shall ensure that the use of reflective exterior materials is minimized and that proposed reflective material would not create additional daytime or nighttime glare. Glare shall be minimized per Section 17.068.080 of the Zoning Code.

Mitigation Measure VIS-1b: Specific lighting proposals shall be submitted and reviewed as part of each Specific Development Plan for each new building on the project site and shall be approved by the City prior to issuance of a building permit. This review shall ensure that any outdoor night lighting for the project is downward facing and shielded so as not to create additional nighttime glare. Lighting shall conform to the performance standards established by Section 17.68.080 of the Zoning Code. (LTS)

d. Cumulative Impacts. The proposed project would alter existing views of scenic vistas within the vicinity of the project site, including views of the distant mountains. Changes to Viewpoint 1, as shown in Figure IV.B-2, would obstruct much of the view of the Santa Cruz Mountains that is currently available through the project site from the western end of the San Mateo Bridge. Although shoreline development is highly regulated, it is conceivable that other future projects could be built near the western shoreline of San Francisco Bay that could combine with the proposed project to further reduce views of the Santa Cruz Mountains. However, expansive mountain views are available from numerous locations in the area, and a substantial diminishment of these views in the foreseeable future is unlikely due to restrictions on near-shoreline development in many municipalities adjoining the San Francisco Bay shoreline. In addition, specific viewsheds are not protected in the Foster City General Plan and changes to viewsheds due to urban development in the flat lands adjoining the San Francisco Bay shoreline would not be considered significant. Therefore, the proposed project would make a less-than-significant cumulative contribution to the obstruction of views of the Santa Cruz Mountains, including views from Viewpoint 1.

The project would also change the visual character of the area by introducing taller and more intensive development to the project site. However, this change would not be considered substantial and adverse, as the proposed buildings would be configured such that they would preserve the visual integrity of Vintage Lake and its surrounding open space and would step down in height to surrounding urban development. In addition, the design of individual buildings would be subject to the City's Design Review process, which would ensure that new construction is in accordance with the aesthetic character of the area. Therefore, the project would not make a significant contribution to adverse cumulative changes to visual character.

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 Mitigation Measures VIS-1a and VIS-1b, the proposed project would not make a substantial contribution to cumulative light and glare.

C. POPULATION, EMPLOYMENT, AND HOUSING

This section describes existing and projected population, employment, and housing information in Foster City and San Mateo County and evaluates potential socioeconomic impacts that could result from the proposed project.

1. Setting

The following section utilizes data from the U.S. Census Bureau (Census), California Department of Finance (DOF), the Association of Bay Area Governments (ABAG),[1] and the City of Foster City General Plan.

a. Population. Designed as a "Planned Community" in the early 1960's and incorporated in 1971, Foster City's population grew rapidly in its first decade as a city. As shown in Table IV.C-1, population increased by 21,045 residents between 1970 and 2010. However, planned communities typically develop around a pre-determined threshold population level and the City has nearly reached buildout capacity, in accordance with the original land use plan. As shown in Table IV.C-1, the City has experienced modest population growth since 1990. The estimated 2012 population of Foster City is 30,895.[2]

Table IV.C-1: Foster City Population Growth

Year	Population	10-Year Percent Change
2010	30,567	6%
2000	28,803	2%
1990	28,176	21%
1980	23,287	145%
1970	9,522	–

Sources: California Department of Finance, 2012, Historical Census Populations of California Cities, Places, and Towns 1850-2000; U.S. Census Bureau, 2010, 2010 Census Summary File 1, P1: Total Population, Foster City.

As shown in Figure IV.C-1, ABAG projects only a small, steady population increase for the years 2010 to 2030. In 2010, the City's population was 30,567. The City's 2020 population is projected to be 31,700, representing a 3.7 percent increase from 2010. The 2030 population is projected to reach 33,000, representing a 4.1 percent increase from 2020. Average 10-year growth rates under such projections are approximately 3.9 percent.

In 2010, San Mateo County's population was 718,451.[3] According to ABAG, the 2020 population of the County is projected to be 801,300, representing an 11.5 percent increase from 2010. By 2030, the

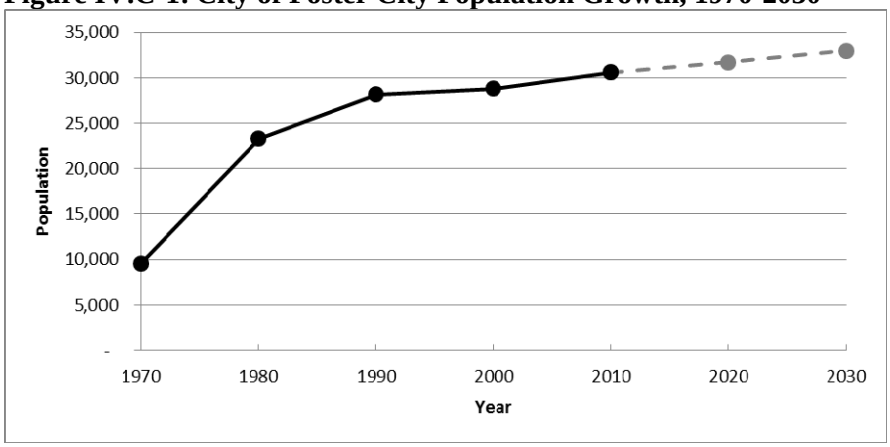
[1] Some ABAG data is for the City's "subregional study area," or its sphere of influence, and not its corporate boundaries. Subregional data are only used when no City level data are available. When subregional data are used, they are explicitly noted.

[2] State of California, 2012. Department of Finance. *E-5 Population and Housing Estimates for Cities, Counties and the State, 2011 and 2012, with 2010 Benchmark.* Website: www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php (accessed July 5, 2012).

[3] United States Census Bureau, 2010. *Summary File 1 (STF 1) for San Mateo County, 100-Percent Data, Tables P1*.

population of San Mateo County is projected to increase to 862,800, representing a 7.6 percent increase from 2020. Average 10-year growth rates for the County under such projections are approximately 9.6 percent, or over twice the projected 10-year growth rates for Foster City (reflecting a greater potential for increased residential densities in certain urban nodes in the County, particularly along the El Camino Real corridor).

Figure IV.C-1: City of Foster City Population Growth, 1970-2030



Source: U.S. Census, 2011 and ABAG, 2009.

b. Housing. The following section describes the housing characteristics of Foster City and San Mateo County.

(1) Households. A household is defined as an occupied dwelling unit. In 2012, Foster City had 12,016 households, comprising approximately 4.6 percent of the 258,882 households in San Mateo County.[4] ABAG projects that the number of Foster City households will be 12,930 in 2020. By 2030, Foster City is projected to contain 13,570 households.[5]

The Department of Finance estimates that the average household size for Foster City was approximately 2.56 persons per household in 2012, which was slightly less than the San Mateo County average of approximately 2.78 persons per household.[6] Average household size has slightly increased in Foster City and San Mateo County since 2010, when it was approximately 2.45 and 2.62 respectively.[7] ABAG projects that household sizes for San Mateo County will slightly decrease to 2.73 persons per household by 2030 (Foster City estimates are not available).

[4] State of California, 2012, op. cit.

[5] Association of Bay Area Governments, 2009. *Building Momentum: Projections and Priorities 2009.* August.

[6] California Department of Finance, 2012. Demographic Research Unit. *Table 2: E-5 City/County Population and Housing Estimates.* January 1.

[7] United States Census Bureau, 2010. *Summary File 1 (STF 1) for Foster City and San Mateo County, 100-Percent Data, Tables H1 and H10.*

(2) Existing Housing Stock. Foster City's estimated 2012 housing stock of 12,458 total units is characterized by a majority of single-family detached and attached homes (59 percent of the total), a smaller percentage of multi-family units (41 percent of the total), and a relatively low vacancy rates (3.55 percent).[8]

(3) Regional Housing Needs Allocation. As required by State law, the Housing Element of the Foster City General Plan discusses the City's "fair share allocation" of regional housing need by income group as identified by ABAG. ABAG's determination of the local share of regional housing needs takes into consideration the following factors: market demand for housing; employment opportunities; availability of suitable sites and public facilities; commuting patterns; type and tenure of housing need; loss of units contained in assisted housing that changed to non-low-income use; and special needs housing requirements. The Foster City General Plan Housing Element was last updated in 2009 and covers the period from 2007 to 2014.

In May 2008, ABAG adopted the Final Regional Housing Needs Allocation (RHNA) for the period of 2007 to 2014, which allocates housing needs for different income levels among the jurisdictions within the nine-County Bay Area.[9] Cities and counties are required to account for the RHNA in the housing elements of their General Plans. Under State law, all housing elements must be reviewed by the California Department of Housing and Community Development (HCD); housing elements are certified if they comply with State law and meet certain planning objectives. According to ABAG, some public agencies and private foundations will not provide funding for housing and redevelopment projects to jurisdictions that do not have a certified Housing Element. In addition, jurisdictions without certified housing elements have faced lawsuits from housing advocacy organizations. While HCD requires cities and counties to show through their housing elements that they can accommodate a projected housing need, the presence of adequate land designated for residential uses does not necessarily result in the actual construction of adequate housing supplies. There are no penalties imposed on cities and counties that do not build the number of units projected in their housing elements.

San Mateo County's RHNA for the period of 2007 to 2014 calls for 15,738 new housing units: 3,588 units (23 percent) for very low income households; 2,581 units (16 percent) for low income households; 3,038 units (19 percent) for moderate income households; and 6,531 units (42 percent) for above moderate income households. Foster City's allocation is for 486 units: 111 units (23 percent) for very low income households; 80 units (16 percent) for low income households; 94 units (19 percent) for moderate income households; and 201 units (41 percent) for above moderate income households, for a total of 486 units.

Foster City expects to meet its 2007 to 2014 RHNA goal for the total number of housing units primarily through the development of two projects. The Pilgrim-Triton project is approved for 730 units, while the 15-acre project adjacent to City Hall would result in 414 units, for a total of 1,144 new residential units. Between these two projects, the City would provide 658 more residential units

[8] California Department of Finance, 2012, op. cit.

[9] Association of Bay Area Governments, 2008. *Final Regional Housing Needs Allocation.* Website: www.abag.ca.gov/planning/housingneeds/pdfs/Final_RHNA.pdf (accessed July 23, 2012). May 15.

than required by the RHNA. In addition, the two projects would meet the City's RHNA goal for very low, low, moderate, and above-moderate income residential units.[10]

In May 2012, the ABAG Executive Board approved the Draft RHNA Methodology and Preliminary Subregional Shares for 2014 to 2022 for all jurisdictions and subregions by income category in the San Francisco Bay Area. ABAG assigned Foster City and San Mateo County 429 and 15,984 housing units respectively.[11] Any requests for adjustments to the proposed RHNA would be submitted by Foster City by fall 2012.

c. Employment. Foster City is located near employment centers on the San Francisco Peninsula and central Alameda County; however, the City itself has also developed as a local job center. Two types of employment data are described below: 1) total jobs, which includes the number of all jobs within the community; and 2) employed residents, which includes the number of residents of working age who actively participate in the civilian labor force. A comparison of this data illustrates commute patterns in a community (i.e., if significant out-commuting or in-commuting occurs).

The civilian labor force includes those who are employed (excepting those in the Armed Forces) and those who are unemployed but actively seeking employment. Residents who have never held a job, who have stopped looking for work, or who have been unemployed for long periods of time, are not considered to be part of the labor force.

(1) Total Jobs. According to ABAG, Foster City experienced job losses during the recent economic recession, but strong job growth is expected to occur in the long-term. In 2000, Foster City had 18,480 total jobs, comprising approximately 4.8 percent of all jobs in San Mateo County. The total number of jobs in Foster City decreased 21.5 percent to 14,510 total jobs over the 10-year period between 2000 and 2010. However, by 2030, ABAG projects that the total number of jobs in Foster City will increase 24.9 percent from 2010, reaching approximately 18,130 total jobs. Total jobs in the County decreased from 386,590 in 2000 to 346,320 in 2010 (a 10.4 percent decrease over the 10-year period) and are projected to increase to 473,290 in 2030 (or a 36.7 percent increase from 2010). In 2030, Foster City's share of jobs is expected to dip slightly to 3.8 percent of the County total and the City is projected to contribute to 2.9 percent of the total increase in County jobs through the 2010 to 2030 period.

(2) Employed Residents. According to ABAG, the City's subregional study area contained 14,720 employed residents in 2010, a 12.5 percent decrease from 2000. ABAG defines employed residents as employed people who "live in the identified community or county but do not necessarily work there." Unemployed residents are not counted as employed residents, even if they are actively seeking employment.

ABAG projects that the number of employed residents in Foster City will increase from 14,720 in 2010 to 16,170 in 2020, and then to 17,740 in 2030. This overall growth in employed residents represents an approximately 20.5 percent increase from 2010 to 2030 (or a 10-year average rate of

[10] Foster City, City of, 2010. *City of Foster City Housing Element.* February 1.

[11] Association of Bay Area Governments, 2012. *Regional Housing Need Allocation Methodology (2014-2022).* May 17.

10.3 percent), lower than the 10-year County-wide increase expected during the same time period (a 10-year average rate of 16.1 percent). The number of employed residents in the County is expected to increase from 330,770 in 2010 to 437,200 in 2030, representing growth of 32.2 percent.

d. Jobs-to-Housing Balance. The jobs-to-housing concept is used to determine whether a community has an adequate number of jobs available to provide employment for all the residents within the community seeking employment. Understanding this concept can be useful in examining the relationship between housing affordability, traffic flows and congestion, and air quality within a community and its larger region. However, the jobs-to-housing ratio is best analyzed at the sub-regional or regional level due to the tendency of people to commute at least some distance, often between cities, to jobs.

(1) Methodology. Typically, the term "jobs-to-housing balance" is used to refer to a relationship between jobs and housing units within a community. A jobs-to-housing-unit ratio of 1.5 is considered ideal, which takes into account residents who do not participate in the labor force (e.g., those who are retired, disabled, students, or non-working parents). The 1.5 jobs-to-housing-units ratio indicates a community has an adequate number of jobs to meet the demand for jobs by its residents, and therefore, is in balance.

A more helpful indicator of balance, however, is the relationship between the number of jobs provided to the number of residents seeking employment (i.e., employed residents). An ideal jobs-to-employed-residents ratio is 1.0, which indicates that there is a job for every employed resident in the community.

A jobs-to-employed-residents ratio that is greater than 1.0 indicates the community provides more jobs than it has residents seeking jobs. With this out-of-balance condition, the community is likely to experience traffic congestion associated with people commuting to jobs from outside the area, as well as intensified pressure for additional residential development to house the labor force. Conversely, a jobs-to-employed-residents ratio of less than 1.0 indicates a community has fewer jobs than employed residents. Under this converse, out-of-balance condition, some residents need to commute outside of the community (i.e., out-commute) for employment. The resulting commuting patterns can lead to traffic congestion and adverse effects on both local and regional air quality.

However, the jobs-to-employed-residents ratio does not account for regional in- or out-commuting due to job/labor mismatches or housing affordability. Even if a community has a numerical balance between jobs and employed residents, sizeable levels of in- and out-commuting are possible, especially where employment opportunities do not match local skills and/or the educational characteristics of the local labor force. In such instances, regional commuting tends to occur. For example, a numerically balanced community may have high housing costs and low-wage jobs, thus encouraging its residents to out-commute to their high wage jobs elsewhere, and its workers to in-commute from outside the community where housing costs are affordable in relation to their low wage incomes. This condition is often referred to as a jobs-to-housing mismatch. A jobs-to-housing match occurs when the types of jobs provided in a community "match" the income needs of the employed workers within the community.

(2) Jobs-to-Employed Residents in Foster City and San Mateo County. Table IV.C-2 provides housing and employment data for Foster City and San Mateo County.[12] This table also provides data indicating projected jobs-to-housing units and jobs-to-employed-residents ratios. As described earlier in this section, a jobs-to-housing-units ratio of 1.5 is considered ideal and indicates that a balanced number of jobs are provided given the number of housing units within the community. Similarly, a jobs-to-employed-residents ratio of 1.0 is considered ideal.

As shown in Table IV.C-2, Foster City and San Mateo County's jobs-to-employed-residents ratios in 2010 were 0.99 and 1.05, respectively, indicating roughly balanced conditions. ABAG projects that both Foster City and San Mateo County will maintain balanced jobs-to-employed-residents ratios to 2030, at which time the ratios will be 1.02 and 1.08 respectively. ABAG projects a trend to slightly more balanced jobs-to-housing-units ratios to 2030 in both the City and County. The City and County ratios in 2010 (1.19 and 1.31, respectively) are projected to increase to 1.34 and 1.52, respectively, in 2030.

Table IV.C-2: Housing and Employment Data – Foster City and San Mateo County

	2010		2020		2030	
	City	County	City	County	City	County
Total Jobs	14,510	346,320	16,220	404,400	18,130	473,290
Employed Residents	14,720	330,700	16,170	379,300	17,740	437,200
Housing Units	12,210	264,400	12,930	287,350	13,570	310,970
Jobs-to-Housing Units Ratio (Ideal is 1.5)	1.19	1.31	1.25	1.41	1.34	1.52
Jobs-to-Employed Residents Ratio (Ideal is 1)	0.99	1.05	1.00	1.07	1.02	1.08

Source: ABAG, 2009. Projections 2009; LSA Associates, Inc., 2012.

e. Foster City General Plan. Applicable population, employment, and housing goals from the Foster City General Plan are presented below.

Land Use and Circulation Element

- *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 station, water-oriented commercial uses and day care facilities.
- *Policy LUC-8: Jobs/Housing Balance*. The City will continue to strive for a balance between the number of jobs in the City and the number of housing units available to house workers. To achieve

[12] The ABAG housing and resident numbers do not take into account certain recently-approved projects or projects under review in Foster City. The Pilgrim/Triton project and the 15-acre project adjacent to City Hall would add 730 units and 414 units, respectively, to the City's housing stock. However, these new residential units would not change the conclusions of the analysis in this section as they relate to the proposed 2012 Master Plan's potential significant impacts related to population and housing.

and maintain such a balance, the City will encourage and support, through other policies and programs of this element, mixed use projects which provide both housing and employment opportunities, and whenever possible, the development of affordable housing.

Housing Element

- *Policy H-E-2: Private Development of Affordable Housing*. Encourage the provision of affordable housing by the private sector through:

  a. Requiring that 20% of the units, excluding bonus units, in specified residential projects be affordable (an inclusionary requirement).

  b. Requiring construction or subsidy of new affordable housing as a condition for approval of any commercial development which affects the demand for housing in the City.

  c. Providing incentives to encourage the provision of affordable housing as provided in Policy H-E-3.

- *Policy H-E-7: Housing for New Employees and their Families*. Given the amount of commercial and retail development expected through build-out of the City, encourage an adequate supply and variety of rental and ownership housing that meets the needs of new employees and their families.

- *Objective H-E-7-a: Ownership Housing for Employees*. In order to improve the jobs to housing balance in large-scale commercial developments, the City will undertake outreach efforts to employers and developers, encouraging them to provide joint homeownership programs for employers and employees in order to provide affordable ownership housing for employees of firms locating in Foster City. Target: Ongoing. Responsible Agency: Community Development Department.

2. Impacts and Mitigation Measures

This section includes an analysis of impacts related to population, employment, and housing that could result from implementation of the proposed 2012 Master Plan. The section begins with the criteria of significance, which establish the thresholds to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and identifies mitigation measures, as appropriate. All impacts related to population, employment, and housing would be less than significant.

a. Criteria of Significance. The proposed 2012 Master Plan would have a significant impact on population, employment, and housing if it would:

- Induce substantial population growth in an area either directly or indirectly; or
- Displace a substantial number of existing housing units or people, necessitating the construction of replacement housing elsewhere.

b. Less-Than-Significant Impacts. The following discussion examines potential less-than-significant impacts of the proposed project.

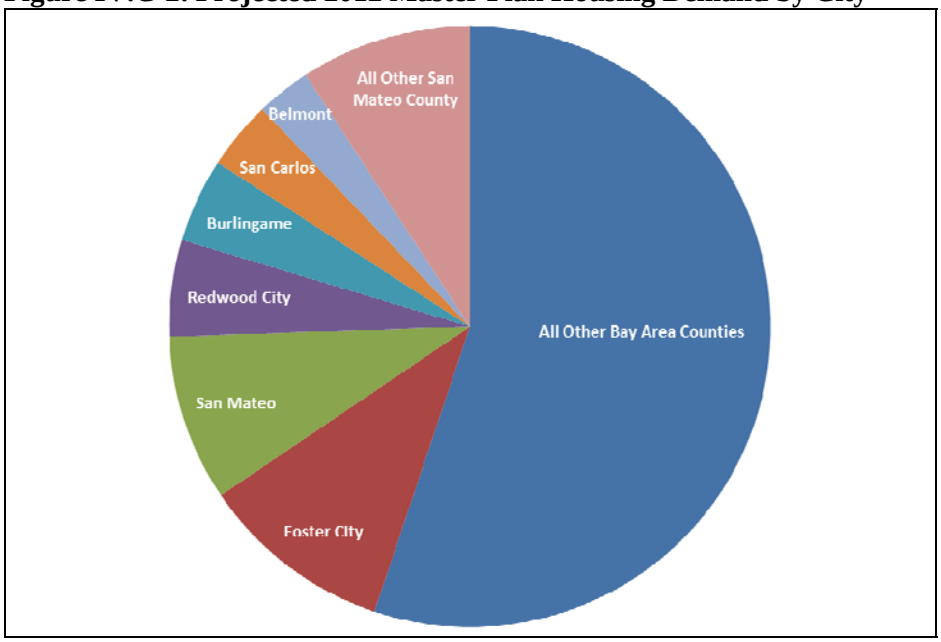
(1) Induce Substantial Population Growth. The proposed project would increase the amount of office and laboratory space on the project site, increasing total interior square footage from 926,735 square feet (under existing conditions) to up to 2,500,600 square feet. The new building area would contain office and research and development uses (similar to uses that currently exist on site), although accessory uses such as cafeterias and exercise facilities would also be developed in some of the new buildings. The addition of 1,573,865 square feet of interior building space is expected to

accommodate up to approximately 3,700 new jobs on the site. After buildout of the 2012 Master Plan, the project site would support a staff of up to 5,500.

The 2012 Master Plan does not include any new residential units, and would not directly generate housing-related population growth. However, population growth could be induced by development of land uses that generate new employment opportunities, which could increase the demand for housing within the community.

The creation of 3,700 new jobs on the project site could cause people to move to Foster City or surrounding communities, which would generate additional housing demand in the region. To estimate how many employees would be likely to move to Foster City, it was assumed that the new employees would have the same geographic distribution (in terms of primary residence) as Gilead's existing employees. Figure IV.C-2 illustrates the current geographic distribution of Gilead employees. Table IV.C-3 identifies the induced housing demand that could result from the proposed project. Currently, of the Gilead employees currently employed on the site, approximately 10.38 percent live in Foster City, while the other approximately 89.62 percent live in other parts of the Bay Area. As shown in Table IV.C-3, based on existing employee addresses, approximately 384 employees would relocate to Foster City as a result of project implementation; assuming that none of these employees would be existing Foster City residents, and assuming that none would share households (each employee thus occupying one housing unit), the project would increase demand for housing in Foster City by 384 housing units. This number of expected new employees in Foster City is likely an over-estimate, as many new employees would be expected to already be Foster City residents, or live in households with other Gilead employees. The jobs within the project site would likely be attractive to existing City residents, due to shortened commutes. The same conclusion would apply to the induced housing demand shown in Table IV.C-3 for cities other than Foster City.

Figure IV.C-2: Projected 2012 Master Plan Housing Demand by City



Source: LSA Associates, Inc., 2012.

Table IV.C-3: Projected 2012 Master Plan Housing Demand by City Based on Residential Location of Current Gilead Employees

	Residential Location of Current Gilead Employees (percent of total) [a]	Projected Household Growth (2010-2030) [b]	Projected 2012 Master Plan Related Housing Demand (units)	2012 Master Plan Housing Demand as Percent of Household Growth
San Mateo County	44.85%	46,570	1,660	3.56%
Foster City	10.38%	1,360	384	28.23%
San Mateo	8.95%	9,390	331	3.53%
Redwood City	5.19%	5,940	192	3.23%
Burlingame	4.52%	2,520	167	6.63%
San Carlos	3.68%	1,710	136	7.97%
Belmont	2.93%	240	108	45.15%
San Bruno	1.67%	3,410	62	1.82%
Pacifica	1.51%	230	56	24.23%
Menlo Park	1.26%	2,030	46	2.29%
South San Francisco	1.09%	4,370	40	0.92%
Daly City	1.00%	7,060	37	0.53%
Half Moon Bay	0.84%	240	31	12.90%
Millbrae	0.84%	1,290	31	2.40%
Portola Valley	0.17%	30	6	20.64%
Brisbane	0.08%	1,340	3	0.23%
Atherton	0.08%	70	3	4.42%
Coloma	0.00%	40	0	0.00%
East Palo Alto	0.00%	2,010	0	0.00%
Hillsborough	0.00%	600	0	0.00%
Woodside	0.00%	20	0	0.00%
Unincorporated San Mateo County [c]	0.67%	2,010	25	1.23%
All Other Bay Area Counties	55.15%	458,030	2,040	0.45%
Total	**100.00%**	**–**	**3,700**	**–**

[a] Employee data provided by Gilead Sciences. Percentages have been rounded to the nearest 1/100 of 1 percent.
[b] The year 2030 was chosen because it would be the approximate time of 2012 Master Plan buildout. Projection source: ABAG, 2009, Projections 2009.
[c] Includes the communities of Moss Beach, Montara, El Granada, and La Honda.

Source: LSA Associates, Inc., 2012.

In all communities where induced housing growth from the proposed 2012 Master Plan would be expected, the ABAG-projected household growth would exceed the induced housing demand from the proposed 2012 Master Plan. In other words, the regional supply of housing (based on expected household growth) would be expected to accommodate the increase in demand for housing that could result as part of the project.

As a result, the induced housing demand from the proposed 2012 Master Plan would have a less-than-significant impact on housing supplies. To further confirm the availability of housing units to satisfy the 2012 Master Plan's induced housing demand, the required 2007 to 2014 and 2014 to 2022 RHNAs for the three communities expected to experience the greatest demand due to the proposed

project were reviewed and are shown in Table IV.C-4. Because the RHNA periods only partially overlap with the 2012 Master Plan, which extends until 2033 (11 years beyond the 2014 to 2022 RHNA), the annualized housing rate for each RHNA is provided and compared to the expected annualized housing demand for the project. Annualized rates are calculated by dividing the number of housing units by the number of years in the planning period (7 years for the current RHNA (2007-2014), 8 years for the next RHNA (2014-2022), and 20 years for the 2012 Master Plan (2013-2033)).

Table IV.C-4 shows that the required RHNA housing units expected to be constructed in the near term would more than satisfy the demand associated with the proposed project. As a result, the proposed project would have a less-than-significant impact related to indirect population growth, since the housing demand associated with this growth lies within the housing projections of various communities where the induced housing demand would be expected.

(2) Displacement of Housing or People. There are no existing housing units on the project site. Development of the proposed project would not result in the displacement of housing or people, and therefore, would not necessitate the construction of replacement housing elsewhere.

Table IV.C-4: Project Housing Demand Compared to RHNA

	ABAG RHNA (2007-2014) [a]		ABAG RHNA (2014-2022) [b]		Projected Demand from 2012 Master Plan (2013-2033)		2012 Master Plan Housing Demand as Percent of Required RHNA Development	
City	Total	Annualized Rate	Total	Annualized Rate	Total	Annualized Rate	2007-2014	2014-2022
Foster City	486	69	429	54	384	19	28%	36%
San Mateo	3,051	436	2,925	366	331	17	4%	5%
Redwood City	1,856	265	2,784	348	192	10	4%	3%

[a] Association of Bay Area Governments, 2008. San Francisco Bay Area Housing Needs Plan 2007-2008. June. "ABAG RHNA" = Association of Bay Area Governments Regional Housing Needs Allocation."
[b] Association of Bay Area Governments, 2012. Regional Housing Need Allocation Methodology. May.

Source: LSA Associates, Inc., 2012.

(3) Jobs-to-Housing Ratio. The following discussion of the jobs-to-housing and jobs-to-employed-residents ratios that would result from the project is provided primarily for informational purposes, as changes in the ratios on the local or County levels would not typically result in physical environmental impacts. Buildout of the 2012 Master Plan would result in the creation of 3,700 new jobs in Foster City. Table IV.C-5 provides 2020 and 2030 housing and employment data for the City and San Mateo County, with and without the proposed project. This table is based on the assumption that the near-term (2020) and long-term (2030) number of employed residents and housing units in the City and County do not take into account project-generated employment growth. As mentioned above, a small number of Gilead employees may move to Foster City after implementation of the 2012 Master Plan (and could increase demand for housing, resulting in a marginal increase in the number of future housing units in the City and County, and a more balanced jobs/housing ratio than shown in Table IV.C-5). The jobs/housing balance could also improve if future Gilead employees already live in the City. Table IV.C-5 was thus developed to illustrate the "worst case" effects of the 2012 Master Plan on the area's jobs/housing balance.

Table IV.C-5: Housing and Employment Data Without and With Project

	2020				2030			
	Without Project		With Project		Without Project		With Project	
	City	County	City	County	City	County	City	County
Total Jobs	16,220	404,400	19,920	408,100	18,130	473,290	21,830	476,990
Employed Residents	16,170	379,300	16,170	379,300	17,740	437,200	17,740	437,200
Housing Units	12,930	287,350	12,930	287,350	13,570	310,970	13,570	310,970
Jobs-to-Housing Unit Ratio (Ideal is 1.5)	1.25	1.41	1.54	1.42	1.34	1.52	1.61	1.53
Jobs-to-Employed Residents Ratio (Ideal is 1)	1.00	1.07	1.23	1.08	1.02	1.08	1.23	1.09

Source: ABAG, 2006. Projections 2009; LSA Associates, Inc., 2012.

As previously stated, 1.5 is the most desirable jobs-to-housing-units ratio. As shown in Table IV.C-5, the addition of 3,700 jobs with no net change in housing units would cause the City's estimated 2020 jobs-to-housing-units ratio to increase from 1.25 to 1.54, and the County's 2020 ratio to increase from 1.41 from 1.42. The proposed project would also increase the City's projected 2030 jobs-to-housing-units ratio from 1.34 to 1.61, but it would only slightly increase the County's projected ratio from 1.52 from 1.53. In the short term (2020), the addition of the 3,700 jobs on the project site would improve the City's jobs-to-housing-units ratio, while in the long-term (2030), an imbalance would continue (although with a surplus of jobs compared to housing units). This indicates that in the long term, the proposed project would contribute to the City's job supply being out of balance with the number of residents seeking employment. Table IV.C-5 also shows that the project would only marginally affect the County's jobs-to-housing-units ratio in the short or long term.

While the proposed project would cause a slightly more imbalanced long-term jobs-to-housing-units ratio in the City, this change in ratio (on a Citywide as opposed to a Countywide scale) would not be expected to result in substantial adverse environmental effects related to in-commuting or housing demand.

(4) Jobs-to-Employed Residents Ratio. As noted above, the following discussion of the jobs-to-employed-residents ratio that would result from the project is provided primarily for informational purposes, as changes in the ratio on the local or County levels would not typically result in physical environmental impacts. As previously described, 1.0 is the most desirable jobs-to-employed-residents ratio. Assuming no future Gilead employees move to Foster City, the jobs generated by the proposed project would increase the City's 2020 estimated jobs-to-employed-residents ratio from 1.00 to 1.23 and would increase the City's 2030 ratio from 1.02 to 1.23. The project would cause the City to have a more unbalanced jobs-to-employed-residents ratio in the near- and long-term, indicating that with the addition of the jobs created by the 2012 Master Plan, the City would provide more jobs than it has employed residents. However, in the short and long term, the increase in jobs from the proposed project would only marginally change the County's projected ratios, indicating that on a regional level, the proposed project would not adversely affect the jobs-to-employed-residents ratio. In addition, while Table IV.C-5 assumes an increase in jobs in the City, it does not take into account the increase in employed residents that would likely be associated with the proposed project because

it is not known exactly how many employees would become residents of Foster City. It is likely that if these additional employed residents were taken into account, the ratio would be more balanced.

c. Significant Impacts. Implementation of the proposed project would not result in any significant population, employment, or housing impacts.

d. Cumulative Impacts. The proposed project would not cause a substantial amount of population growth in Foster City or in San Mateo County. Buildout of the 2012 Master Plan would result in approximately 384 new residents in Foster City, based on existing Gilead Sciences employee residential locations. Planned and reasonably foreseeable future development would also contribute to population growth in the area. However, since the proposed 2012 Master Plan would not result in substantial population growth, it would not make a significant cumulative contribution to population growth in the region. Furthermore, the growth associated with the project would not be adverse, as it would primarily occur in already-urbanized areas with established public services and infrastructure.

The proposed 2012 Master Plan, in conjunction with other projects, would increase employment in the City. The 3,700 jobs created by the proposed 2012 Master Plan would be within the job growth projected for the City between 2020 and 2030 by ABAG. It is anticipated that jobs in Foster City created by the other proposed projects would also be within ABAG's projected job growth for the City. Therefore, the proposed 2012 Master Plan would result in less-than-significant cumulative impacts to employment.

Based on the residential location patterns of existing Gilead Sciences employees, approximately 10 percent of future employees generated by the 2012 Master Plan (384 employees) would be expected to live in Foster City. This would correlate to an increased demand for housing units in the City. In conjunction with other planned and reasonably foreseeable commercial development projects, housing demand would be expected to increase. The ABAG housing forecast for the City shows an increase of 1,360 residential units between 2010 and 2030, which would be able to meet any additional demand for housing created by the proposed 2012Master Plan and planned development projects. The 2012 Master Plan would not result in the removal of existing housing and thus would not contribute to any diminishment of housing supply in the area. Therefore, buildout of the proposed 2012 Master Plan and other projects in Foster City would have a less-than-significant cumulative impact on population, employment, and housing.

D. GEOLOGY, SOILS, AND SEISMICITY

This section describes the project site's geologic environment based primarily on a 2005 site-specific Geotechnical Investigation[1] for a portion of the South Campus south of Lakeside Drive, and a 2003 geotechnical peer review[2] of several previous geotechnical investigations for the South Campus. Geologic conditions on the North Campus and South Campus are expected to be similar because the two areas share a similar setting and development history (i.e., former marshlands covered with imported fill). In addition, information sources include published and unpublished geologic reports and maps by the United States Geological Survey (USGS), California Geological Survey (CGS), and City, and a site reconnaissance. This section also assesses potential impacts from strong ground shaking, liquefaction, differential settlement, and unstable or expansive soils. Mitigation measures for the identified significant impacts are provided, where appropriate.

1. Setting

The project site's existing conditions related to geology and seismicity are described below.

a. Geologic Conditions. The following section describes existing geologic conditions at the project site.

(1) Geology. The project site is located in the Coast Range Geomorphic Province of Northern California, a relatively geologically young and seismically-active region on the western margin of the North American plate. This region is dominated by northwest-southeast trending ranges of low mountains and intervening valleys, which are subparallel to the active San Andreas Fault. In general, the hills and mountains of Coast Ranges are composed of sedimentary rocks underlain by bedrock. Layers of recent alluvium fill the intervening valleys.[3,4] Based on USGS mapping, the project site is underlain by Quaternary Holocene-aged estuarine deposits (Bay Mud)[5] that are less than 9,600 years old and man-made fill that has been placed at the site.[6,7]

A geotechnical investigation was prepared for the southern portion of the Gilead Campus in preparation for the phased construction of new buildings designated as NLB-1 and NLB-2. The geotechnical investigation included two soil borings and four cone penetrometer tests. Testing indicated that the site subsurface consists of an upper layer of approximately 3.0 to 6.5 feet of fill material, underlain to a depth of 47 to 67 feet below ground surface (bgs) by Bay Mud, further underlain to the maximum

[1] Lowney Associates, 2005. *Geotechnical Investigation Gilead Sciences Research Expansion: NRB1, NRB2, and Annex Buildings, Foster City.* Report No. 347-66A. November 8.

[2] Lowney Associates, 2003. *Geotechnical Peer Review, Vintage Park Campus, Foster City, California.* Doc # 347-66. May 28.

[3] Norris, Robert M., and Robert W. Webb, 1990. *Geology of California, 2nd Edition,* J. Wiley & Sons, Inc.

[4] California Department of Conservation, California Geological Survey, 2002. *Note 36, California Geomorphic Provinces*. December.

[5] Bay Mud is an estuarine deposit composed of unconsolidated clay that is prone to settlement upon loading.

[6] Brabb, E. E., and E. H. Pampeyan, 1983. *Geologic Map of San Mateo County*, USGS Misc. Investigation I-1257-A.

[7] Helley, E. J., and K. R. Lajoie, 1979. *Flatlands Deposits of the San Francisco Bay Region, California*, USGS Professional Paper 943. Jointly by DOI, HUD, USGS. (Reprinted 1991)

depth tested (120 feet bgs) by interbedded layers of dense to very dense clayey sands and stiff to very stiff clays (alluvial deposits).[8] This recent geotechnical investigation included only a portion of the project site; however, due to the homogeneous nature of the area, the results of this geotechnical investigation provide insight into the existing conditions for the remainder of the project site. In addition, a geotechnical peer review was conducted by Lowney Associates of existing geotechnical reports and investigations, primarily authored by Berlogar Geotechnical Consultants during the 1980s.[9] Specific findings and recommendations of these two reports are detailed below.

(2) Soils. The site and surrounding areas were originally part of tidal marshlands known as Brewer's Island. By 1897 an area of Brewer's Island (the precursor of Foster City) was partially diked and drained, with additional areas diked and added around 1901. The young Bay Mud dried over time and eventually about 2,220 acres became a dairy ranch while another 550 acres were used as salt ponds.[10] As part of the preparation for development as a planned community in the late 1950's, approximately 14 million cubic yards of sandy silt were pumped in from San Bruno Shoal (a sandbank in San Francisco Bay) to provide 4 to 5 feet of fill throughout the area currently occupied by Foster City.[11] Bay Mud, due to its high clay content and inclusion of organic materials, generally is rated high for shrink-swell potential, with a high risk of corrosion to concrete and uncoated steel. Bay Mud is also characterized by slow permeability and has a low erosion potential.[12] The overlying sandy silt fill from San Bruno Shoal has compacted and formed an approximately 3-foot thick stiff to hard surface layer in the vicinity of the site. Regional mapping classifies the soils of the project site as: Urban Land-Orthents, reclaimed complex, 0 to 2 percent slopes.[13]

The geotechnical investigation and geotechnical peer review identify the site as being covered by 3.0 to 6.5 feet of fill material consisting of very stiff to hard sandy lean clay with gravel, underlain by soft to medium stiff, highly compressible Bay Mud.[14] In addition, based on the report of the geotechnical peer review, there may be areas where earlier surface features, such as levees and sloughs, may have been filled or incorporated as part of earlier development activities. The geotechnical peer review notes that a levee was once located along the western property line of the project site, near the current site of Building 322, and continued around the southern property line. Also, a slough was originally located approximately 15 feet north of the current foundations of Building 324 and various lesser slough and drainage channels were reported throughout the property.[15]

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[8] Lowney Associates, 2005, op. cit.

[9] Lowney Associates, 2003, op. cit.

[10] Foster City, City of, 2008. *Community Info, History of Foster City, Creating the Land.* Website: www.fostercity.org/community_info/Creating-the-Land.cfm.

[11] Ibid.

[12] Natural Resources Conservation Service, 2012. *Web Soil Survey*, USDA Mapping Website: websoilsurvey.nrcs.usda.gov.

[13] Ibid.

[14] Lowney Associates, 2005, op. cit.

[15] Lowney Associates, 2003, op. cit.

(3) Topography. The irregularly shaped, approximately 73-acre project site is located within an urbanized portion of north Foster City near San Francisco Bay. The existing ground surface elevation is approximately 105 to 107 feet Foster City Datum,[16] or 5 to 7 feet National Geodetic Vertical Datum of 1929 (NGVD).[17,18] Based on observations during a site reconnaissance by a staff member of Baseline Environmental Consulting on July 26, 2012, and USGS topographic information, the entire site has approximately the same elevation.[19] Vintage Lake is located in the eastern-central portion of the site.

b. Seismic Conditions. The following section describes existing seismic conditions in the region and within the project site.

(1) Regional Seismicity. The entire San Francisco Bay Area is located within the San Andreas Fault Zone (SAFZ), a complex of active faults forming the boundary between the North American and Pacific lithospheric plates. Movement of the plates relative to one another results in the accumulation of strain along the faults, which is released during earthquakes. Numerous moderate to strong historic earthquakes have been generated in northern California by the SAFZ. This level of active seismicity results in a relatively high seismic risk in the San Francisco Bay Area.

The SAFZ includes numerous active faults found by the CGS under the Alquist-Priolo Earthquake Fault Zoning Act (A-PEFZA) to be "active" (i.e., to have evidence of surface rupture in the past 11,000 years). Active faults in the South San Francisco Bay Area zoned under the A-PEFZA include the San Andreas, Monte Vista, San Gregorio-Seal Cove, Hayward, Calaveras, and Greenville faults. Regional faults in the South San Francisco Bay area are shown on Figure V.D-1.

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 earthquake will occur along the Northern San Andreas Fault. The probability of a 6.7 magnitude or greater earthquake occurring along other local active faults was estimated to be 31 percent along the Hayward-Rodgers Creek Fault, and 7 percent along the Calaveras Fault.[20]

(2) Site-Specific Seismicity. The project site is not located within an Alquist-Priolo Earthquake Fault Zone (A-PEFZ). The nearest A-PEFZ is the peninsula segment of the San Andreas Fault, about 5.5 miles southwest of the project site.[21,22] Additional faults in the project site vicinity have the

[16] Lowney Associates, 2005, op. cit.

[17] The Foster City Datum is equal to the National Geodetic Vertical Datum of 1929 plus 100 feet.

[18] For most purposes, NGVD is equivalent to mean sea level. Please see IV.E, Hydrology and Water Quality, for a discussion of climate change-induced sea level rise.

[19] U.S. Geological Survey, 1997, *San Mateo Quadrangle, California.* Website: nationalmap.gov/ustopo/index.html.

[20] U.S. Geological Survey, 2008. *Forecasting California's Earthquakes – What Can We Expect in the Next 30 Years*, USGS Fact Sheet 2008-3027. Website: pubs.usgs.gov/fs/2008/3027/.

[21] California Division of Mines and Geology, 1974. *State of California Special Studies Zones, San Mateo Quadrangle Map.*

[22] California Department of Conservation, California Geological Survey, 2010. Alquist-Priolo Earthquake Fault Zone Maps. Website: www.quake.ca.gov/gmaps/ap/ap_maps.htm. December.

potential to generate seismic shaking, including the Seal Cove/San Gregorio Fault located approximately 13 miles west, and the Hayward Fault located about 13 miles east, and the Monte Vista-Shannon fault zone located along the northeast margin of the Santa Cruz Mountains approximately 13 miles south of the project site.[23,24,25]

c. Seismic and Geologic Hazards. The following section describes existing seismic and geologic hazards present at the project site. The project site vicinity has not been mapped in conformance with the Seismic Hazards Mapping Act, although mapping is reportedly in progress (discussed further below in Regulatory Setting section).[26]

(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 major fault trace. No active faults have been mapped at the project site; therefore, the potential for fault rupture at the project site is negligible.[27]

(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 effects of earthquake intensity (Table IV.D-1). A related concept, acceleration, is measured as a fraction or percentage of the acceleration under gravity (g).[28]

Estimates of the peak ground acceleration (PGA) have been made for the Bay Area based on probabilistic models that account for multiple seismic sources. Under these models, consideration of the probability of expected seismic events is incorporated into the determination of the level of ground shaking at a particular location. The expected PGA (with a 10 percent chance of being exceeded in the next 50 years) generated by any of the seismic sources potentially affecting the project site is estimated by the CGS as 0.52 (g).[29] The geotechnical investigation included a site-specific probabilistic seismic hazard analysis using computer modeling, which indicates a PGA of 0.55(g) for the site.[30]

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[23] U.S. Geological Survey, 2012. *EHP California Quaternary Faults*. Website: geohazards.usgs.gov/qfaults/map.php. July 15.

[24] U.S. Geological Survey, 2010. *Earthquake Hazards Program, Database Search*. Website: earthquake.usgs.gov/hazards/qfaults. November 3.

[25] California Department of Conservation, California Geological Survey, 2010. *2010 Fault Activity Map of California*, Geologic Data Map No. 6. Website: www.quake.ca.gov/gmaps/FAM/faultactivitymap.html.

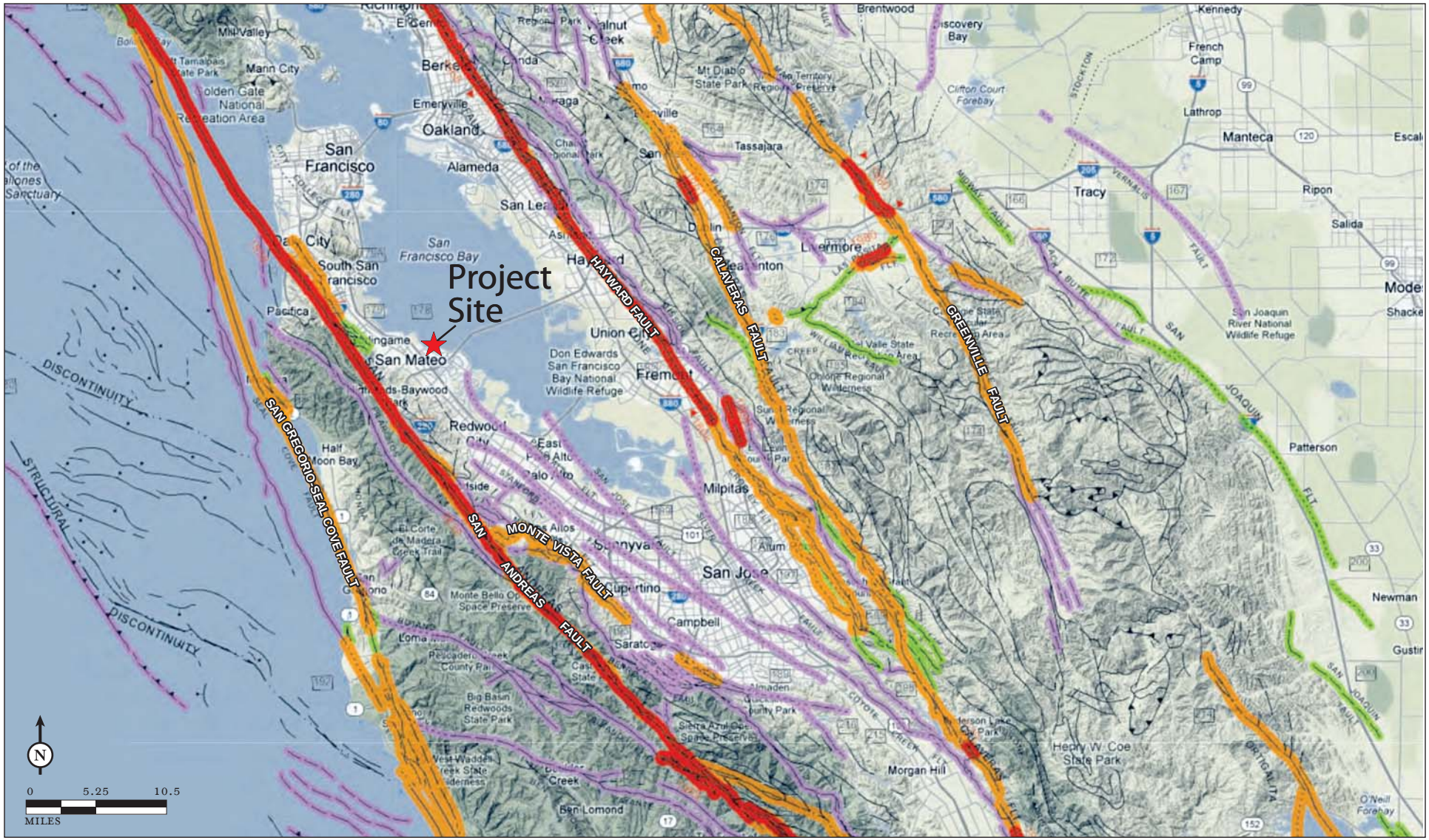
[26] California Department of Conservation, California Geological Survey, 2007. Seismic Hazard Zonation Program. Website: www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx. February 27.

[27] Lowney Associates, 2005, op. cit.

[28] The acceleration due to gravity, denoted *g* (also gee) is a unit of acceleration defined as approximately 32 ft/s^2, which is the acceleration due to gravity on the Earth's surface at sea level.

[29] California Department of Conservation, California Geological Survey, 2012. *Probabilistic Seismic Hazards Mapping Ground Motion Page*. Website: www.consrv.ca.gov/cgs/rghm/pshamap/pshamap.asp.

[30] Lowney Associates, 2005, op. cit.



LSA

FIGURE IV.D-1

EXPLANATION

Fault traces on land are indicated by solid lines where well located, by dashed lines where approximately located or inferred, and by dotted lines where concealed by younger rocks or by lakes or bays. Fault traced are queried where continuation or existence is uncertain.

Fault Classification Color Code (Indicating Recency of Movement)

- Fault along which historic (last 200 years) displacement has occurred
- Holocene fault displacement (during past 11,700 years) without historic record
- Late Quaternary fault displacement (during past 700,000 years)
- Quaternary fault (age undifferentiated)
- Pre-Quaternary fault (older than 1.6 million years) or fault without recognized Quaternary displacement

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Regional Faults

Sources: California Department of Conservation, California Geological Survey, 2010, Geologic Data Map No. 6, 2010 Fault Activity Map of California. Website accessed at http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html.; Baseline Environmental, 2012.

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The PGAs derived from the probabilistic model and site-specific seismic hazard analysis are generally in agreement, and this level of ground acceleration at the project site is a potentially significant hazard.

The closest active fault to the project site is the San Andreas Fault, located approximately 5.4 miles to the southwest. The San Andreas Fault is considered capable of generating a MW 7.9 earthquake (similar to the 1906 San Francisco earthquake).[31] An earthquake of this magnitude on the San Andreas Fault would generate very strong (MMI VIII) to violent (MMI IX) seismic shaking at the project site.[32]

Table IV.D-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, 2002. *How Earthquakes and Their Effects are Measured*: Note 32.

(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

[31] U.S. Geological Survey, 2008. *Earthquake Hazards Program, National Seismic Hazard Maps-Fault Parameters*. Website: geohazards.usgs.gov/cfusion/hazfaults_search/disp_hf_info.cfm?cfault_id=1abcd.

[32] Association of Bay Area Governments, 2003. *Earthquake Hazard Map for Foster City*. Website: www.abag.ca.gov/cgi-bin/pickmapx.pl.

shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement or ground failure to occur. 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 spreading 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.[33] 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. Based on these regional studies, the Association of Bay Area Governments (ABAG) mapping indicates that the site's susceptibility to liquefaction is very high and the liquefaction hazard (susceptibility combined with likelihood) is moderate to high.[34] 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 geotechnical investigation indicates that the site is blanketed by 3 to 6.5 feet of fill, generally consisting of clays, sands, and gravels. Bay Mud, a highly compressible organic silty clay, is present below the fill to depths of approximately 40 to 60 feet bgs, and is underlain by dense to very dense fine-grained materials. Groundwater occurs at the top of the Bay Mud at depths of approximately 3 to 6.5 feet bgs. Based on data from these investigations, these subsurface materials on the site have low potential for liquefaction or lateral spreading during a seismic event.[35,36]

(4) Landslides and Slope Stability. Slope failure can occur as either rapid movement of large masses of soil (landslide) or slow, continuous movement (creep). The primary factors influencing the stability of a slope are: 1) the nature of the underlying soil or bedrock; 2) the geometry of the slope (height and steepness); 3) rainfall; and 4) the presence of previous landslide deposits. Regional mapping shows that the project area is mapped as Category 1a, unstable "[a]reas of zero to five percent slope that include tidelands, marshlands, and swamplands that are underlain by moist, unconsolidated muds."[37] The site is generally flat and therefore not subject to typical landslide hazards; however, slope instability along the shore of Vintage Lake or banks of construction period excavations could potentially occur either due to static loads created by new fill and building loads or due to transient seismic loads resulting from shaking at the site.

(5) Unstable Soils, Settlement and Differential Settlement. Differential settlement or ground subsidence may 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

[33] Association of Bay Area Governments, 2001. *The REAL Dirt on Liquefaction, A Guide to the Liquefaction Hazard in Future Earthquakes Affecting the San Francisco Bay Area*, February.

[34] Association of Bay Area Governments, 2011. *The REAL Dirt on Liquefaction, A Guide to the Liquefaction-Appendix B, 2011 Supplement, Liquefaction Hazard Map for Foster City.* Website: www.abag.ca.gov/cgi-bin/pickmapliq.pl.

[35] Lowney Associates, 2003, op. cit.

[36] Lowney Associates, 2005, op. cit.

[37] U.S. Geological Survey, 1979. *Relative Slope Stability and Land-use Planning in the San Francisco Bay Region, CA.* Professional Paper 944.

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). The site-specific investigation notes that differential settlement on the site is not expected to be a significant hazard on the site, assuming that deep foundations are used in new buildings. However, to ensure the stability of surface improvements (such as roads, walkways, and utilities) the investigation includes recommendations that improvements spanning locations subject to differential settlement minimize abrupt grading changes, over-steepen gravity-flow utilities, use flexible utility connections, hinge concrete flatwork to structures, and deepen foundation faces so as to prevent exposure of the bottom of structures due to long term effects of settlement.[38] Although differential settlement generally occurs slowly enough that its effects are not dangerous to inhabitants, it can cause significant building damage over time.

(6) Expansive 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 the potentially expansive soils are not considered in project design and during construction.

The geotechnical investigation and geotechnical peer review note that approximately the upper 3.0 to 6.5 feet of materials at the site are man-made fill.[39] Man-made fill is used to alleviate undesirable soil properties or modify the landscape for specific activities, and can be engineered or non-engineered. Fill materials can be composed of varying amounts of natural soil materials, construction debris, dredging materials, municipal solid waste, and other materials.[40] However, as noted above, the history of Foster City indicates that the man-made fill for the general area was hydraulically pumped in from the San Bruno Shoal (a sandbank in San Francisco Bay), and consists primarily of sandy silts. The geotechnical investigation and geotechnical peer review do not include specific recommendations regarding potential expansive soil hazards.[41]

d. Regulatory Setting. The following discussion includes a description of the regulatory context for geologic and seismic issues as they relate to development projects.

(1) California Building Code. The 2010 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 2009 International Building Code, and is the most current State building code. The 2010 CBC covers grading and other geotechnical issues, building specifications, and non-building structures. Foster City follows the most current State building codes. Foster City's Building Department is responsible for reviewing plans, issuing building permits and conducting field inspections.

The 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

[38] Lowney Associates, 2005, op. cit.

[39] Lowney Associates, 2003, op. cit.

[40] Scheyer, J.M., and K.W. Hipple, 2005. *Urban Soil Primer*. United States Department of Agriculture, Natural Resources Conservation Service, National Soil Survey Center, Lincoln, Nebraska. Website: soils.usda.gov/.

[41] Lowney Associates, 2005, op. cit.

evaluate geologic and seismic hazards. A geotechnical investigation report is also required for buildings less than or equal to 4,000 square feet also, except for one-story, wood-frame and light-steel-frame buildings of Type V construction that are located outside of the Alquist-Priolo Earthquake Faults Zones.

The purpose of a site-specific geotechnical investigation is to identify seismic and geologic conditions that require project mitigation, such as surface fault ruptures, ground shaking, liquefaction, differential settlement, lateral spreading, expansive soils, and slope stability. Requirements for the geotechnical investigation are presented in Chapter 16, "Structural Design," and Chapter 18, "Soils and Foundation," of the 2010 CBC. Geotechnical investigation reports are reviewed by the Foster City Building Department prior to issuance of building permits to ensure compliance.

(2) Alquist-Priolo Earthquake Fault Zoning Act (A-PEFZA). Surface rupture is the most easily avoided seismic hazard. The A-PEFZA was passed in December 1972 to mitigate the hazard of surface faulting to structures used for human occupancy. The A-PEFZA's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The A-PEFZA only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards (the Seismic Hazards Mapping Act, passed in 1990, addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides). The law requires the State Geologist to establish regulatory zones, known as Earthquake Fault Zones, around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and State agencies for use in planning and controlling new or renewed construction. Local agencies must regulate most development projects within the zones. Projects include all land divisions and most structures for human occupancy. Before a project can be permitted, cities and counties must require a geologic investigation to demonstrate that proposed buildings will not be constructed across active faults. The evaluation and written report of a specific site must be prepared by a licensed geologist. If an active fault is found, a structure for human occupancy cannot be placed over the trace of the fault and must be set back 50 feet from the fault trace. The project site is not located within an A-PEFZA.

(3) Seismic Hazards Mapping Act (SHMA). In 1990, following the Loma Prieta earthquake, the California Legislature enacted the SHMA to protect the public from the effects of strong ground shaking, liquefaction, landslides, and other seismic hazards. The SHMA established a Statewide mapping program to identify areas subject to violent shaking and ground failure; the program is intended to assist cities and counties in protecting public health and safety. The SHMA 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 SHMA Zones and has completed seismic hazard mapping for the portions of California most susceptible to liquefaction, ground shaking, and landslides, primarily within 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 mitigation measures incorporated into the project design. As of August 2012, the project site has not yet been mapped in conformance with the SHMA, although mapping is in progress according to the CGS.[42]

[42] California Geological Survey, 2012. Seismic Hazards Zonation Program. Website: www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx.

(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's and EMID's primary codes. Secondary codes include any other codes adopted by reference, such as building, fire safety, and electrical codes.[43] Applicable geologic and seismic safety regulations in the City's General Plan, Municipal Code, and the amending Uniform Building Code (CBC, as adopted in California) are described below.

General Plan (1993). The following goals, policies and programs from the Foster City General Plan Safety Element[44] relate to seismic and geologic hazards within the project site:

Safety 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.

Safety Policy

- *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.

Safety Program

- *Program S-a. Geotechnical and Engineering Reports*. The City (Building Division) will require site specific geotechnical and engineering reports for new structures.

Municipal Code Ordinances: Title 15 - Buildings and Construction. Title 15 of the Foster City Municipal Code includes amendments to the 2010 California Building Code that may affect the proposed project. These changes are detailed under individual chapters beginning with 15.04.010 of the Foster City Municipal Code.[45]

2. Impacts and Mitigation Measures

The analysis of the impacts related to geology, soils, and seismicity that could result from implementation of the proposed project is presented below. This section begins with criteria of significance, which establish the thresholds for determining whether a project impact is significant, and identify less-than-significant and the potentially significant geotechnical impacts/hazards associated with the proposed project. Mitigation measures are provided so as to reduce significant impacts to a less-than-significant level.

a. Criteria of Significance. The project would have a significant geology, soils, or seismicity impact if it would:

[43] Foster City, City of, 2012. Municipal Codes. Website: www.fostercity.org/city_hall/codes/.

[44] Foster City, City of, 1995, *General Plan, Chapter 7, Safety Element.* Website: www.fostercity.org/city_hall/docs/General-Plan-in-PDF-Version.cfm.

[45] Foster City, City of, 2012, op. cit.

- 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 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; or
- 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.

A criterion regarding septic tanks and alternative wastewater disposal systems is not included because the project would be served by municipal wastewater lines.

b. Less-Than-Significant Impacts. The most recent A-PEFZ maps indicate that the nearest active fault to the project site is the San Andreas Fault peninsula segment, located approximately 5.4 miles to the southwest. Based on CGS fault maps, no potentially active faults underlie the site.[46] The proposed project would therefore not be affected by rupture of a known active or potentially active fault. The geotechnical investigation prepared for an earlier structure within the project site notes that subsurface materials at the site were either of high clay content and/or relatively fine-grained and stiff, and therefore had a relatively low risk of liquefaction. It is therefore unlikely that the project would result in geology, soils, or seismicity impacts related to fault rupture or liquefaction; these impacts are considered less than significant.

Potential impacts from loss of topsoil and soil erosion are discussed in Section IV.E, Hydrology and Water Quality, of this Subsequent EIR. The proposed project is within an area classified as MRZ-1, comprising "areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence."[47] The project would therefore not result in the loss of availability of a known mineral resource of value locally or to the

[46] California Department of Conservation, California Geological Survey, 2010, op. cit.

[47] California Division of Mines and Geology, 1987. *Mineral Land Classification: Aggregate Minerals in the San Francisco-Monterey Bay Area*, Special Report 146, Part II, Plate 2.43. (Updated 1996)

region or State. The project site is not identified in a planning document as being a locally-important mineral resource recovery site.

c. Significant Impacts. Seismic hazards result from the primary and secondary effects of an earthquake, with the primary effect being ground rupture. Secondary effects include seismic shaking and seismically-induced ground failure, including liquefaction and landslides. As noted above, ground rupture is not likely at the project site. Secondary effects are more widespread and may result in more damage and injury. Development of the proposed project could result in three significant impacts related to seismic hazards and soil stability, as discussed below.

Impact GEO-1: Project occupants would be subject to seismic shaking hazards. (S)

All structures in the Bay Area could be affected by ground shaking in the event of an earthquake on regional faults. The amount of ground shaking would depend on the magnitude of the earthquake, the distance from the epicenter, and the type of earth materials between the receptor and the epicenter. The 2010 CBC provides for increasingly stringent construction requirements for projects in areas of high seismic risk. Violent ground shaking is expected at the project site during predicted earthquakes on the San Andreas and other regional active faults. This level of seismic shaking could cause considerable damage in buildings at the site and could result in injuries to building occupants.

Implementation of the following mitigation measure, which would ensure that buildings are constructed in accordance with applicable seismic structural standards, would reduce impacts to occupants as a result of seismic shaking to a less-than-significant level:

> Mitigation Measure GEO-1: Prior to the issuance of any site-specific grading or building permits, a design-level geotechnical investigation, in compliance with Foster City guidelines, shall be prepared by a licensed professional and submitted to the City Building Inspection Division for review and approval. The geotechnical investigation shall include a finding that the proposed development fully complies with the CBC, as amended by Foster City ordinances and Building Division requirements. The CBC and applicable Foster City ordinances were developed to ensure that compliant structures would be "earthquake-resistant," not "earthquake-proof." The CBC is intended to protect people inside buildings by preventing collapse and allowing for safe evacuation. Structures built according to code should resist minor earthquakes undamaged, resist moderate earthquakes without significant structural damage, and resist severe earthquakes without collapse.
>
> The report shall determine the proposed project's geotechnical conditions and address potential seismic hazards. The report shall identify building techniques appropriate to minimize seismic damage. In addition, the following guidance for the design-level geotechnical investigation shall be addressed:
>
> - Analysis presented in the geotechnical report shall conform to the California Division of Mines and Geology recommendations presented in the *Guidelines for Evaluating Seismic Hazards in California*.[48] Briefly, the guidelines recommend that the report include: a site

[48] California Department of Conservation, California Geological Survey, 2008. *Guidelines for Evaluating and Mitigating Seismic Hazards in California*, Special Publication 117.

screening evaluation; evaluation of on- and off-site geologic hazards; quantitative evaluation of hazard potential; detailed field investigation; estimation of ground-motion parameters; evaluation of landslide, liquefaction, lateral-spreading and ground-displacement hazards; and recommendations to reduce identified hazards.

- All recommendations, design criteria, and specifications set forth in the design-level geotechnical investigation shall be implemented as a condition of project approval. (LTS)

Impact GEO-2: Damage to structures or property related to man-made fill, unstable soils, or unstable subsurface materials resulting in settlement or differential settlement could occur. (S)

The site is underlain by approximately 40 to 60 feet of Bay Mud overlying alluvial deposits. Settlement of Bay Mud due to consolidation under the weight of existing fill may be incomplete, and introduction of new loads, such as additional fill, foundations, and buildings, would be expected to result in additional settlement. Deep pile foundations, which would be incorporated into the project, would minimize the effects of unstable soils below structures. However, differential settlement may occur below exterior improvements across subsurface features such as buried sloughs, abandoned levees, and/or in areas underlain by non-engineered fill, engineered fill, and native soils over Bay Mud. If unstable soils are not properly addressed during grading and foundation preparation, structural damage, warping, and cracking of roads, driveways, parking areas and sidewalks, and rupture of utility lines may occur.[49]

Implementation of the following mitigation measure, which would ensure that buildings are constructed to withstand unstable soils, would reduce impacts to structures or property related to settlement or differential settlement to a less-than-significant level:

> Mitigation Measure GEO-2: The designers of the proposed project's building foundations and improvements (including sidewalks, roads, driveways, parking areas, and utilities) shall consider the site to be underlain by Bay Mud and/or non-engineered fill. The design-level geotechnical investigation shall include measures to ensure that potential damage related to unstable soils, including compressible materials and non-uniformly compacted fill, is minimized. Substantial settlement is expected across the site during the life of the project.[50] Future settlement from placement of new loads, as well as existing loads, shall be taken into account in the design of all structures and utilities. Mitigation options may range from removal of the problematic soils, and replacement, as needed, with properly conditioned and compacted fill to design and construction of improvements to withstand the forces exerted during the expected settlement. All mitigation measures, design criteria, and specifications set forth in the site-specific design-level geotechnical report, and the City of Foster City Building Division standards, shall be followed to reduce impacts associated with problematic soils. (LTS)

Impact GEO-3: Damage to structures or property of the proposed project related to expansive (shrink-swell) and corrosive soils could occur. (S)

[49] Lowney Associates, 2005, op. cit.

[50] Lowney Associates, 2005, op. cit.

Expansive or corrosive soils could cause substantial damage to building foundations, piles, pavements, utilities, and/or other improvements. Structural damage, such as warping and cracking of roads, driveways, parking areas and sidewalks, and rupture of utility lines may occur if the potential expansive soils and the interface with imported fill are not considered during design and construction of improvements. The geotechnical investigation for the earlier project did not include testing of site soils for corrosivity; however, Bay Mud is known to have corrosive properties.[51]

Implementation of the following two-part mitigation measure, which would ensure that buildings are constructed to withstand expansive soils, would reduce impacts to structures or property related to expansive soils or corrosion to a less-than-significant level:

> Mitigation Measure GEO-3a: The design-level geotechnical investigation shall include an evaluation of the potential for expansive soils on the site and shall include measures to ensure potential damage related to expansive soils is avoided. Mitigation options may range from removal of the problematic soils, and replacement, as needed, with properly conditioned and compacted fill to design and construction of improvements to withstand the forces exerted during the expected shrink-swell cycles. All design criteria and specifications set forth in the design-level geotechnical investigation shall be implemented to reduce impacts associated with problematic soils.
>
> Mitigation Measure GEO-3b: The design-level geotechnical investigation shall include an evaluation of the potential for corrosive soils on the site. If the results indicate corrosive soil conditions, appropriate measures to mitigate these conditions shall be incorporated into the design of project improvements that may come into contact with site soils. Wherever corrosive soils are found in sufficient concentrations, recommendations shall be made 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. In general, these recommendations are expected to include, but not be limited to, the following provisions.
>
> - Protect buried iron, steel, cast iron, ductile iron, galvanized steel, and dielectric coated steel or iron (including all buried metallic pressure piping) against corrosion from soil.
> - Protect buried metal and cement structures in contact with earth surfaces from chloride ion concentrations.
> - Use sulfate-resistant concrete mix for all concrete in contact with the ground.
> - Consult a corrosion expert during the project's detailed design phase to design the most effective corrosion protection.

In addition, all recommendations of the geotechnical investigations shall be implemented. (LTS)

d. Cumulative Impacts. The proposed project would not contribute considerably to any cumulative impacts related to geology. Development of the 2012 Master Plan 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 addi-

[51] Ibid.

tion, 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 mitigation measures have been implemented.

E. HYDROLOGY AND WATER QUALITY

This section describes the existing hydrology setting for the project site, including runoff, drainage, and water quality characteristics, based on available information provided as part of the project application and published reports. Data gathered as part of a site reconnaissance conducted in July 2012 are also presented in this section. Impacts that could result from the proposed 2012 Master Plan, and mitigation measures to reduce significant impacts, are identified where appropriate.

1. Setting

The project site's existing conditions related to hydrology and water quality are described below.

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 71º Fahrenheit (F); the average low is 47º F. The mean annual rainfall in the vicinity of the project site, for the period between 1906 and 2012, was approximately 19 inches, the majority of which occurs from November through April.[1] During the period of record, annual rainfall has varied from 8.0 inches (1976) to 43 inches (1983), with a one-day high of 4.9 inches of precipitation on October 13, 1962. 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.[2]

b. Runoff and Drainage. The topography of the project site is relatively flat with an existing ground surface elevation of approximately 5 to 7 feet National Geodetic Vertical Datum 1929 (NGVD).[3,4] The project site is currently developed and includes multi-story office and research/ development buildings with intervening driveways and parking lots. Small areas of lawns front most buildings. Isolated islands of landscaping (shrubs and trees) are scattered throughout the parking lots. Storm drain inlets are located in the gutters of the streets and within the larger parking areas between buildings. There are three unpaved fields with compacted soils located in the northeast portion of the project site. Generally, the parking areas gently slope towards the drainage inlets; there is no predominant regional gradient apparent at the site. One stormwater drainage inlet was observed in the southwest corner of the southernmost unpaved field; the remaining two fields appear to drain to drainage inlets in adjacent streets. Runoff from both the North and South Campuses is collected in underground stormwater drains and directed to the east across Marsh Drive and Foster City Boulevard to the

[1] Western Regional Climate Center, *General Climate Summary, Redwood City, CA.* Website: www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7339.

[2] Brown, William M. III, 1988. Historical Setting of the Storm: Perspectives on Population, Development, and Damaging Rainstorms in the San Francisco Bay Region. *Landslides, Floods, and Marine Effects of the Storm of January 3-5, 1982, in the San Francisco Bay Region, California.* Stephen D. Ellen and Gerald F. Wieczorek, Eds., U.S. Geological Survey Professional Paper 1434.

[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] The Foster City Datum is equal to the National Geodetic Vertical Datum of 1929 plus 100 feet.

Foster City Lagoon.[5,6] One stormwater drain is connected to Vintage Lake, an artificial lake located within the project site, and acts as an overflow pipe which conveys excess water from the lake into the site storm drain system.[7] The only runoff that enters Vintage Lake is from the adjacent footpaths.[8]

c. Flooding. Based on the Federal Emergency Management Agency (FEMA) revised Flood Insurance Rate Maps (FIRMs) for the vicinity of the project site, the site is mapped as Zone X.[9,10] The maps indicate that the properties within this flood zone designation are protected by levees from a 100-year flood. The revised FIRMs will become effective on October 16, 2012.[11] The FIRMs were revised as a result of the March 15, 2012 FEMA certification of the City of San Mateo Bayfront Levees South of San Mateo Creek.[12]

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 San Mateo Pumping Station at the northern end of the Marina Lagoon is capable of moving 600,000 gallons per minute of water out of the lagoon and into San Francisco Bay.[13] At its closest, the Foster City Lagoon is approximately ½-mile east 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.[14] The capacity of each pump is sufficient to prevent flooding during a 100-year storm.[15] Foster City maintains the lagoons with a surface elevation of minus 1 to 2 feet NGVD and routinely lowers the water level by an additional 0.5 to 1 feet to provide reserve storage capacity in the event of a storm.[16] This can provide in excess of 138 million gallons (423.5 acre feet) of storage before the lagoon bulkhead is crested. The minimum elevation of the lowest living floor level within Foster City is several feet higher than the levee bulkhead elevation.[17]

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[5] Foster City, City of, 2012. *Foster City Storm Drain Plans – GIS Layer*. Public Works. July 23.

[6] Towne, Ray, 2012. Director of Public Works, Foster City. Personal communication with Baseline Environmental Consulting. July 23.

[7] Ibid.

[8] Ibid.

[9] Federal Emergency Management Agency, 2012a. Flood Insurance Rate Map (FIRM), San Mateo County, California, Community Panel Number 060318 0158 E. Website: www.msc.fema.gov. October 16.

[10] Federal Emergency Management Agency, 2012b. Flood Insurance Rate Map (FIRM), San Mateo County, California, Community Panel Number 060318 0159 E. Website: www.msc.fema.gov. October 16.

[11] This effective date is established and no further technical analysis or approvals are required. These FIRMs will be effective prior to any redevelopment under the proposed project.

[12] San Mateo, City of, 2012. Levee Project Update – June 2012. Website: www.cityofsanmateo.org/index.aspx?NID=1796.

[13] Foster City, City of, 1995. *General Plan, Safety Element*.

[14] Towne, Ray, 2012, op. cit.

[15] Ibid.

[16] Foster City, City of, 2012. *Lagoon Levels*. Website: www.fostercity.org/Services/water/Lagoon-Levels.cfm.

[17] Towne, Ray, 2012, op. cit.

Based on regional hazard mapping, the project site could be subject to inundation in the event of a catastrophic failure of the Lower Crystal Springs Dam (LCSD), approximately 5.1 miles west of the site.[18] The LCSD is owned by the City and County of San Francisco, and has a capacity of 67,500 acre-feet. Overland and creek channel flows from the west (the direction of LCSD) would be intercepted by the Marina Lagoon in San Mateo at the western edge of Foster City. The Foster City Public Works 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 1 mile west of the City of Foster City.[19] This flood height is below the crest height (6 feet) of a levee along Marina Lagoon in Foster City. Therefore, it is improbable that Lower Crystal Springs Dam failure would cause an inundation of Foster City.[20]

d. Coastal Hazards. The location of the project site (near San Francisco Bay) and the elevation of the site (approximately 5 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[21] and raised the City's Bay-facing levees to a crest height of approximately 10.0 feet NGVD.[22] 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.[23] As such, the area protected by the levee was classified as an area of minimal flood hazard, outside the 100-year special flood hazard zone (Zone X).

(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 sea level rise. The most recent cycle of global climate change may be attributable to a warming trend of the earth's atmosphere (an increase of approximately 1.8°F in the last 100 years) which has resulted in, and is expected to continue to cause, sea level rise. 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 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] The exact contribution of human-induced effects relative to the effect of natural cyclical background global climate change-related warming is still

[18] Association of Bay Area Governments, 2008. *Foster City Inundation Map*. Website: www.abag.ca.gov.

[19] Foster City, City of, 1995. *General Plan, Safety Element*.

[20] Ibid.

[21] Foster City, City of, 2005, op. cit.

[22] Towne, Ray, 2012, op. cit.

[23] U.S. Department of Homeland Security, 2007. Personal correspondence to Ray Townes, Director of Public Works, City of Foster City, CA. Letter of Levee Certification for Levee P771, FEMA. July 23.

[24] Titus, James G., and Vijay Narayanan, 1995. *The Probability of Sea Level Rise*, U.S. Environmental Protection Agency, Washington, D.C., 186 pp. EPA 230-R95-008. October.

[25] National Academy of Sciences, 2012a. Chapter 4, Sea-Level Variability and Change off the California, Oregon, and Washington Coasts. *Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*. Website: www.nap.edu/openbook.php?record_id=13389&page=R1.

under debate.[26,27] Refer to Section IV.K, Global Climate Change, for additional information about global climate change.

(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 (cycles) of a few minutes due to oscillations of the local harbor, estuary, or bay, superimposed on the normal tidal changes. Detailed tidal records for the Bay have been maintained for approximately 100 years, and during that time, a damaging seiche has not occurred. A seiche of approximately 4 inches occurred during the 1906 earthquake. It is unlikely that the Bay region will experience a larger earthquake than the 1906 event, and therefore a seiche larger than 4 inches is unlikely.

(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 most likely 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. The project site is located within a tsunami inundation area.[28] Tsunamis entering the 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.[29] The predicted maximum credible tsunami amplitude at the Potrero District of San Francisco is estimated to be 5.9 feet.[30] The maximum amplitude at the project site would not exceed this height.

(4) Extreme High Tide. 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 U.S. Army Corps of Engineers has developed an estimated 100-year high tide elevation (for an extreme high tide with a probability of occurrence every 100 years) for various locations around San Francisco Bay. The elevation of the estimated 100-year tide at Foster City is approximately 7.1 feet.[31]

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[26] Titus, James G., and Charlie Richman, 2001. *Maps of Lands Vulnerable to Sea Level Rise: Modeled Elevations along the U.S. Atlantic and Gulf Coasts*, Climate Research, CR 18:205-228.

[27] Thieler, E. Robert, and Erika S. Hammar-Klose, 2000. *National Assessment of Coastal Vulnerability to Sea-Level Rise: Preliminary Results for the U.S. Pacific Coast*. U.S. Geological Survey Open-File Report 00-178. Website: pubs.usgs.gov/of/2000/of00-178/.

[28] Association of Bay Area Governments, 2009. *Tsunami Inundation Emergency Planning Map for the San Francisco Bay Region*. Website: www.abag.ca.gov.

[29] Borrero, J., et al., 2006. *Numerical Modeling of Tsunami Effects at Marine Oil Terminals in San Francisco Bay*. Report prepared for: Marine Facilities Division of the California State Lands Commission. June 8.

[30] Ibid.

[31] United States Army Corps of Engineers, 1984. *San Francisco Bay Tidal Stage vs. Frequency Study*.

e. Groundwater. The project site is within the Santa Clara Valley Groundwater Basin in the San Mateo Plain sub-basin, which is bounded by San Francisco Bay to the east, the 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 (i.e., deposited by flowing water) fan deposits formed by tributaries to San Francisco Bay. The water-bearing formations comprise two groups; the Santa Clara Formation of the older 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. A geotechnical investigation prepared for the southern portion the project site notes that groundwater was encountered at a depth of 3 feet below ground surface (bgs) in the borings conducted as part of the field exploration.[32] The groundwater depths may vary due to seasonal precipitation, infiltration rates, and tidal influences due to the proximity of San Francisco Bay.

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 the quality of San Francisco Bay in areas where groundwater is affected by tides. Water quality within the watershed 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 (RWQCB), which is responsible for implementation of State and federal water quality protection statutes, regulations, and policies in the vicinity of the project site.

The RWQCB implements the Water Quality Control Plan (Basin Plan),[33] 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 underlies the project site and 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 400 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 located approximately ½-mile to the east, and is listed as providing the beneficial uses of estuarine habitat, wildlife habitat, and water contact and noncontact recreation.

(1) Stormwater Quality. The City is part of the San Mateo Countywide Stormwater Pollution Prevention Program. 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 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 RWQCB. MRP

[32] Lowney Associates, 2005. *Geotechnical Investigation Gilead Sciences Research Expansion: NRB1, NRB2,and Annex Buildings, Foster City.* Report No. 347-66A. November 8.

[33] San Francisco Bay Regional Water Quality Control Board, 1995. *Water Quality Control Plan*. Website: www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml. Appended through 2011.

Provision C.3 addresses post-construction stormwater management requirements for new development and redevelopment projects that add and/or replace 10,000[34] 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 City's storm drain system is designed to accommodate 85 percent of runoff). The MRP requires that Low Impact Development (LID) methods be the primary mechanism for implementing such controls.

MRP Provision C.3.g pertains to hydromodification management. The MRP requires that stormwater discharges not cause an increase in the erosion potential of the receiving stream over the existing condition. Increases in runoff flow and volume must be managed so that the post-project runoff does 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 plan requirements due to its close proximity to the Bay and the predominance of engineered, hardened drainage conveyances (i.e., a highly urbanized drainage system).[35]

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. Construction General Permit activities are regulated at a local level by the RWQCB.

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's risk level would be made by the project applicant when the Notice of Intent is filed.

The performance standard in the Construction General Permit dictates that dischargers minimize or prevent pollutants in stormwater discharges and authorized non-stormwater discharges through the use of controls, structures, and management practices that achieve Best Available Technology (BAT)

[34] On December 1, 2012, the threshold for projects subject to Provision C.3 will be reduced to 2,500 square feet.

[35] San Mateo Countywide Water Pollution Prevention Program, 2011. *Hydromodification Management Plan.* Website: www.flowstobay.org/bs_new_development.php. December 5.

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 who meets the certification requirements in the Construction General Permit. The purpose of the SWPPP is to: 1) help identify the sources of sediment and other pollutants that could affect the quality of stormwater discharges and 2) describe and ensure the implementation of best management practices (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 who 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 (a measure of the acidity/alkalinity of a solution), 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 (mean pH of 7.3) with a hardness of 471 milligrams per liter (mg/L) of calcium carbonate (CaCO3), classifying it as "very hard." In some areas, water quality may be impaired due to high concentrations of sodium caused by tidal influence.[36]

g. Regulatory Considerations. Applicable regulations related to hydrology and water quality are described below.

(1) Foster City Standard Conditions of Approval. Foster City has adopted Standard Conditions of Approval (COAs) for large development and redevelopment projects. The following COA related to stormwater drainage and infrastructure would apply to the proposed project following the privatization of the stormwater drainage system by Gilead Sciences in late September 2012.[37] A hydrology/hydraulic analysis would be completed on the existing storm drain system to verify it is adequately sized to handle the runoff from the project. The existing storm drains would also be cleaned as necessary.

(2) 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 Goals

- *S-B Protect From Flood Waters.* Protect the community from unreasonable risk to life and property caused by flood hazards.

[36] California Department of Water Resources, 2004. *California's Groundwater: Santa Clara Valley Groundwater Basin, San Mateo Subbasin,* Bulletin 118. February 27.

[37] Towne, Ray, 2012, op. cit.

Safety Policies

- *S-4 Flood Protection.* The City will maintain the City's levees and lagoon system for flood protection.
- *S-5 Flood Plain Regulations.* The City will control development to minimize risks to persons and property within any special flood hazards area through flood plain regulations.

Safety Programs

- *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."
- *S-H Flood Plain Regulations.* The City (Community Development Department) will evaluate any proposed development within 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. Impacts and Mitigation Measures

This section analyzes the impacts related to hydrology and water quality that could result from implementation of the 2012 Master Plan. 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. Mitigation measures 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 a substantial amount of 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 storm-water 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 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;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a substantial risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam;
- 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; or
- Otherwise substantially degrade water quality.

b. Less-Than-Significant Impacts. The project would increase impervious coverage on the site from approximately 69 percent of the site (50 acres) to approximately 72 percent of the site (52 acres), and would provide associated upgrades to drainage infrastructure and stormwater conveyances. This increase in impervious cover could incrementally increase runoff rates and volumes (the magnitude of the increase would depend on the intensity of the storm and the types of drainage components included).[38] However due to the modest increase in impervious surfaces that would result from the project (approximately 2 acres), the project would not be expected to result in downstream flooding or require an extensive upgrade to stormwater infrastructure that would itself result in significant environmental effects. The City of Foster City requires that grading and drainage plans be reviewed for compliance with the requirements of the Public Works Department and/or Building Inspection Division and the 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. The project site is within an area explicitly exempted from the hydromodification management plan requirements due to close proximity to the Bay and the predominance of engineered, hardened drainage conveyances.[39] As a result, the proposed project is unlikely to result in erosional or hydromodification effects. The proposed project would not substantially alter the existing drainage pattern of the site or area; the drainage pattern of the site with the proposed project would be similar to that under existing conditions, although with a slightly increased proportion of impervious surfaces. No natural streams or rivers are located in the vicinity of the project site. Thus the project would result in no changes that could generate substantial erosion or flooding either on- or off-site. The project would contain no unusual or unique features that would substantially degrade water quality; common construction and operational period water quality impacts related to the proposed development are discussed below under Impact HYD-1.

Residential structures would not be developed as part of the proposed project; as a result, the project would not place housing within a 100-year flood zone. There is a low potential for flooding of the site that would substantially threaten human safety or property. The project site is protected from a 100-year flood by levees. In addition, the project site is served by a gravity stormwater drainage system that flows to the Foster City Lagoon (managed by the Foster City Public Works Department) and

[38] Ibid.

[39] San Mateo Countywide Water Pollution Prevention Program, 2011, op. cit.

from there to San Francisco Bay via the City's lagoon pump stations. The proposed on-site storm-water drainage system and stormwater management plan would be designed per 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-related flooding. Adherence to existing requirements, including those governing design and placement of structures in flood zones, would reduce the potential flooding impact to a less-than-significant level.

The project site is located within a mapped dam failure inundation area for the Lower Crystal Springs Dam (LCSD), which is under the jurisdiction of State of California, Division of Safety of Dams.[40] Dam failure is a low probability event that can be caused by earthquakes or overflow. Potential failure of the LCSD was reduced by completion of a seismic retrofit 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.[41] Existing dams under State and federal jurisdiction are periodically inspected to ensure that they are adequately maintained and to direct the owner to correct any identified deficiencies. Regular inspections and required maintenance of the dams substantially reduce the potential for catastrophic failure. The hazard from flooding due to dam failure would be less than significant because: 1) recent seismic retrofits of the LCSD ensure that dam failure would be unlikely to occur; and 2) as described above, the estimated 2-foot inundation level near the project site would be contained by the levee along Marina Lagoon.

Between 2000 and 2050, sea level is predicted to rise at a greater rate than it has in the past. A mean sea level rise of 11.0 inches is projected in the San Francisco Bay area, though estimates range from 4.84 to 23.9 inches.[42] The 100-year extreme high tide at Foster City is estimated to be 7.1 feet.[43] The extreme high tide combined with the highest potential sea level rise by 2050 (23.9 inches or about 2.0 feet) could crest at 9.1 feet (7.1 feet plus 2.0 feet) NGVD. The existing Foster City levees, recertified in 2007, 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.[44] Coastal hazard threats to the project site are therefore considered less than significant. Vintage Lake, due to its size and volume, would not pose significant seiche hazards.

Development that would occur as part of the 2012 Master Plan would not use local groundwater supplies; therefore, implementation of the proposed project would not contribute to depletion of groundwater supplies or reduce the amount or quality of water available for public water supplies. In addition, the project would not interfere with groundwater recharge via water infiltration from

[40] Association of Bay Area Governments, 2008. *Foster City Inundation Map*. Website: www.abag.ca.gov.

[41] San Francisco Public Utilities Commission, 2012. *Lower Crystal Springs Dam Improvements (WSIP)*. Website: 216.119.104.145/bids/projectDetail.aspx?prj_id=128.

[42] National Academy of Sciences, 2012b. Chapter 5: Projections of Sea Level Change. *Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*. Website: www.nap.edu/openbook.php?record_id=13389&page=R1.

[43] United States Army Corps of Engineers, 1984, op. cit.

[44] Titus, James G., and Vijay Narayanan, 1995, op. cit.

streams or creeks and the relatively minor increase in impervious area would not substantially reduce groundwater recharge (by preventing the percolation of precipitation).

No streams or rivers cross the project site. Therefore, no streams or rivers would be modified as part of the proposed 2012 Master Plan.

c. Significant Impacts. Development of the 2012 Master Plan could result in one significant impact related to water quality, as described below.

Impact HYD-1: Construction period and operation period project activities could result in degradation of water quality in Vintage Lake, Foster City Lagoon, and the San Francisco Bay by reducing the quality of stormwater runoff. (S)

The significant effects of the project during the construction period and operation period are discussed below:

(1) Construction-Period Impacts. Demolition, excavation, grading and construction on the project site would require temporary disturbance of surface soils and removal of existing pavement and buildings. 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 resulting in 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.

(2) Operation-Period Impacts. New construction and intensified land uses at the project site would result in increased personnel on the site, with attendant 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.

Implementation of the following three-part mitigation measure would reduce construction- and operation-period impacts to water quality to a less-than-significant level:

> Mitigation Measure HYD-1a: Consistent with the requirements of the Statewide Construction General Permit, the project applicant shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential adverse impacts to surface water quality through the project construction period. The SWPPP, which shall be prepared for the entire project site, shall be designed to address the following objectives: 1) all pollutants and their sources, including sources of sediment associated with construction, construction site erosion,

and all other activities associated with construction activity are controlled; 2) where not otherwise required to be under a RWQCB 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 4) authorized non-stormwater discharges from construction activity adhere to the Best Available Technology and Best Conventional Technology (BAT/BCT) standard; 5) calculations and design details as well as BMP controls for site run-on are complete and correct; and 6) stabilization BMPs installed to reduce or eliminate pollutants after construction are completed.

The SWPPP shall be prepared by a Qualified SWPPP Developer. 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 or the Caltrans Storm Water Quality Handbook Construction Site BMPs Manual.

The SWPPP shall include a construction site monitoring program that identifies requirements for dry weather visual observations of pollutants at all discharge locations and, as appropriate depending on the project Risk Level, sampling of the site effluent and receiving waters (receiving water monitoring is only required for some Risk Level 3 dischargers). A Qualified SWPPP Practitioner (QSP) shall be responsible for implementing the BMPs at the site. The QSP shall also be responsible for performing all required monitoring and BMP inspection, maintenance and repair activities. If the project is Risk Level 2 or 3, the project applicant shall also prepare a Rain Event Action Plan as part of the SWPPP.

Mitigation Measure HYD-1b: The project sponsor shall fully comply with the San Mateo Countywide Water Pollution Prevention Program, which maintains compliance with the NPDES Stormwater Discharge Permit. Responsibilities include, but are not limited to, designing BMPs into project features and operations to reduce potential impacts to surface water quality associated with operation of specific development projects undertaken as part of the 2012 Master Plan. These features shall be included in the drainage plan and final development drawings for individual projects. Specifically, the final design shall include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development.

Applicable requirements of the San Mateo Countywide Water Pollution Prevention Program, as outlined in the December 2011 C.3 Stormwater Technical Guidance manual (or updated version) shall be incorporated into project designs, unless the City is specifically exempted from such requirements. Rainwater harvesting and reuse, and passive, low-maintenance BMPs (e.g., grassy swales, porous pavements) are preferred in all areas. Higher-maintenance BMPs 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 of all BMPs must be specified (as the City will not assume maintenance responsibilities for these features). The project sponsor 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 shall be promptly removed. In addition, an

annual report documenting the inspection and any remedial action conducted shall be submitted to the Public Works Department and/or Building Inspection Division for review and approval.

The SWPPP and drainage system maintenance plan must be approved by the City prior to approval of the grading plan.

Mitigation Measure HYD-1c: The project sponsor shall comply with all requirements of the City's Standard Conditions of Approval (COA). At a minimum, in accordance with the COAs, a hydrology/hydraulic analysis shall be completed on the existing storm drain system to verify that it is adequately sized to accommodate the runoff from the project. Modifications to the system shall be funded by the project sponsor, as needed. In addition, the existing storm drains shall be cleaned as necessary. (LTS)

d. Cumulative Impacts. Construction of the 2012 Master Plan, in combination with other past, present, and reasonably foreseeable future development projects, could increase stormwater runoff volume and the amount of contaminants carried in the runoff, adversely affecting the waters of the lagoons in Foster City and San Francisco Bay. Project-specific mitigation measures required for each of the projects would be incorporated into their design and operation so as to reduce impacts to flooding and water quality to a less-than-significant level. Grading and drainage features are required to be designed in accordance with City of Foster City Design Criteria. Project proponents are required to prepare SWPPPs to reduce potential impacts to surface water quality through the construction period of the project. In addition, the City ensures that project designs include operational Best Management Practices to reduce potential impacts to surface water quality associated with operation of projects. No significant unavoidable impacts related to hydrology and water quality would result from construction or operation of the proposed project, and the project would not make a significant adverse contribution to any cumulative hydrology and water quality impacts.

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F. HAZARDS AND HAZARDOUS MATERIALS

This section evaluates the effects of the proposed 2012 Master Plan in relation to exposure to hazards and hazardous materials[1] during construction and operation of the project. The evaluation was based on a review of project materials, previous environmental assessment for the southern portion of the project site,[2] environmental database reports,[3] a site reconnaissance conducted in July 2012, and other published materials. Potential public health and safety impacts that would result from the proposed project are described, and mitigation measures are recommended where appropriate.

1. Setting

This section summarizes the regulatory framework for hazardous materials and hazardous waste; lead, asbestos, and other hazardous building materials; and applicable worker health and safety requirements. Findings of recent studies regarding potential health effects from exposure to electromagnetic fields (EMFs) are also described. EMFs are a potential concern on the site due to the location of transmission lines running approximately northwest-southeast through the center of the site. This section also describes the current use and storage of hazardous materials at the project site.

a. Regulatory Framework. 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 and general worker health and safety.

(1) 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 U.S. Environmental Protection Agency (U.S. 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 (ARB), and other agencies. The San Francisco Bay Regional Water Quality Control Board (RWQCB), 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.

[1] 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).

[2] Green Environment, Inc., 2003. *Executive Summary, Phase I Environmental Site Assessment, Vintage Park, Foster City, California.* May 15.

[3] Environmental Data Resources, Inc., 2008. *The EDR Radius Map Report with Geocheck for Gilead, 335 Lakeside Drive [and vicinity]*, Inquiry Number: 23023196. August 25.

Federal. The U.S. 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 that resulted in these regulations 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 U.S. EPA provides oversight for site investigation and remediation projects, and has developed protocols for sampling, testing, and evaluation of solid wastes.[4]

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 U.S. 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. USTs are a common source of hazardous materials (and associated contamination) in urban and rural areas. The State Water Board also allocates funding to eligible parties who request reimbursement of funds to clean up soil and groundwater pollution from UST leaks. In addition, the State Water Board enforces the Porter-Cologne Water Quality Act through its nine regional boards, including the San Francisco Bay RWQCB, described below.

California Air Resources Board. ARB 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. ARB has developed State air quality standards, and is responsible for monitoring air quality in conjunction with the local air districts. Refer to Section IV.I, Air Quality, for a discussion of ARB's role in overseeing air quality regulations in California

Regional and Local Agencies. The following regional and local 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 San Francisco Bay RWQCB, provide for protection of State waters in accordance with the Porter-Cologne Water Quality Act of 1969. The RWQCB 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 investigations and remedial actions. The RWQCB has also developed Environmental Screening

[4] U.S. Environmental Protection Agency, 2008. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*. Website: www.epa.gov/epaoswer/hazwaste/test/main.htm.

Levels (ESLs) to help expedite the preparation of environmental risk assessments at sites where contaminated soil and groundwater have been identified. Data collected at a site can be directly compared to ESLs and the need for additional work evaluated.[5]

Bay Area Air Quality Management District. BAAQMD is responsible for preparing attainment plans for criteria air 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 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, local hazardous waste generator program, UST management, investigation of leaking USTs, oversight of remediation of contaminated sites, and the California Accidental Release Program for highly toxic, flammable, or explosive materials. 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.

(2) 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, also 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 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.[6] 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.

[5] San Francisco Bay Regional Water Quality Control Board, 2007. *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*, Interim Final - November (revised May 2008).

[6] Agency for Toxic Substances and Disease Registry, 2001. Toxic FAQs for Polychlorinated Biphenyls. Website: www.atsdr.cdc.gov/tfacts17.pdf. February.

(3) Worker Health and Safety. Worker health and safety are regulated at the federal level by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA). The Federal Occupational Safety and Health Act of 1970 authorizes states (including California) 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.[7] Additional regulations have been developed for construction workers potentially exposed to lead[8] and asbestos.[9] Cal/OSHA enforcement units conduct on-site evaluations and issue notices of violation to enforce necessary improvements to health and safety practices.

(4) Electrical Transmission Lines/Electromagnetic Fields (EMFs). High-voltage electrical transmission lines, suspended by transmission towers, cross the project site near Reef Drive and run southeast across the campus over Vintage Lake. Power lines in Foster City are contained in easements that preclude the development of permanent structures beneath them.[10]

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 and 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.[11]

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 EMF research literature, prepared by the National Institute of Environmental Health Science (NIEHS), concluded that "the NIEHS believes that there is weak evidence for possible

[7] Title 8, CCR Section 5192.

[8] Title 8, CCR Section 1532.1.

[9] Title 8, CCR Section 1529.

[10] Foster City, City of, 1993. *General Plan*, Chapter 7: Safety Element, adopted May 1995.

[11] California Department of Public Health, 1999. *Short Fact Sheet on EMF*, California EMF Program.

health effects from EMF exposures, and until stronger evidence changes this opinion, inexpensive and safe reductions in exposure should be encouraged."[12] 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 risk of EMFs, and DHS made no policy recommendations. However, PUC advocates "no and low cost" EMF avoidance measures; this means minimizing EMF exposure when it is easy and inexpensive to do so.[13]

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 Subsequent EIR is therefore limited to the qualitative discussion in this subsection, and no impacts related to EMFs are identified.

(5) Biotechnology Research and Development and Wastes. Wastes generated during the course of biotechnology research and development may include radioactive materials/waste and biohazardous waste. At the federal level, the Food and Drug Administration, U.S. EPA, and the U.S. Department of Agriculture regulate biotechnology research and product development, including genetically modified organisms that could affect the environment upon release. The U.S. Nuclear Regulatory Commission (NRC) has adopted a waste classification system for low-level radioactive wastes (LLRW) that could be generated during biotechnology research and development uses, and requirements for disposal of such wastes. 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 California Health and Safety Code, Section 115000.1.

(6) 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 biohazardous 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.[14] The CMWMP includes requirements for facilities that

[12] National Institute of Environmental Health Science, 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.

[13] California Department of Public Health, 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. Website: www.ehib.org/emf/RiskEvaluation/riskeval.html. June.

[14] State of California Health and Welfare Agency, 2012. *Medical Waste Management Program, Local Enforcement Agency Contacts.* California Department of Public Health. Website: www.cdph.ca.gov/certlic/medicalwaste/Documents/MedicalWaste/L%20E%20A.pdf. May 11.

generate large quantities of medical waste, waste haulers, containment and storage of medical waste, and enforcement.[15]

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.

(7) Medical, 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 incorporate 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) are described, and decontamination procedures are identified.[16]

[15] California Department of Public Health, 2012. *The Medical Waste Management Act* (California Health and Safety Code, Sections 117600 – 118360). Website: www.cdph.ca.gov/certlic/medicalwaste/Pages/default.aspx.

[16] California Code of Regulations, 2012. Occupational Health and Safety Codes. Website: www.dir.ca.gov. July 24.

b. Hazardous Materials on the Project Site. A combined Phase I Environmental Site Assessment and Environmental Health and Safety Assessment (Phase I ESA/EHSA)[17] was completed in 2003 for the southern 33 acres of the 73-acre project site, including the areas proposed for demolition and construction activities under the 2012 Master Plan. Potential hazardous materials issues in the remainder of the project site were also evaluated in the Phase I ESA/EHSA, although at a lesser level of detail than the 33-acre portion of the South Campus. A review of regulatory databases and a site reconnaissance were also performed for the entire project site as part of this Subsequent EIR. The information about the project site contained in the Phase I ESA/EHSA, along with the data developed through the regulatory database review and site reconnaissance are sufficient to evaluate hazardous materials impacts that would result from future development activities throughout the project site.

The Phase I ESA/EHSA was prepared to identify recognized environmental conditions[18] for the 33-acre property, current tenant operations or activities that may pose a significant risk to human health and/or the environment, and any tenant activities that may be in non-compliance with applicable environmental health and safety statutes and regulations. The Phase I ESA/EHSA included a review of historical and current information sources, interviews with persons and agencies knowledgeable about the project site, a regulatory agency records review, City directory review, review of prior environmental site assessments, and a site reconnaissance. The Phase I ESA/EHSA did not include soil or water testing.

(1) Historical Land Uses and Potential for Hazardous Materials. The Phase I ESA/EHSA describes the project site as having been occupied by tidal marshlands with meandering sloughs, until the area was diked and drained for agriculture around 1900. In 1963, the sloughs and ditches of the site were cleared and backfilled with compacted native soils to match the surrounding grade. In 1976, other low-lying areas were filled and compacted. From 1977 to 1979, several additional feet of fill were imported and compacted across the site, in preparation for eventual development. The project site remained undeveloped until 1986, when the first structure was erected. Construction of the remainder of the buildings was completed by 1991.[19]

No historical land uses related to hazardous materials were identified in the Phase I ESA/EHSA, but the presence of fill from unknown sources was described as a potential concern. The Phase I ESA/EHSA notes that the sources of the historical fill materials at the project site are undocumented, but may be dredge material from San Francisco Bay.[20] The most recent fill materials came from local mountain quarries, and dredged sand from San Francisco Bay; the chemical composition of the fill

[17] Green Environment, Inc., 2003, op. cit.

[18] "Recognized environmental conditions," under the guidance document governing Phase I environmental site assessments (ASTM E1527-05), address the presence or likely presence of any hazardous substance or petroleum product on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substance or petroleum product in structures on the property, or into the ground, groundwater or surface water of the property. Recognized environmental conditions do not include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of enforcement action if brought to the attention of the appropriate governmental agencies.

[19] Green Environment, Inc., 2003, op. cit.

[20] Foster City, City of, 2012. *Community Info, History of Foster City, Creating the Land.* Website: www.fostercity.org/community_info/Creating-the-Land.cfm.

materials was not reported.[21] If the fill contained contaminants, those contaminants could potentially pose a risk to future workers, particularly construction workers who may come into direct contact with soils during development of the project. The Phase I ESA/EHSA described potential contaminants in the fill as a recognized environmental condition for the project site, although this condition was described as a "low to moderate" risk.[22]

(2) Existing Land Uses Associated With Hazardous Materials. The project site is currently occupied by office and laboratory uses (including research and development uses), as it was at the time of the 2003 Phase I ESA/EHSA. To the north of the site is an office building used by Electronics for Imaging (EFI), which is located at 303 Velocity Way, and a golf course and open space along the shoreline of San Francisco Bay. To the northeast and east are office and light industrial uses similar to the existing uses at the project site. To the south are Home Depot, the Hilton Garden Inn, and Bridgepointe Shopping Center. To the west of the site is a residential neighborhood and open space.

Since it was developed, the project site has included offices and research and development facilities. In 2003, much of the southern portion of the project site was in use by Gilead; however, other tenants were also present. The Phase I ESA/EHSA includes an inventory of these occupants and the types of business that were present. Several of the tenants were listed as small quantity hazardous waste generators, authorized to generate and dispose of up to 1,000 kilograms per month of hazardous waste, and Gilead was listed as a large quantity generator, allowing for generation and disposal of greater than 1,000 kilograms per month. Wastes generated at the project site included used solvents, methylene chloride, oil, and laboratory chemicals.[23]

Gilead maintains Hazardous Materials Business Plans (HMBPs) for each of the eleven buildings at the project site that contain chemical storage facilities and/or fuel storage facilities (diesel for emergency generators). The HMBPs for each of the eleven buildings contain a description of business activities and a spill prevention plan, emergency response plan, training plan, closure plan, and Hazardous Materials Inventory Statement (HMIS). The plans are updated annually, as needed, and copies of the plans are filed with SMCEHD, the Foster City Fire Department, and the Estero Municipal Improvement District. According to the HMBPs, all business activities involving hazardous materials are conducted inside buildings. No storage of raw materials occurs outdoors. There are no underground hazardous materials or waste storage tanks. Three above-ground waste storage tanks are in operation; each above-ground storage tank is indoors and within a secondary containment structure. None of the three above-ground storage tanks is within a building proposed for demolition. Emergency response and evacuation plans for the buildings are detailed, and incorporate prior arrangements for assistance with police, fire, and hospital personnel. Gilead Sciences has an on-site Emergency Response Team that has been trained in the handling of hazardous waste (RCRA and non-RCRA California hazardous waste) including emergency communications and inspections, and responses to fires, spills, explosions and shutdown of operations.[24,25,26,27,28,29,30,31,32,33,34]

[21] Green Environment, Inc., 2003, op. cit.

[22] Ibid.

[23] Ibid.

[24] Gilead, Inc., 2006a. *Hazardous Materials Business Plan, 310 Lakeside Drive, Foster City, CA.* June 21.

In addition, no building has above-ground petroleum (fuel) storage tanks exceeding a combined 1,320 gallons of capacity, which would require implementation of a Spill Prevention Control and Countermeasure (SPCC) plan. Two buildings, located at 310 and 322 Lakeside Drive, do not generate any hazardous waste, but do maintain HMBPs in support of diesel tanks for generators and/or battery back-up electrical systems and fire suppression chemicals.

A review of the 2008 government database search confirmed that Gilead Sciences and other businesses in the southern portion of the project site continued to use, store, and dispose of similar volumes and classes of hazardous materials as those described in the Phase I ESA/EHSA and HMBPs. For the northern portion of the project site, the report indicates that EFI, at 301 Velocity Way, was listed as a SMCEHD hazardous materials storage facility.[35] Precise types and amounts of hazardous materials at this facility were not reported, but the SMCEHD record indicates that hazardous materials storage was less than 3,499 gallons, 27.999 pounds, or 13,999 cubic feet in volume. No active hazardous material release sites, where hazardous materials may be present in soils or groundwater, were reported at or adjacent to the project site. 303 Velocity Way, immediately to the north of the project site, is listed as containing an above-ground storage tank that is subject to Spill Prevention Control and Countermeasure regulations, which indicates that one or more tanks at the site contain at least 1,320 gallons of petroleum. The records indicate that in 2008 both 301 and 303 Velocity Way were occupied by EFI, a research and development digital technology company.

(3) Reported and Potential Hazardous Materials Releases. The Phase I ESA/EHSA included a review of reported spill incidents and notes that within the project site, 15 documented hazardous materials releases were reported from 1988 to 2002. Six of the 15 events occurred outdoors either before or during site development, and consisted of spills of solvents or paint. In addition, two releases were related to hydraulic oil spills from elevator lifts discovered in 1994. Finally, seven spills occurred inside Gilead lab facilities, and consisted of a liter or less of materials each. According to the Phase I ESA/EHSA, the lab spills were cleaned up immediately and clean-up materials were properly disposed. The seven interior spills involved small quantities of hazardous materials, were immediately cleaned up, and did not result in contamination of soil or groundwater. The six outdoor spills were cleaned up when discovered, with contaminated soils removed and properly disposed, and confirmation samples were collected from the bottom of each of the excavations. Laboratory analyses

[25] Gilead, Inc., 2006b. *Hazardous Materials Business Plan, 320 Lakeside Drive, Foster City, CA.* November 22.

[26] Gilead, Inc., 2006c. *Hazardous Materials Business Plan, 322 Lakeside Drive, Foster City, CA.* June 21.

[27] Gilead, Inc., 2006d. *Hazardous Materials Business Plan, 324 Lakeside Drive, Foster City, CA.* June 1.

[28] Gilead, Inc., 2006e. *Hazardous Materials Business Plan, 335 Lakeside Drive, Foster City, CA.* April 1.

[29] Gilead, Inc., 2006f. *Hazardous Materials Business Plan, 342 Lakeside Drive, Foster City, CA.* April 1.

[30] Gilead, Inc., 2006g. *Hazardous Materials Business Plan, 344 Lakeside Drive, Foster City, CA.* April 1.

[31] Gilead, Inc., 2006h. *Hazardous Materials Business Plan, 346 Lakeside Drive, Foster City, CA.* April 1.

[32] Gilead, Inc., 2006i. *Hazardous Materials Business Plan, 353 Lakeside Drive, Foster City, CA.* April 1.

[33] Gilead, Inc., 2006j. *Hazardous Materials Business Plan, 357 Lakeside Drive, Foster City, CA.* April 1.

[34] Gilead, Inc., 2007. *Hazardous Materials Business Plan (revised), 362 Lakeside Drive, Foster City, CA.* July 16.

[35] Environmental Data Resources, Inc., 2008, op. cit.

of the confirmation samples indicate removal of contaminated materials. The Phase I ESA/EHSA concluded that known and potential releases of hydraulic oil from elevator equipment were recognized environmental concerns at the project site. The Phase I ESA/EHSA recommended additional investigation and sampling to confirm that the cleanup of the elevator hydraulic lifts was complete.

Other potential hazardous materials release risks noted in the Phase I ESA/EHSA included the potential discharge of laboratory chemicals to the wastewater system, minor petroleum leaks from emergency generators, and oil and grease related to food preparation.

Gilead Sciences undertook remediation of all soil and groundwater contamination identified in the Phase I ESA/EHSA, including the hydraulic oil spills, and completed remediation in early 2006 under the oversight of the SMCEHD; a letter of closure was issued by San Mateo County in late 2006.[36] Gilead Sciences also implemented new policies, procedures and systems, including drum storage facilities, to ensure that hazardous materials are not introduced to the wastewater system. Gilead Sciences maintains a Wastewater Discharge Permit, issued by the Estero Municipal Improvement District, and performs sampling and self-monitoring to ensure compliance. The subsequent 2008 government database search reviewed for this analysis indicates that no incidents regarding hazardous material releases were reported related to these users and no investigative oversight by regulatory agencies is underway or has occurred.[37] The Phase I ESA/EHSA determined that there is a low potential for off-site chemical releases to affect the groundwater or soils on the project site. No active hazardous materials releases cases, where contamination has been identified but remediation is not complete, were identified within 1/8 mile of the project site.[38]

(4) Biohazardous Substances Use and Disposal. Biohazardous materials currently used by Gilead Sciences at the project site include specimen and microbiological cultures, stocks of infectious agents, live and attenuated vaccines, blood and body fluids, sharps, and/or isolation waste. Staff is trained during new hire orientation regarding waste segregation procedures, and must complete annual refresher courses. Technicians are trained in both chemical and waste disposal procedures.[39] Commercial autoclave equipment is used to sterilize laboratory equipment suitable for reuse; and separate labeled containers for sharps, infectious materials, and medical waste are maintained. A certified medical waste disposal service under contract with Gilead Corporation provides medical waste disposal service.[40] No animal testing is conducted or proposed at Gilead Science's facilities in Foster City.[41]

[36] Lang, Jeff, 2008. Director Facilities and Operations, Gilead Corp. Request for Gilead Information/EIR – Existing Environmental Document. Written communication. July 25.

[37] Environmental Data Resources, Inc., 2008, op. cit.

[38] Ibid.

[39] Green Environment, Inc., 2003, op. cit.

[40] McHugh, Laura D., P.E., 2008. Director, Environmental Health and Safety, Gilead Corp. Personal communication with Baseline Environmental Consulting. July 14.

[41] Edwards, Michael, 2008. Pacific BioFacilities. Personal communication with Baseline Environmental Consulting. August 11.

(5) Radioactive Substances Use and Disposal. The Phase I ESA/EHSA notes that one of the former tenants at 320 Lakeside Drive used low-level radioactive isotopes under a radioactive materials use license. The Phase I ESA/EHSA indicates that this use was decommissioned and that SMCEHD records show the permit was terminated in 2001. The Phase I ESA/EHSA also reports that a follow-up radiation survey conducted in 2003 indicates that no radiation was found in areas with the potential for contamination. Although the Phase I ESA/EHSA identified a concern that the heating, ventilation, and air conditioning (HVAC) ducts are not specifically mentioned as having been investigated, the safety of the HVAC ducts was addressed in final closure reports that were completed by the former tenant, approved by the State of California, and filed with San Mateo County in 2003 and 2004.[42]

c. Foster City General Plan. The 1993 Safety Element of the Foster City General Plan[43] contains the following safety goals, policies, and programs related to hazardous materials, fire and emergency preparedness, and EMFs:

Safety Goals

- *S-C Protect from Fire and Dangerous Conditions*. Protect the community from unreasonable risk to life and property caused by fires and dangerous conditions.
- *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.

Safety Policies

- *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.
- *S-7 Hazardous Materials*. The City will protect the community from unreasonable risks associated with hazardous materials.
- *S-8 Electromagnetic Fields*. The City will monitor available information regarding possible health hazards of electromagnetic fields.
- *S-9 Emergency Response*. The City will prepare to respond to emergencies through the City's Emergency Plan, training, and other measures.

Programs

- *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).
- *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).

[42] Ibid.

[43] Foster City, City of, 1993, *General Plan*, op. cit.

- *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).
- *S-o Electromagnetic Fields*. The City will monitor available information regarding possible health hazards of electromagnetic fields (Responsible Agency, Community Development Department).
- *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).
- *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).

d. Emergency Evacuation Plans. The City Council adopted the City Multi-Hazard Functional Plan (MFP) as the City's Emergency Plan. 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 relocation 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 (CHP), 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 Drive (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; and
- Traffic from the business areas north of SR 92 would be directed to either Third Avenue west or Fashion Island Boulevard west.

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 participates in the San Mateo County Smart Corridors Project.[44] The Smart Corridors Project allows State, local, and regional agencies 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. 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 underway and scheduled for completion by the end of 2013.[45]

2. Impacts and Mitigation Measures

This section analyzes the impacts related to hazardous materials and public health and safety that could result from the proposed project. Criteria of significance are defined, which 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 mitigation measures to reduce potential impacts to a less-than-significant level.

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.
- Create a significant hazard to the public or environment through exposure to hazardous materials present in soils, surface water, ground water, and/or building materials as a result of historical land uses in the project vicinity.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼-mile of an existing or proposed school.

[44] Foster City, City of, 2008. City Council Resolution No. 2008-99.

[45] San Mateo County Smart Corridors, 2012. *Project Description*. Website: www.menlopark.org/departments/trn/Smartcorridors.html. July 18.

- Be located on or adjacent to 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 Impacts. The following discussion examines potential less-than-significant impacts of the proposed project.

(1) Routine Transport, Storage, Use, and Disposal of Hazardous Materials. Following construction of specific projects under the 2012 Master Plan, hazardous materials would be used, stored, transported, and disposed of for research and development activities. 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. 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. The transport, generation, use, and/or disposal of hazardous materials within the project site would also be subject to existing hazardous materials regulations, such as those implemented by SMCEHD (see Regulatory Framework, above) and hazardous materials permits from the Fire Department.[46] 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.[47] 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.

(2) Release of Hazardous Materials into the Environment. Releases of hazardous materials into the environment could occur during demolition of existing buildings at the project site, if hazardous materials in the buildings are not removed prior to demolition. Closure of buildings that store, use, or dispose of hazardous materials would be managed in compliance with the closure plan element of the approved HMBP for the particular structure. The following actions would be required as part of building closures:

[46] These permits apply to biotechnology and high technology companies, and commercial or light industrial businesses.

[47] Foster City, City of, 1993, *General Plan*, op. cit.

- The SMCEHD would be notified at least 30 days prior to closure;
- All hazardous materials and waste would be packaged and disposed of in accordance with applicable local, State, and federal regulations;
- Areas where hazardous materials and/or wastes were stored and/or used would be cleaned, evaluated visually for residual materials, and tested as required by the SMCEHD; and
- All equipment for hazardous materials processing and/or hazardous waste storage would either be cleaned to acceptable standards and removed from the site, or disposed of as hazardous waste.

Lead and asbestos which could be present in building materials is also a potential concern. As described in the setting section, prior to 1978, lead compounds were commonly used in exterior and interior paints. Prior to the early 1980s, building materials often contained asbestos fibers. 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 found in older electrical equipment and other building materials like light ballasts. The project site was originally developed with structures starting in 1986, with development completed in 1991.[48] Due to the relatively recent date of construction, it is unlikely that lead, asbestos, or equipment containing PCBs were used during the original development of the project site. The risks associated with release of hazardous materials into the environment due to demolition as a result of the proposed project are therefore considered a less-than-significant impact.

(3) Emit Acutely Hazardous Materials Within ¼-Mile of a School. Local school district mapping does not indicate an existing or planned school within ¼-mile of the project site.[49] Gilead Sciences operates a day-care and preschool program at 301 Velocity Way.[50] The preschool is located in an office building without hazardous materials and Gilead Sciences' compliance with existing regulations and with the mitigation measures described below would prevent hazardous emissions and prevent a significant risk of sensitive receptor exposure to acutely hazardous materials, substances, or waste. Therefore, the risks associated with emissions of acutely hazardous materials within ¼-mile of a school are considered a less-than-significant impact.

(4) Hazardous Materials Release Sites. Reviews of regulatory agency databases performed for this analysis included lists of sites compiled pursuant to Government Code section 65962.5. These reviews have not identified any active investigations of hazardous materials releases within the project site or within 1/8-mile of the site. Potential safety hazards from hazardous materials release sites within and adjacent to the project site are therefore considered less than significant.

(5) Emergency 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 development of previously-developed parcels in an urban-

[48] Green Environment, Inc., 2003, op. cit.

[49] Foster City-San Mateo School District, 2012. *District Maps.* Website: www.smfc.k12.ca.us/district_maps.

[50] Bright Horizons, 2012. *Bright Horizons at Gilead.* Website: child-care-preschool.brighthorizons.com/CA/Fostercity/fostercity/Our-Center.

ized 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.[51] 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 and westbound East Hillsdale Boulevard. In addition, Foster City Boulevard traffic would be directed to either East Third Avenue westbound or SR 92 westbound. The privatization of Lakeside Drive, which is integrated into the 2012 Master Plan (but was independently approved in 2010), would not substantially interfere with emergency evacuation. Lakeside Drive is not critical for emergency evacuation but would be available for evacuation, if necessary (as emergency vehicles would be able to drive on the segment of Lakeside Drive that would be converted into a pedestrian walkway). In addition, the project would not interfere with evacuation plans for individual buildings prepared by the project sponsor. Potential impacts to emergency evacuation routes or emergency response plans from the proposed project are therefore considered less than significant.

(6) Wildland Fires. The project site, which is surrounded by urbanized uses (and open space with a low potential for wildland fires to the north), has not been identified as having a significant potential for wildland fires.[52] 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.

(7) Aviation Hazards. The proposed project is located approximately 4 miles north of the San Carlos Airport (SLQ) and approximately 5 miles south 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.[53]

The project site is located within Area A of the AIA Boundary for SLQ.[54] The proposed project is not located within Area B, and structures at the project site would not be considered a potential obstruction hazard for aircraft using SLQ.

The northern portion of the project site is located within the approach surface to SFO, and the entire project site is designated as part of SFO Area B.[55] The highest obstruction permitted within the project site is 210 feet.[56] The maximum building heights for the proposed project would be well below this maximum permitted height, would not be expected to interfere with aircraft, and would therefore not be expected to pose a hazard to persons occupying the structures. Further, the proposed

[51] Foster City, City of, 1993, *General Plan*, op. cit.

[52] Ibid.

[53] Skyvector, 2012. Website: www.skyvector.com. July.

[54] City/County Association of Governments of San Mateo County, 2012. *Revised Airport Influence Area Boundary for San Carlos Airport – Area B*, approved by CCAG Board, October 14, 2004. Website: www.ccag.ca.gov/plans_reports.html.

[55] City/County Association of Governments of San Mateo County, 2012. *Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport*. July.

[56] Ibid.

project is not expected to include any land uses that would cause a hazard to air navigation within the vicinity of SFO.[57] Impacts from the proposed project on aviation are therefore considered less than significant.

c. Significant Impacts. Two potentially significant impacts have been identified and are discussed below.

Impact HAZ-1: Upset and accidents involving hazardous materials releases and transport and use during construction activities could result in adverse effects to public health or the environment. (S)

Hazardous materials (e.g., fuels, lubricants, paints, and adhesives) would be transported and used on-site for proposed construction and redevelopment activities. In addition, construction vehicles would be used on-site that 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. The following two-part mitigation measure would reduce this potential impact to a less-than-significant level.

> Mitigation Measure HAZ-1a: 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 feasible. 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 leaks shall be 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.
>
> Mitigation Measure HAZ-1b: 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, and required personal protective equipment, as appropriate, in responding to the emergency. The contractor(s) shall submit these procedures to the City for approval prior to demolition or development activities.

[57] Ibid. Land uses that could cause a hazard to air navigation within SFO Area B include uses with: 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 6) features that would attract large concentrations of wildlife, particularly flocks of birds.

Compliance with these mitigation measures may occur in coordination with compliance with the Storm Water Pollution Prevention Plan and Best Management Practices required for the proposed project, as the measures identified above are also intended to protect the water quality of runoff from the site. See Section IV.E, Hydrology and Water Quality, for additional detail. (LTS)

Impact HAZ-2: Exposure of construction workers and the public to existing or previously unknown contamination in soil and/or groundwater, and other safety hazards encountered during site grading and excavation activities, or exposure to hazardous materials following project development could result in adverse health effects. (S)

The 2003 Phase I ESA/EHSA, which evaluated hazardous materials risks throughout the project site (but focused on hazardous materials issues in the southern portion of the site), identified three "recognized environmental conditions" related to the presence of hazardous materials contamination (other than hazardous building materials, described separately, below). "Recognized environmental conditions" is a term-of-art for Phase I ESAs. The American Society for Testing and Materials (ASTM) E-1527 defines recognized environmental conditions 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 release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property." Gilead Sciences has taken measures to remediate soil and water contamination resulting from two of these recognized environmental conditions related to hydraulic oil spills at two elevator locations. The third noted condition, of undocumented fill at the site, has not been subject to further site-wide investigation.

New fill materials may be brought onto the project site following demolition of existing structures, paved areas, and landscaping. Existing fill materials at the project site that are geotechnically unsuitable for reuse would be excavated, transported off-site, and replaced with properly compacted engineered fill. The source of any engineered fill to be brought on-site has not been identified. Imported fill containing hazardous materials could result in adverse health effects to construction workers and future users, depending on the type and identity of contamination, and the duration of exposure.

Significant quantities of other wastes (construction debris, soil, and pavement) would also be generated and would be transported off-site for disposal/recycling in accordance with Foster City Ordinance 523. All hazardous materials (e.g., containers, cylinders, and emergency generators with above-ground tanks) would be transported off-site prior to demolition activities in accordance with SMCEHD's business closure requirements.

Despite the remediation actions noted above, previously unknown contaminated soil and/or groundwater or other hazards (e.g., tanks and drums) could be encountered during grading, excavating, or soil disturbance activities at the project site or at off-site locations, resulting in adverse health effects to construction workers. The severity of the health effects would depend on the contaminant(s), concentration, and duration of exposure.

The following three-part mitigation measure would reduce this potential impact to a less-than- significant level.

Mitigation Measure HAZ-2a: If previously unknown contaminated soil and/or groundwater is encountered at any time during construction activities (e.g., identified by odor or visual staining, or if any underground storage tanks, abandoned drums, or other hazardous materials or wastes are encountered), the contractor(s) shall ensure that all appropriate response measures are taken to protect human health and the environment. A contingency plan for sampling and analysis of previously unknown hazardous substances shall be prepared by the contractor(s), with the approval of the City, prior to grading and earthwork activities.

As part of this contingency plan, soil and/or groundwater samples shall be collected by a qualified environmental professional (e.g., Professional Geologist, Professional Engineer) prior to further work in the area, 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 a qualified environmental professional and submitted to the appropriate regulatory agency. The 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 or regulatory agency, as appropriate.

Mitigation Measure HAZ-2b: 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 groundwater (e.g., RWQCB Environmental Screening Levels (ESLs)[58]). The engineered fill shall be characterized by a qualified environmental professional via representative sampling in accordance with U.S. EPA's SW-846 Test Methods,[59] 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 Building Division for approval prior to transporting engineering fill onto the project site.

Mitigation Measure HAZ-2c: 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, 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 and submitted to the City for approval prior to commencement of demolition or development activities. The Waste Disposal and Hazardous Materials Transportation Plan may be prepared as an addendum to the Waste Management Plan required by Ordinance 523. (LTS)

[58] San Francisco Bay Regional Water Quality Control Board, 2007, op. cit.

[59] U.S. Environmental Protection Agency, 2008, op. cit.

d. Cumulative Impacts. Hazardous materials impacts are generally limited to the immediate vicinity of the locations of use, storage, disposal, or release of the hazardous materials. Although the development of other projects in the site vicinity could result in similar hazardous materials impacts (e.g., those related to the release of hazardous construction materials or exposure to previously unknown soil contamination), those impacts would not intensify the impacts of the proposed project, and the proposed project would not intensify hazardous materials impacts at other locations in the project vicinity. Therefore, no cumulative impact related to hazards would be anticipated.

G. TRANSPORTATION AND CIRCULATION

This section describes the existing transportation and circulation system in the vicinity of the 2012 Master Plan area, including roadway, bicycle, pedestrian, and transit facilities, and provides an analysis of the potential impacts of the proposed project on this transportation system. This analysis is based on the Transportation Impact Analysis (TIA)[1] prepared for the proposed project, which is included in Appendix B of this Subsequent EIR.

The TIA uses as a primary background source the Foster City Multi-Project Traffic Analysis,[2] which evaluated the cumulative transportation impacts of four large-scale development projects proposed in Foster City. One of the four projects was the 2010 Gilead Sciences Master Plan, which was a precursor to the 2012 Master Plan evaluated in this Subsequent EIR. However, the transportation system and traffic conditions in the City have changed since the Multi-Project Traffic Analysis was finalized in 2010, requiring independent data collection and analysis to evaluate the effects of the 2012 Master Plan. That independent analysis is contained in the TIA and summarized in this section of the Subsequent EIR.

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 analysis evaluates the impacts of the proposed project on key roadway facilities within a 2-mile radius of the project site, including 24 intersections and seven freeway segments. The study area was selected based on local traffic patterns and engineering judgment and is consistent with previous studies conducted for Gilead Sciences and TIAs for other similarly-sized projects in Foster City. The study area is comprehensive; the impacts of the proposed 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 IV.G-1. All study intersections are controlled by a traffic signal unless noted below. Intersections marked with an asterisk (*) are located in the City of San Mateo.

Study Intersections

A. Norfolk Street and East Third Avenue*

B. Mariners Island Boulevard and East Third Avenue

C. Lakeside Drive and East Third Avenue

D. Marsh Drive and East Third Avenue

E. Foster City Boulevard and East Third Avenue

[1] Fehr & Peers Transportation Consultants, 2012. *Transportation Impact Analysis for the Gilead Sciences Integrated Corporate Campus Master Plan*. October.

[2] Fehr & Peers Transportation Consultants, 2008. *Final Report, Foster City Multi-Project Traffic Analysis*. December.

F. Foster City Boulevard and Vintage Park Drive/Chess Drive
G. Baker Way/State Route 92 (SR 92) Westbound Ramps and Fashion Island Boulevard/ Bridgepointe Parkway*
H. Vintage Park Drive and Chess Drive
I. SR 92 Westbound Ramps and Chess Drive
J. Foster City Boulevard and Chess Drive
K. SR 92 Eastbound Ramps and Edgewater Boulevard/Mariners Island Boulevard
L. Edgewater Boulevard and Metro Center Boulevard
M. Vintage Park Drive and Metro Center Boulevard
N. Shell Boulevard and Metro Center Boulevard
O. SR 92 Eastbound Ramps and Metro Center Boulevard
P. Foster City Boulevard and Metro Center Boulevard/Triton Drive
Q. Norfolk Street and East Hillsdale Boulevard*
R. Altair Avenue and East Hillsdale Boulevard
S. Edgewater Boulevard and East Hillsdale Boulevard
T. Shell Boulevard and East Hillsdale Boulevard
U. Foster City Boulevard and East Hillsdale Boulevard
V. Mariners Island Boulevard and Fashion Island Boulevard*
W. Mariners Island Boulevard and Reef Drive (side-street stop controlled)*
X. Foster City Boulevard and Marlin Avenue (all-way stop controlled)

Freeway Segments

A. US Highway 101 (US 101), north of East Third Avenue
B. US 101, between East Third Avenue and SR 92
C. US 101, between SR 92 and East Hillsdale Boulevard
D. US 101, south of East Hillsdale Boulevard
E. SR 92, between US 101 and Mariners Island Boulevard/Edgewater Boulevard
F. SR 92, Mariners Island Boulevard/Edgewater Boulevard and Foster City Boulevard
G. SR 92, east of Foster City Boulevard

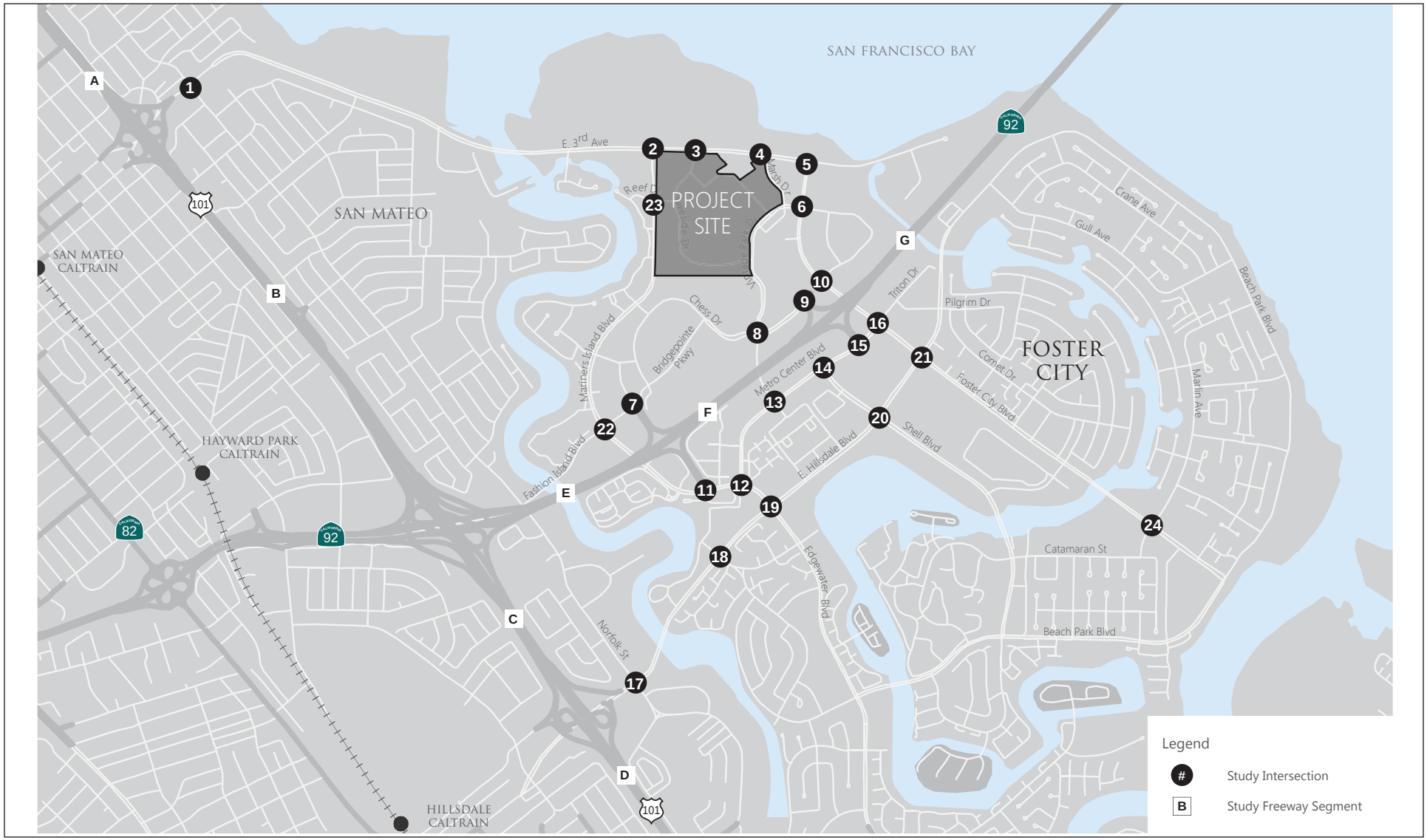

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FIGURE IV.G-1

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Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Study Intersections and Freeway Segments

SOURCE: FEHR & PEERS, OCTOBER 2012.

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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. (AM peak hour) and 4:00 to 6:00 p.m. (PM peak hour)). The operations of these facilities were evaluated for the following scenarios:[3]

- Existing: Existing traffic volumes obtained from counts collected in March 2012 and existing roadway/intersection configurations. Under the Existing scenario, the South Campus (as defined under the 2012 Master Plan) has 295,717 square feet of office space and 468,018 square feet of laboratory space. The North Campus (as defined under the 2012 Master Plan) has 163,000 square feet of office space located in the 301 Velocity Way Building.
- Existing Plus Project: Existing traffic volumes plus new traffic from the project.
- Cumulative: Projected conditions in 2030, including traffic estimates for approved and probable future development projects, including Gilead Science's existing entitled land uses per the 2010 Gilead Sciences Master Plan and buildout of the North Campus per the 1997 EFI General Development Plan. The Cumulative condition includes selected roadway system improvements. Under the Cumulative scenario, the South Campus would be redeveloped to replace the existing land uses with a maximum of 755,048 square feet of office space and a minimum of 445,432 square feet of laboratory space. These land uses were approved as part of the 2010 Master Plan. The North Campus would be redeveloped to replace the existing land uses with 705,000 square feet of office space. This office space was approved as a part of the 1997 EFI General Development Plan. Although these entitlements are set to expire in April 2013, they could be reapproved in the future should the proposed 2012 Master Plan not be implemented, and thus represent a reasonably foreseeable future project.
- Cumulative Plus Project: Cumulative volumes plus new traffic from the project.

Table IV.G-1 shows the existing, entitled, and foreseeable (future probable) land uses at the project site assumed to be in place for the "No Project" scenarios for the Existing and Cumulative conditions. The land use assumptions for the project site under No Project and Plus Project scenarios are illustrated in Figure IV.G-2 for Existing and Cumulative Conditions.

[3] A "Background" scenario was also evaluated in the TIA but is not included in this section of the Subsequent EIR. The Background scenario includes existing traffic volumes plus traffic generated by occupancy of vacant buildings and approved but not yet completed development projects. Such projects would include the 2010 Master Plan. Please refer to the TIA for additional detail.

Table IV.G-1: Land Use Assumptions for Project Site under Existing and Cumulative No Project Conditions

Location	Land Use Type	Scenario	
		Existing Land Uses [a] (square feet)	Cumulative (Approved and Future Probable Land Uses) (square feet)
South Campus	General Office	295,717	755,048
	Laboratory	468,018	445,432
	Total	763,735	1,200,480
North Campus	General Office	163,000 [b]	705,000 [c]
	Laboratory	–	–
	Total	163,000	705,000
Total	General Office	458,717	1,358,369
	Laboratory	468,018	547,111
	Total	926,735	1,905,480

Notes:
[a] There are the land uses allowed under the 2010 Gilead Master Plan.
[b] This existing office space on the Gilead North Campus is 301 Velocity Way.
[c] This includes the 1,000,000 that is entitled for the former EFI site minus the existing 295,000-square-foot 303 Velocity Way building.

Source: Fehr & Peers, September 2012.

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 Level 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 to proceed.

All of the study intersections were evaluated using the Traffix software package, which incorporates the methods from Chapters 16 (Signalized Intersections) and 17 (Unsignalized Intersections) of the 2000 Highway Capacity Manual. The Traffix method can evaluate 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. 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.

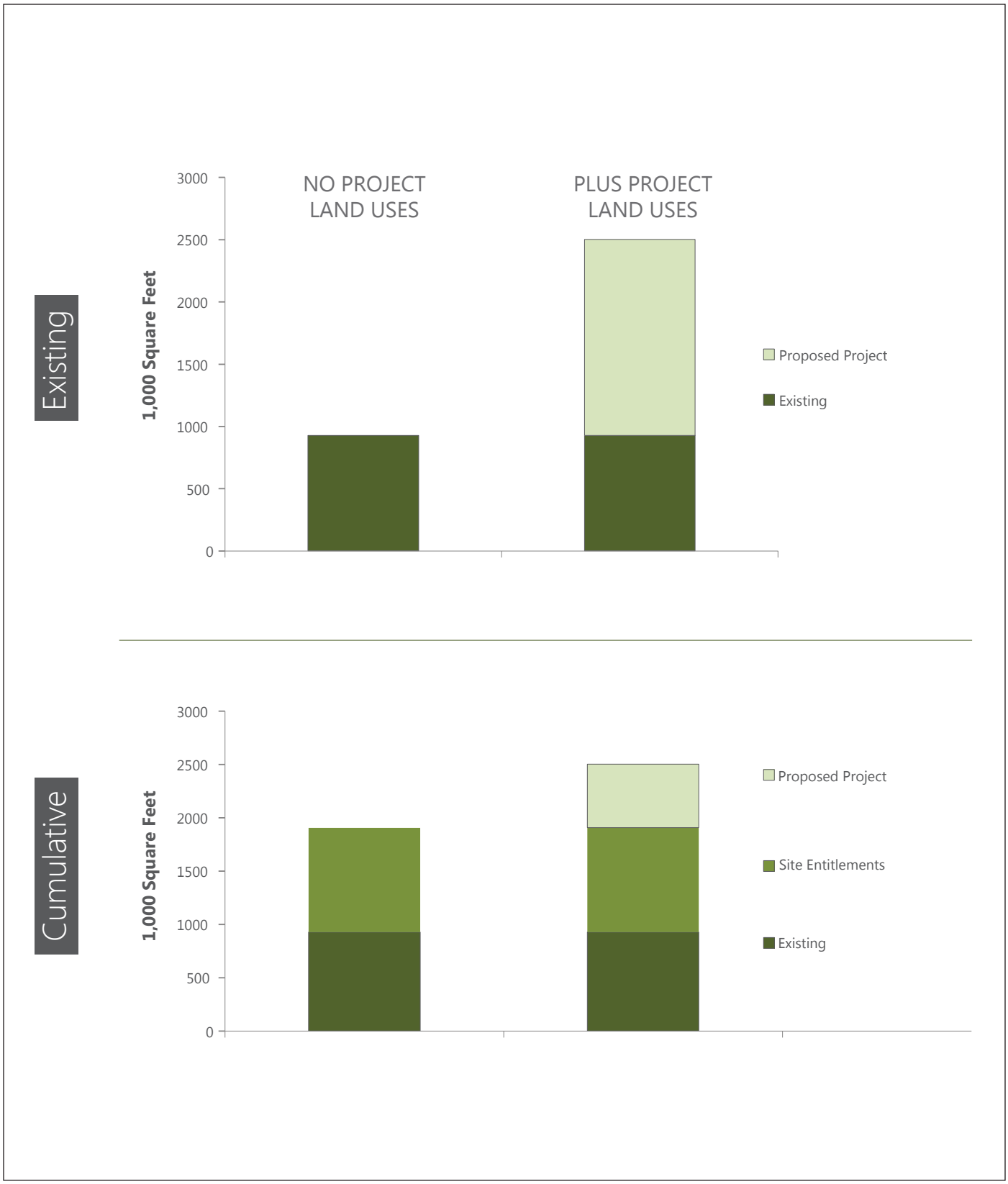

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FIGURE IV.G-2

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Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Comparison of No Project and Plus Project Land Uses

SOURCE: FEHR & PEERS, OCTOBER 2012.

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(1) Signalized Intersections – 2000 Highway Capacity Manual (HCM). 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 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 IV.G-2 summarizes the relationship between average delay per vehicle and LOS for signalized intersections according to the 2000 HCM method.

(2) Signalized Intersections – Simulations. 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 IV.G-2. A VISSIM simulation model was used for the following four study intersections located within the Foster City Boulevard and SR 92 interchange area:

INT #9. SR 92 Westbound Ramps and Chess Drive
INT #10. Foster City Boulevard and Chess Drive
INT #15. SR 92 Eastbound Ramps and Metro Center Boulevard
INT #16. Foster City Boulevard and Metro Center Boulevard/Triton Drive

Table IV.G-2: Signalized Intersection LOS Criteria

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	≤ 10
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10 and ≤ 20
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20 and ≤ 35
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35 and ≤ 55
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55 and ≤ 80
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80

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

(3) Unsignalized Intersections. Traffic conditions at the unsignalized study intersections (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 four-

way stop-controlled intersections, the control delay is calculated for the entire intersection and for each approach. The delays and corresponding LOS for the entire intersection are reported. At two-way stop-controlled intersections the movement with the highest delay and corresponding LOS is reported. Table IV.G-3 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 to have less delay at unsignalized intersections.

Table IV.G-3: 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 and ≤ 15
C	Average traffic delays	> 15 and ≤ 25
D	Long traffic delays	> 25 and ≤ 35
E	Very long traffic delays	> 35 and ≤ 50
F	Extreme traffic delays with intersection capacity exceeded	> 50

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

(4) Freeway Mainline Operations. Freeway mainline operations were evaluated using the 2000 HCM volume-to-capacity ratio method, per C/CAG guidelines. The level of service description and the maximum volume-to-capacity ratio for each LOS designation are presented in Table IV.G-4.

Table IV.G-4: 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.	0.30
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.	0.50
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.	0.71
D	Speeds begin to decline slightly with increasing flows. Freedom to maneuver is more noticeably restricted. Minor incidents create queuing.	0.89
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 based on a 65 mph free-flow speed.

Source: Transportation Research Board, 2000. *Highway Capacity Manual*.

d. Existing Conditions. This section describes the existing transportation system in the study area encompassing the project site. First, the major components of the transportation system are described. Then the existing AM and PM peak-hour traffic volumes and lane configurations for the study intersections are presented, followed by the operational analysis results (LOS calculations and VISSIM model results). Existing freeway volumes and operations are also presented.

(1) Transit System. Transit service within Foster City is provided by various 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 (Alliance) operates shuttle routes connecting to Bay Area Rapid Transit (BART) and Caltrain. Figure IV.G-3 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 IV.G-5.

SamTrans. SamTrans operates Routes 251 and 359 near the project site. Route 251 provides a connection between the Hillsdale Shopping Center and Hillsdale Caltrain station in San Mateo to the Bridgepointe Shopping Center. The nearest Route 251 stop to the project site is located on Bridge-pointe Circle, approximately ¼-mile south of the site. Route 359 provides service from the east Foster City area to BART and Caltrain connections at the Millbrae Intermodal Station (serving BART and Caltrain) during weekday commute hours.

Table IV.G-5: Existing Transit Service

Service Provider	Name/Description	Hours of Operation/Headway
SamTrans	251 – Caltrain Connection	5:41 a.m. – 8:19 p.m. Weekdays (60 minutes) 8:10 a.m. – 7:14 p.m. Saturdays (60 minutes)
	359 – BART/Caltrain Connection	5:28 a.m. – 8:36 a.m. Weekdays (30 minutes) 4:57 p.m. – 8:17 p.m. Weekdays (30 minutes)
AC Transit	M – Transbay Service	5:30 a.m. – 8:17 p.m. Weekdays (30 minutes)
BART/Caltrain Shuttle	North Foster City Shuttle	6:35 a.m. – 8:57 a.m. Weekday (60 minutes) 4:05 a.m. – 7:00 p.m. Weekday (50 minutes)
Caltrain Shuttle	Lincoln Centre Shuttle	6:55 a.m. – 9:32 a.m. Weekday (40 minutes) 3:10 p.m. – 7:00 p.m. Weekday (40 minutes)
	Mariners Island Area (PCA) Shuttle	6:56 a.m. – 10:17 a.m. Weekday (45 minutes) 3:08 p.m. – 6:33 p.m. Weekday (45 minutes)

Source: 511 SF Bay at 511.org, and the Peninsula Traffic Congestion Relief Alliance at www.commute.org.

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 East Hillsdale Boulevard in Foster City. Line M stops closest to the project site are located on Vintage Park Drive, approximately 0.2 mile north and south of Lakeside Drive.

BART/Caltrain Shuttle. The North Foster City Shuttle, which is operated by the Alliance, provides service between the Millbrae Intermodal Station and businesses and office buildings in the north Foster City area during commute hours, Monday through Friday. It stops at two locations along Lakeside Drive within the project site.

Caltrain Shuttles. The Alliance operates two other shuttle buses during weekday commute hours: Lincoln Centre Shuttle and Mariners Island (PCA) Area 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 Area Shuttle provides service between the Hillsdale Caltrain Station and businesses in the San Mateo and Foster City border areas. The Lincoln Centre Area Shuttle stops at two locations along Lakeside Drive and Velocity Way within the project site. The Mariners Island Area Shuttle stops at one location on Vintage Park Drive within the project site.

(2) Bicycle System. Bicycle facilities include Class I bike paths, Class II bike lanes, and Class III bike routes. Class I bike 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 IV.G-4. Class III bicycle routes are located on Lakeside Drive through the project site and on Vintage Park Drive adjacent to the project site. A Class I bicycle path is provided near and along the San Francisco Bay shoreline, north of the project site. Class II on-street striped bike lanes run along Mariners Island Boulevard, along the western boundary of the project site. Bicycle access to the project site from the San Mateo Caltrain station is provided via the Class I bicycle path along the San Francisco Bay shoreline and from the Hayward Park Caltrain station via the Class II bike lanes along Fashion Island Boulevard.

(3) Pedestrian Facilities. Pedestrian facilities comprise sidewalks, marked and enhanced crosswalks (at midblock and intersections), curb ramps, median refuges, and pedestrian-scale lighting. Marked crosswalks and curb ramps are provided along Lakeside Drive within the project site. Sidewalks are provided along both sides of all streets within the immediate vicinity of the project site, except for East Third Avenue, which only has sidewalks on the south side of the street. Curb ramps are provided at all crosswalks within the immediate vicinity of the project site. Pedestrian signals with pedestrian-activated push buttons are provided at all signalized intersections.

Signalized pedestrian crossings are provided along East Third Avenue to the north of the site at Mariners Island Boulevard and Lakeside Drive. Marked crosswalks are provided on the east and south legs only at both intersections. Medians are present but median curb cuts are not provided for pedestrian refuge.

Marked crosswalks are provided at the unsignalized intersection of Vintage Park Drive and Lakeside Drive, to the east of the site. Medians are present but median curb cuts are not provided for pedestrian refuge. Traffic along Vintage Park Drive is uncontrolled at this location. Marked crosswalks are also provided at the unsignalized intersection of Reef Drive and Lakeside Drive. Traffic along Lakeside Drive is uncontrolled at this location.

No marked crosswalks exist for pedestrians wishing to cross Mariners Island Boulevard at Reef Drive, to the west of the project site. Traffic along Mariners Island Boulevard is uncontrolled at this location.

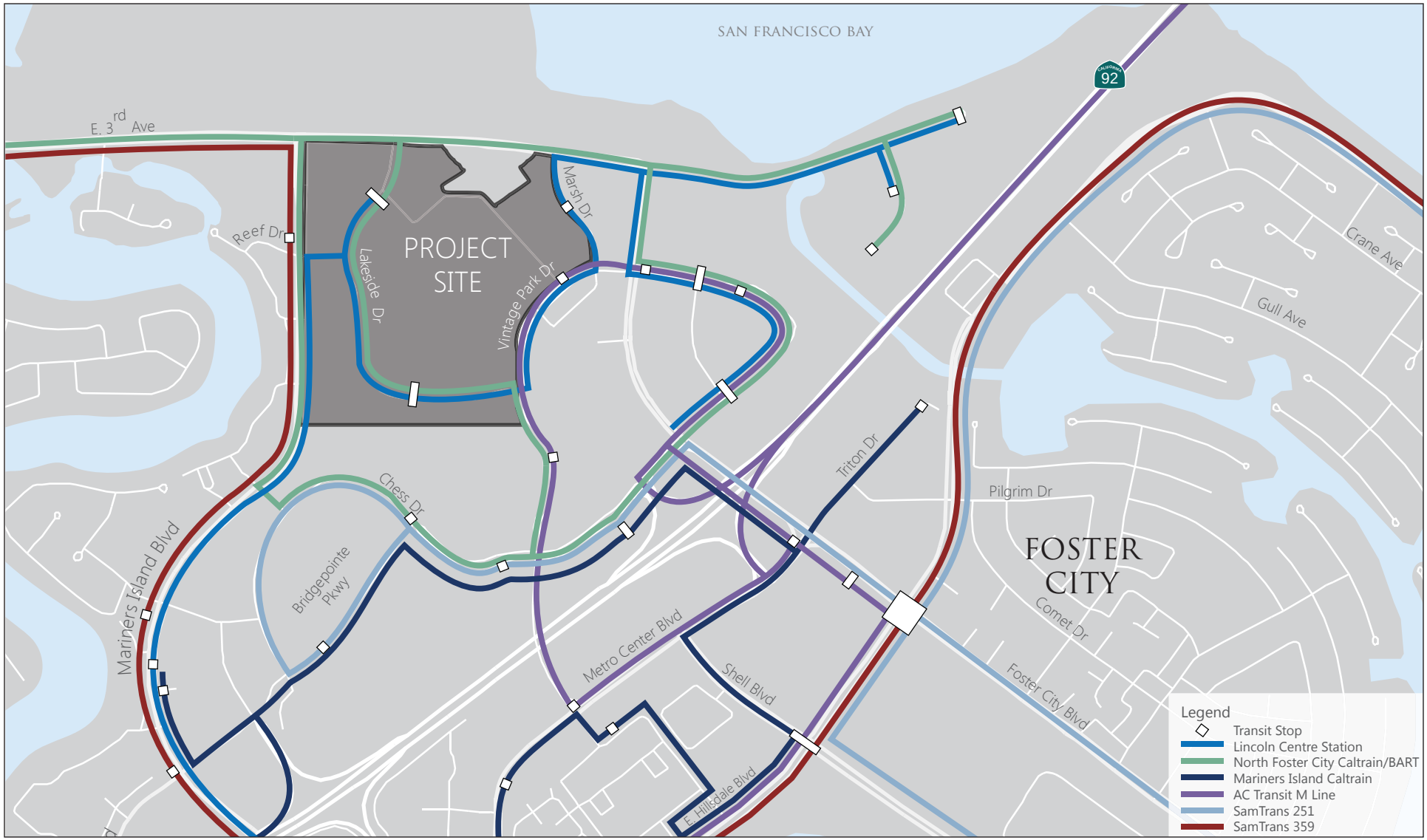

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FIGURE IV.G-3

N

NOT TO SCALE

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Existing Transit Routes

SOURCE: FEHR & PEERS, OCTOBER 2012.

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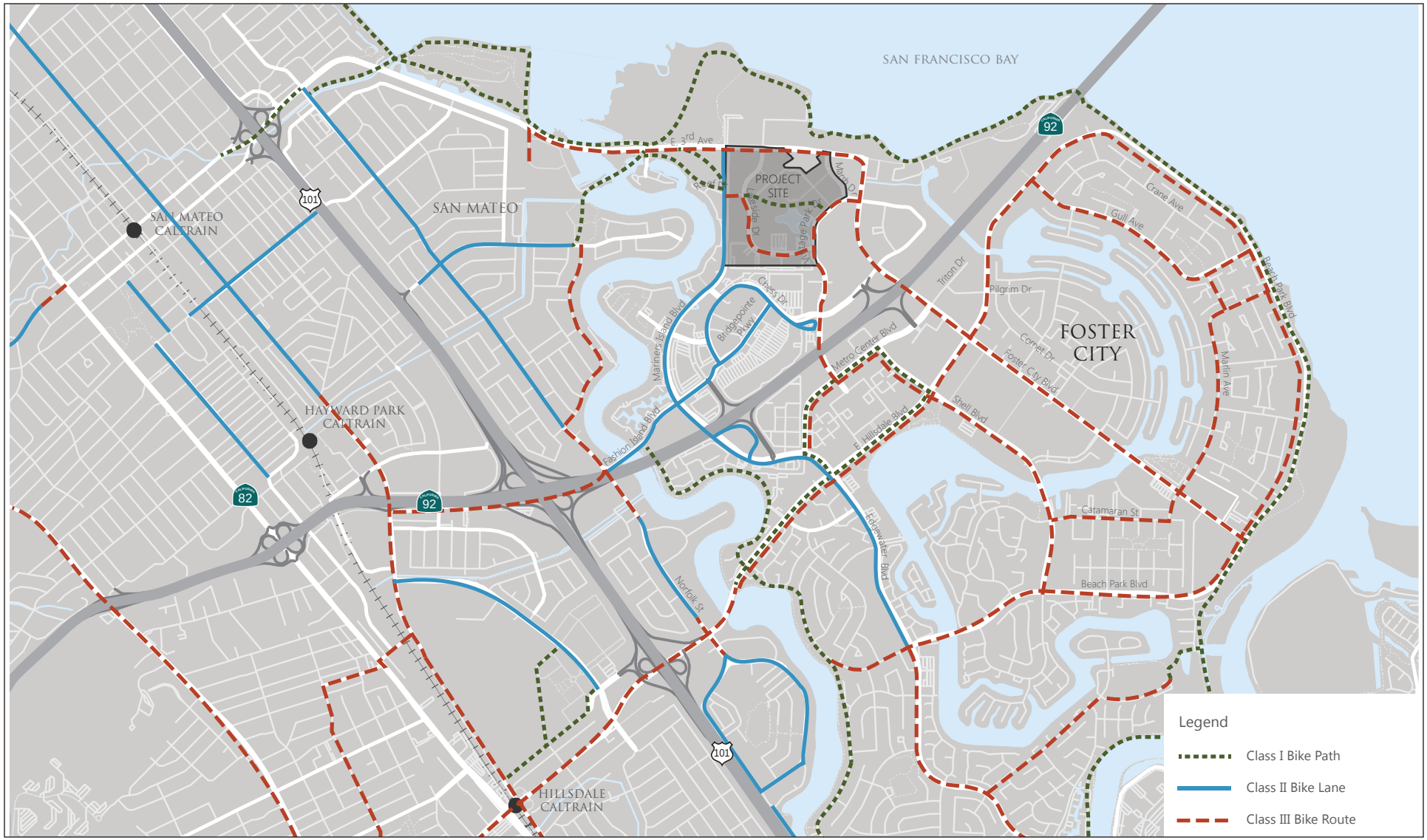

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FIGURE IV.G-4

NOT TO SCALE

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Existing Bicycle Facilities

SOURCE: FEHR & PEERS, OCTOBER 2012.

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(1) Roadway Network. Regional auto access to the study area is provided by SR 92 and US 101. City streets in the study area are East Third Avenue, Mariners Island Boulevard (City of San Mateo), Vintage Park Drive, Lakeside Drive, Reef Drive, Foster City Boulevard, Chess Drive, Metro Center Boulevard, East Hillsdale Boulevard, Edgewater Boulevard, and Shell Boulevard (Foster City). Speed limits on study roadways in the study area range from 30 miles per hour (mph) on Lakeside Drive to 35 or 45 mph on all other roadways. The speed limit is 55 mph on SR 92 and 65 mph on US 101. On-street parking is not allowed within the study area except where noted.

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 partial interchanges (hook ramps) with Fashion Island Boulevard, Edgewater Boulevard, Metro Center Boulevard, and Chess Drive. 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 86,000 vehicles at the San Mateo Bridge.

US 101 is a freeway that provides regional north-south access. In the vicinity of Foster City, US 101 generally has four travel lanes in each direction with one or two auxiliary lanes between interchanges. An auxiliary lane in both directions was recently completed on this freeway segment north of East Third Avenue since the completion of the 2010 Master Plan EIR. 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 Third Avenue in the City of San Mateo. Average daily traffic volumes on US 101 through the study area range from 225,000 vehicles at East Hillsdale Avenue to 250,000 vehicles north of SR 92.

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

Mariners Island Boulevard (City of San Mateo) is a four-lane divided roadway that extends from East Third Avenue in the north to SR 92, where it becomes Edgewater Boulevard. Access to east-bound SR 92 is provided at the intersection of the Mariners Island Boulevard/Edgewater Boulevard/ SR 92 ramps. On-street parking is provided along Mariners Island Boulevard adjacent to the project site.

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

Lakeside Drive is a primarily three-lane roadway with a center two-way left-turn lane along most of the roadway length that runs generally in a north-south direction through the center of the project site. It runs southeast from East Third Avenue and ends at Vintage Park Drive. Lakeside Drive between Reef Drive to Vintage Park Drive is privately owned.

Reef Drive is a two-lane roadway that runs east-west and connects Lakeside Drive to Mariners Island Boulevard. This roadway provides access to the project site via a side-street stop controlled intersection with Mariners Island Boulevard. Reef Drive between Mariners Island Boulevard to Lakeside Drive is privately owned.

Foster City Boulevard is a four- to six-lane arterial that extends from East Third 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.

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.

Bridgepointe Parkway is a four-lane, east-west roadway that extends from Chess Drive to Mariners Island Boulevard, where it becomes Fashion Island Boulevard in the City of San Mateo. Access to westbound SR 92 is provided via hook ramps just west of Bridgepointe Parkway. Fashion Island Boulevard has a full access interchange with US 101.

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 four- to six-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.

Edgewater Boulevard is the continuation of Mariners Island Boulevard south of SR 92. It is four lanes wide with on-street parking south of East Hillsdale Boulevard.

Shell Boulevard is a four-lane roadway that runs generally in a north-south direction. It extends southward from Metro Center Boulevard, providing parallel access to Foster City Boulevard and Edgewater Boulevard. On-street parking is allowed on southbound Shell Boulevard between Bounty Drive and Civic Center Drive.

(2) Intersection Traffic Volumes and Lane Configurations. 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 March 2012. These counts are shown in Appendix B of the TIA. The counts were conducted on non-holiday weekdays, when local area schools were in normal session. The count results were compared to the results of counts used for the Foster City Multi-Project Traffic Analysis conducted in April 2008. Generally, the 2012 counts were similar to the 2008 counts. At the SR 92/Foster City Boulevard interchange, the AM and PM peak-hour counts were up to 16 percent lower in 2012, presumably as a result of sluggish economic conditions. Other causes for the lower volumes could be changes in travel behavior caused by increased pedestrian, bicycle, and transit mode shares due to personal preference and increased use of transportation demand management programs being put in place by large employers such as Gilead Sciences.

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. This resulted in turning movement volumes that were either the same as the counts or slightly higher. For example, 23 vehicles were added to the eastbound through movement at the SR 92 Westbound Ramps and

Chess Drive intersection during the PM peak hour. This balanced the eastbound traffic volumes along Chess Drive between the SR 92 Westbound Ramps and Foster City Boulevard. Therefore, the resulting intersection volumes used in the analysis are slightly more conservative than the actual roadway counts. Intersection lane configurations and traffic control devices (traffic signals or stop signs) were observed during field visits. The AM and PM peak-hour intersection turning movement volumes, lane configurations, and traffic control devices are presented on Figure IV.G-5.

(3) Intersection Operations. The intersection LOS analysis results are presented in Table IV.G-6. The LOS analysis results for the four intersections near the SR 92/Foster City Boulevard interchange are based on simulation results from the VISSIM microsimulation model (Intersections 9, 10, 15, and 16). VISSIM captures the effect of vehicles queuing between intersections and the effect the queue spillback has on upstream intersections. Therefore, the VISSIM results for these four intersections are more accurate than the HCM method for isolated intersections, and also tend to be more cautious (i.e., congestion levels would tend to be over-estimated rather than under-estimated). The remaining study intersections were analyzed as isolated intersections based on the HCM method using the Traffix analysis software.

Table IV.G-6: Existing Intersection LOS Results

		AM Peak Hour		PM Peak Hour	
Intersection	**Control**	**Delay [a]**	**LOS**	**Delay [a]**	**LOS**
1. Norfolk Street and East Third Avenue [b]	Signal	30	C	27	C
2. Mariners Island Boulevard and East Third Avenue	Signal	10	B	13	B
3. Lakeside Drive and East Third Avenue	Signal	4	A	11	B
4. Marsh Drive and East Third Avenue	Signal	1	A	7	A
5. Foster City Boulevard and East Third Avenue	Signal	5	A	7	A
6. Foster City Boulevard and Vintage Park Drive/ Chess Drive	Signal	10	B	16	B
7. Baker Way/SR 92 Westbound Ramps and Fashion Island Boulevard/Bridgepointe Parkway [b]	Signal	17	B	20	C
8. Vintage Park Drive and Chess Drive	Signal	25	C	38	D
9. SR 92 Westbound Ramps and Chess Drive [c]	Signal	11	B	21	C
10. Foster City Boulevard and Chess Drive [c]	Signal	17	B	18	B
11. SR 92 Eastbound Ramps and Edgewater Boulevard/ Mariners Island Boulevard	Signal	16	B	18	B
12. Edgewater Boulevard and Metro Center Boulevard	Signal	16	B	17	B
13. Vintage Park Drive and Metro Center Boulevard	Signal	20	B	21	C
14. Shell Boulevard and Metro Center Boulevard	Signal	17	B	23	C
15. SR 92 Eastbound Ramps and Metro Center Boulevard [c]	Signal	15	B	19	B
16. Foster City Boulevard and Metro Center Boulevard/ Triton Drive [c]	Signal	22	C	18	B
17. Norfolk Street and East Hillsdale Boulevard [b]	Signal	25	C	30	C
18. Altair Avenue and East Hillsdale Boulevard	Signal	17	B	9	A
19. Edgewater Boulevard and East Hillsdale Boulevard	Signal	26	C	31	C
20. Shell Boulevard and East Hillsdale Boulevard	Signal	20	C	22	C

Table IV.G-6: Existing Intersection LOS Results

		AM Peak Hour		PM Peak Hour	
Intersection	**Control**	**Delay [a]**	**LOS**	**Delay [a]**	**LOS**
21. Foster City Boulevard and East Hillsdale Boulevard	Signal	26	C	22	C
22. Mariners Island Boulevard and Fashion Island Boulevard [b]	Signal	28	C	32	C
23. Mariners Island Boulevard and Reef Drive [b]	SSS [d]	13	B	11	B
24. Foster City Boulevard and Marlin Avenue	AWS [e]	23	C	13	B

[a] For signalized and all-way stop controlled intersections, the delay shown is the weighted average for all movements in seconds per vehicle. For side-street stop controlled intersection, the delay shown is the worst-operating approach delay.
[b] Intersection in San Mateo
[c] Intersection analyzed using the VISSIM microsimulation model.
[d] SSS = Side-street stop
[e] AWS = All-way stop

Source: Fehr & Peers, September 2012.

The LOS results presented in Table IV.G-6 show that all of the study intersections currently operate at an acceptable LOS D or better (based on the locally accepted significance criteria, as shown in Table IV.G-7). These LOS results are better than those presented in the Foster City Multi-Project Traffic Analysis due to the recent changes in traffic volumes discussed previously. The LOS calculations for the isolated intersection analysis are included in Appendix C of the TIA. The LOS calculations for the VISSIM simulation model are included in Appendix D of the TIA.

Table IV.G-7: 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.

Sources: City of Foster City, 1993. *General Plan*; City of San Mateo, 2010. *General Plan*.

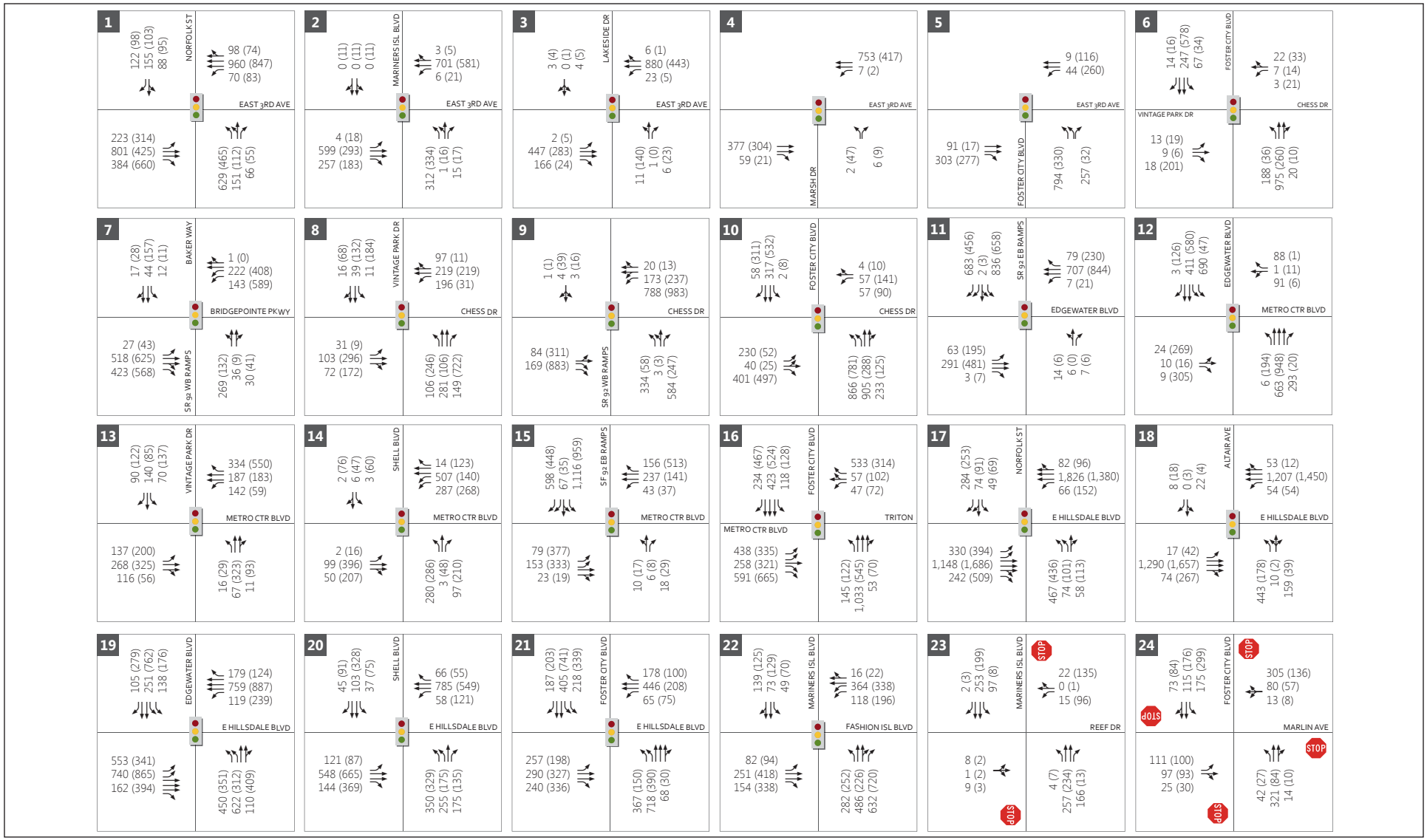

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FIGURE IV.G-5

Legend XX (YY): AM (PM) Signalized Intersection

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Existing Intersection Peak-Hour Volumes, Lane Configurations, and Traffic Control Devices

SOURCE: FEHR & PEERS, OCTOBER 2012.

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(4) Freeway Volumes and Operations. Manual freeway counts were conducted at five freeway segments (Segments A, B, C, D, and G as shown in Figure IV.G-1) during the morning and evening peak periods in March and May 2012. Volumes on the other segments (Segments E and F) 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 California Department of Transportation (Caltrans) data showing that 3.5 percent of the traffic on US 101 and 4.5 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 Table IV.G-8. The freeway operations vary depending on the peak hour, direction, and segment, ranging from LOS B to LOS E. No segments on SR 92 or US 101 currently exceed their Congestion Management Program (CMP) LOS threshold.

Existing average annual daily traffic (AADT) volumes for the study freeway segments were also collected from the 2010 Traffic Volumes on the California State Highway System and are shown in Table E-1 in Appendix E of the TIA.

Table IV.G-8: Existing Freeway Segment LOS Results

Intersection	CMP LOS Standard	Peak Hour	Direction	Volume [a]	LOS
A. US 101, north of East Third Avenue [b]	F	AM	Northbound	9,454	E
			Southbound	8,403	D
		PM	Northbound	8,845	D
			Southbound	8,391	D
B. US 101, between East Third Avenue and SR 92	F	AM	Northbound	9,049	D
			Southbound	8,608	D
		PM	Northbound	9,258	E
			Southbound	8,604	D
C. US 101, north of East Hillsdale Boulevard	E	AM	Northbound	8,166	D
			Southbound	7,344	C
		PM	Northbound	8,182	D
			Southbound	7,487	D
D. US 101, south of East Hillsdale Boulevard	E	AM	Northbound	7,592	D
			Southbound	9,013	D
		PM	Northbound	8,951	D
			Southbound	8,759	D
E. SR 92, between US 101 and Mariners Island Boulevard/Edgewater Boulevard	E	AM	Eastbound	5,634	D
			Westbound	5,930	D
		PM	Eastbound	6,400	E
			Westbound	5,658	C
F. SR 92, Mariners Island Boulevard/ Edgewater Boulevard and Foster City Boulevard	E	AM	Eastbound	4,199	C
			Westbound	5,643	C
		PM	Eastbound	5,676	C
			Westbound	4,475	C
G. SR 92, east of Foster City Boulevard	E	AM	Eastbound	2,590	B
			Westbound	5,601	D
		PM	Eastbound	5,108	D
			Westbound	2,806	B

[a] Volumes presented are passenger-car equivalents.
[b] An auxiliary lane in both directions has been completed on this freeway segment since the 2010 Gilead Sciences Master Plan EIR.

Source: Fehr & Peers, September 2012.

e. Regulatory Context. Applicable State and local laws, regulations, and orders that pertain to project-related transportation issues are presented below.

(1) 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 agency planning documents (such as EIRs) 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.

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

(3) 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 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

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

Goals

LUC-F Provide Adequate Services and Facilities. Ensure that new and existing developments can be adequately served by municipal services and facilities.

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.

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.

LUC-K Provide Adequate Parking. Ensure that adequate off-street parking is incorporated into modified projects and designed for safe and effective circulation.

Policies

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.

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 Third Avenue (within the City limits), Metro Center Boulevard, Shell Boulevard, Chess Drive, 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.

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.

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.

LUC-54 Coordination with SamTrans. The City shall work with SamTrans in defining new routes and improving the public transit and transportation system.

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.

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.

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.

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.

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.

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.

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.

Circulation Programs

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.

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.

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.

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.

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 and policies related to transportation impacts are:

Goals

Goal 2 Maintain a street and highway system which accommodates future growth while maintaining acceptable levels of service.

Policies

C 2.1 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.

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 five-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 IV.G-7, in Foster City, acceptable intersection operations are defined as LOS D or better. In San Mateo, acceptable operations are defined as mid-range LOS D (defined as an average of 45 seconds of delay per vehicle) or better. C/CAG developed thresholds for acceptable freeway operations as part of its 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 proposed project. Traffic impacts are evaluated under existing and cumulative conditions.

a. Trip Generation Estimates. Trip estimates for the proposed project were developed by applying site-specific trip generation rates, as calculated by Kimley-Horn and Associates, Inc., based on surveys. Fehr & Peers reviewed these rates and found them to be similar to surveyed rates from Genentech's South San Francisco campus and likely more reflective of the development since the conventional trip generation resource, the Institute of Transportation Engineers' (ITE) Trip Generation, does not have rates for a directly comparable use. Table IV.G-9 compares the trip rates presented in ITE Trip Generation to the site-specific rates collected at Genentech and the project site. The closest ITE Category, Land Use 760 – Research and Development Center, is used as a proxy for purposes of this comparison.

Table IV.G-9: Trip Generation Rate Comparison

Land Use	ITE Code	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
ITE Rates							
General Office	710	1.36	0.19	1.55	0.25	1.24	1.49
R&D Center [a,b]	760	1.01	0.21	1.22	0.16	0.91	1.07
Genentech Site-Specific Rates							
General Office	--	0.83	0.12	0.95	0.12	0.60	0.72
R&D Center	--	0.49	0.10	0.59	0.07	0.38	0.45
Manufacturing/Warehousing	--	0.42	0.06	0.48	0.05	0.40	0.45
Gilead Sciences Site-Specific Rates							
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

Notes:
[a] R&D = Research and Development
[b] There is no laboratory land use in the ITE Trip Generation manual.

Source: Fehr & Peers, September 2012.

Vehicle trip generation estimate summaries for the proposed project are shown in Table IV.G-10. The proposed project at buildout is anticipated to generate 24,615 daily trips, including 2,293 AM peak-hour trips, and 2,425 PM peak-hour trips. These totals take account of existing uses on the site that are already generating trips. The new vehicle trips generated by the proposed project were calculated for each of the Plus Project scenarios as follows:

- **Existing Plus Project**: Traffic generated by existing uses on the site were subtracted from traffic generated by proposed uses. The new trips shown in Table IV.G-10 are those that would be added to the roadway network as a result of the proposed project in addition to the trips generated by existing uses on the project site.
- **Cumulative Plus Project**: Traffic generated by existing entitled land uses at the South Campus and North Campus was subtracted from traffic generated by proposed uses. The resulting new project trips shown in Table IV.G-10 would be added to the roadway network as a result of the proposed project in addition to the trips generated by the approved and future probable development included under Cumulative Conditions.

Under Existing Conditions, the proposed project is expected to add 15,768 new daily trips, including 1,548 AM peak-hour trips, and 1,614 PM peak-hour trips to the existing traffic on surrounding roadways. Under Cumulative Conditions, the proposed project is expected to add 5,222 new daily trips, 360 AM peak-hour trips, and 415 PM peak-hour trips. The detailed calculation of these trip estimates is presented in Appendix F of the TIA.

Table IV.G-10: Trip Generation Summary – Proposed Project

Scenario	Land Use		Daily	AM Peak Hour Trips			PM Peak Hour Trips		
	Type	Amount [a]	Trips	In	Out	Total	In	Out	Total
Proposed Project	General Office	1,524,000	16,779	1,722	244	1,966	274	1,692	1,966
	Laboratory	953,000	7,729	229	86	315	124	324	448
	MSB [b]/ Warehouse	23,600	107	10	2	12	3	8	11
	Proposed Sub-Total	2,500,600	24,615	1,961	332	2,293	401	2,024	2,425
Existing No Project	General Office	458,717	5,051	518	73	591	82	509	591
	Laboratory	468,018	3,796	112	42	154	61	159	220
	No Project Sub-Total	926,735	-8,847	-630	-115	-745	-143	-668	-811
*New Trips - **Existing Plus Project Conditions***			*15,768*	*1,331*	*217*	*1,548*	*258*	*1,356*	*1,614*
Cumulative No Project	General Office	1,358,369	14,956	1,535	218	1,753	245	1,508	1,753
	Laboratory	547,111	4,437	131	49	180	71	186	257
	No Project Sub-Total	1,905,480	-19,393	-1,666	-267	-1,933	-316	-1,694	-2,010
*New Trips - **Cumulative Plus Project Conditions***			*5,222*	*295*	*65*	*360*	*85*	*330*	*415*

[a] Amount of space expressed in square feet.
[b] MSB = Material Storage Building. Note also that these traffic forecasts do not include trips generated by 303 Velocity Way, which is not part of the project.

Source: Fehr & Peers, September 2012.

b. Trip Distribution. 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. The trip distribution pattern for office and laboratory space in the Foster City Multi-Project Traffic Analysis was used for this study. The geographic distribution and trip percentages are presented on Figure IV.G-6.

c. Trip Assignment. The proposed project was evaluated with the assumption that Lakeside Drive would be closed south of Reef Drive under all "with Project" scenarios. This represents the base case roadway scenario for the traffic analysis and is consistent with the Foster City Multi-Project Traffic Analysis and 2010 Master Plan EIR.

The Lakeside Drive closure would cause traffic destined for the northerly parking garage within the project site to access the site from East Third Avenue and traffic destined for the southerly garage to access the site from Vintage Park Drive. It would also prohibit traffic from using Lakeside Drive as a cut-through route between Vintage Park Drive and East Third Avenue. Observations and counts show that the actual volume of traffic using Lakeside Drive as a cut-through route is relatively minor; thus, the closure of Lakeside Drive would have a negligible effect on background traffic circulation. The general effect of the Lakeside Drive closure would be to direct more project-related traffic to the uncongested intersections north of the project site, instead of the congested intersections to the south and east. Please refer to the TIA for an analysis of the effects of the project on traffic levels assuming that Lakeside Drive were to remain open.

Trips generated by the proposed project were assigned to the roadway system based on the trip distribution patterns shown on Figure IV.G-6. The trip assignments used in the evaluation of Existing Plus Project Conditions are presented on Figure IV.G-7. The trip assignments used in the evaluation of Cumulative Plus Project Conditions for the proposed project are presented on Figure A-19 in the appendix of the TIA.

d. Criteria 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. For this analysis, transportation impacts are considered significant if the proposed 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, level of service (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.

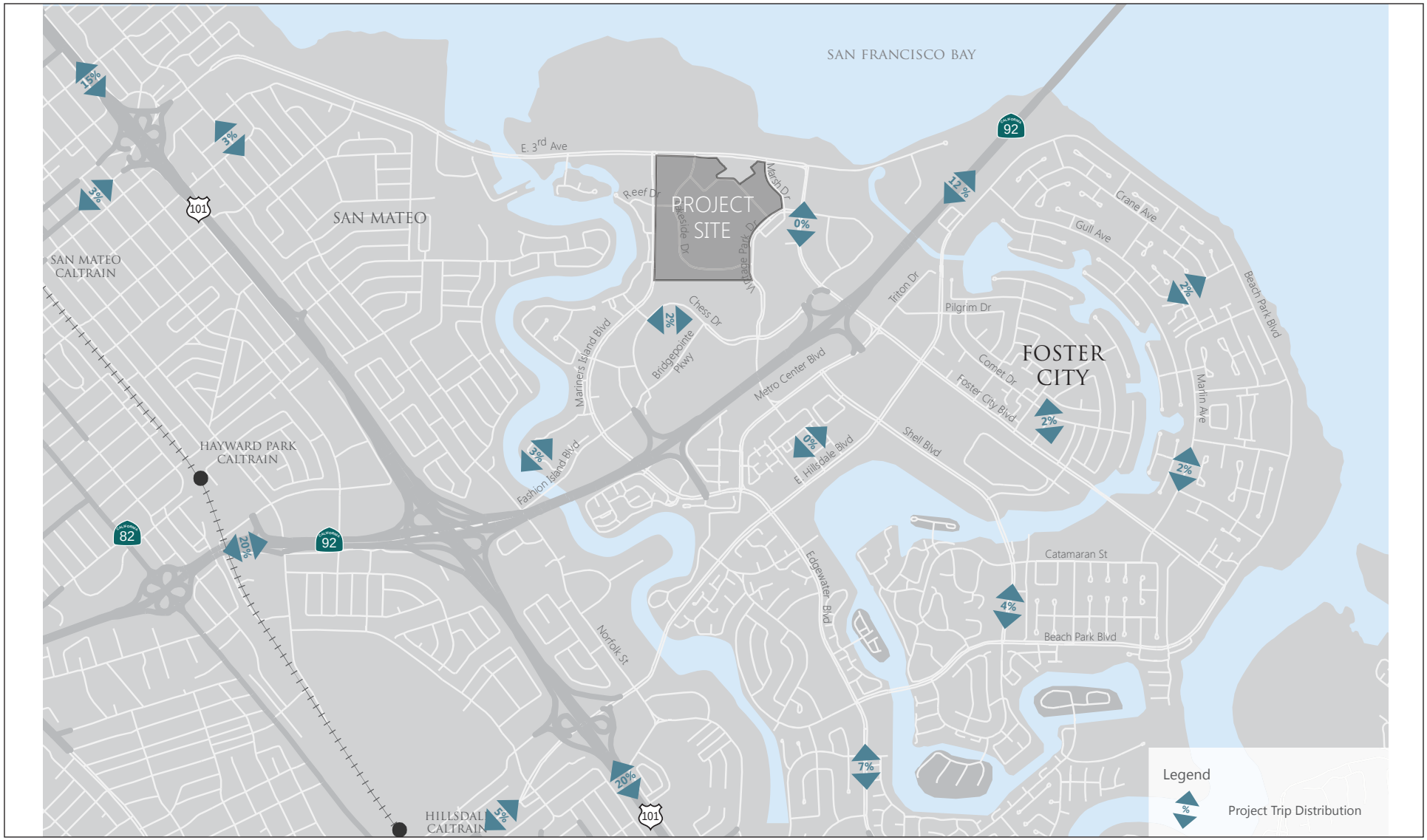

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FIGURE IV.G-6

N

NOT TO SCALE

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Trip Distribution

SOURCE: FEHR & PEERS, OCTOBER 2012.

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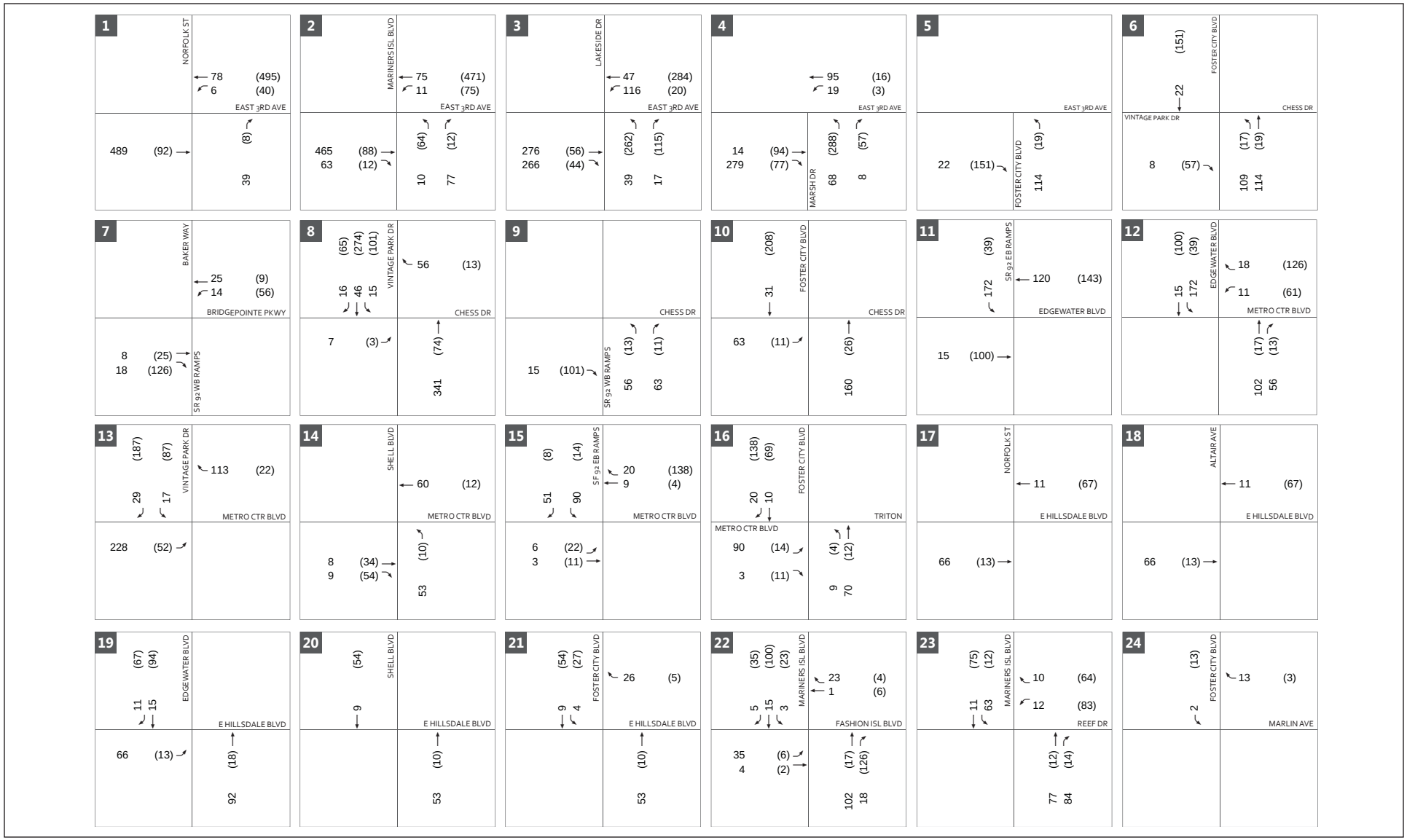

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FIGURE IV.G-7

Legend XX (YY): AM (PM)

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Trip Assignment - Proposed Project

SOURCE: FEHR & PEERS, OCTOBER 2012.

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To evaluate project-level and cumulative impacts at study intersections and freeway segments, the following specific thresholds were used. The proposed 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 proposed 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 proposed project would:

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

A site access or internal circulation impact would be considered significant if the proposed project would result in any of the following:

- Designs for on-site circulation, access, and parking areas that fail to meet industry standard design guidelines;
- Hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses; or
- Inadequate emergency access.

e. Existing Plus Project Conditions. This chapter 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 proposed project are shown on Figure IV.G-8. The LOS results presented in Table IV.G-11 show that all of the study intersections would operate at an acceptable LOS D or better with the proposed project. 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 Third Avenue or Chess Drive that serve as key connections to US 101 and SR 92. However, these increases in delay would not be considered significant because they would not cause the study intersections to exceed acceptable LOS thresholds.

(2) Freeway Operations. Existing freeway volumes plus new vehicle trips due to the proposed project are shown in Table IV.G-12. Existing daily traffic volumes plus new vehicle trips due to the project on the study freeway segments are shown in Table E-2 of Appendix E of the TIA. The freeway traffic volumes and analysis results with the proposed project are presented in Table IV.G-12. The freeway operation LOS would vary depending on the peak hour, direction, and segment, ranging from LOS B to LOS E. No segments on SR 92 or US 101 would exceed their CMP LOS threshold with the proposed project.

f. Cumulative Conditions. Cumulative Conditions represent projected conditions in 2030, including traffic estimates for probable future developments and selected roadway system improvements. The cumulative traffic volumes also include traffic due to occupancy of vacant buildings and approved but not yet constructed developments. The probable future developments included under Cumulative Conditions are shown in Table IV.G-13. The locations of these developments are shown on Figure IV.G-9.

(1) Cumulative Traffic Volumes. Cumulative Conditions intersection volumes were developed by adding traffic generated by the probable future developments to traffic associated with occupancy of vacant buildings, approved but not yet constructed development, and Existing Conditions. 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. This approach is described in further depth in the following sections.

Trip Generation. Trip generation estimates were developed by applying trip generation rates and equations presented in the ITE Trip Generation (8th Edition) to the developments shown in Table IV.G-13. The site-specific trip generation rates for Gilead Sciences were used for the land uses proposed under the 2010 Master Plan (South Campus) and for the 705,000 square feet of office space included in the former EFI entitlements (North Campus). Trips generated by existing uses were subtracted to determine the new trips added to the surrounding roadway system. Trip generation estimates for each development incorporated in the analysis are presented in Tables F-2 and F-3 in the TIA appendix.

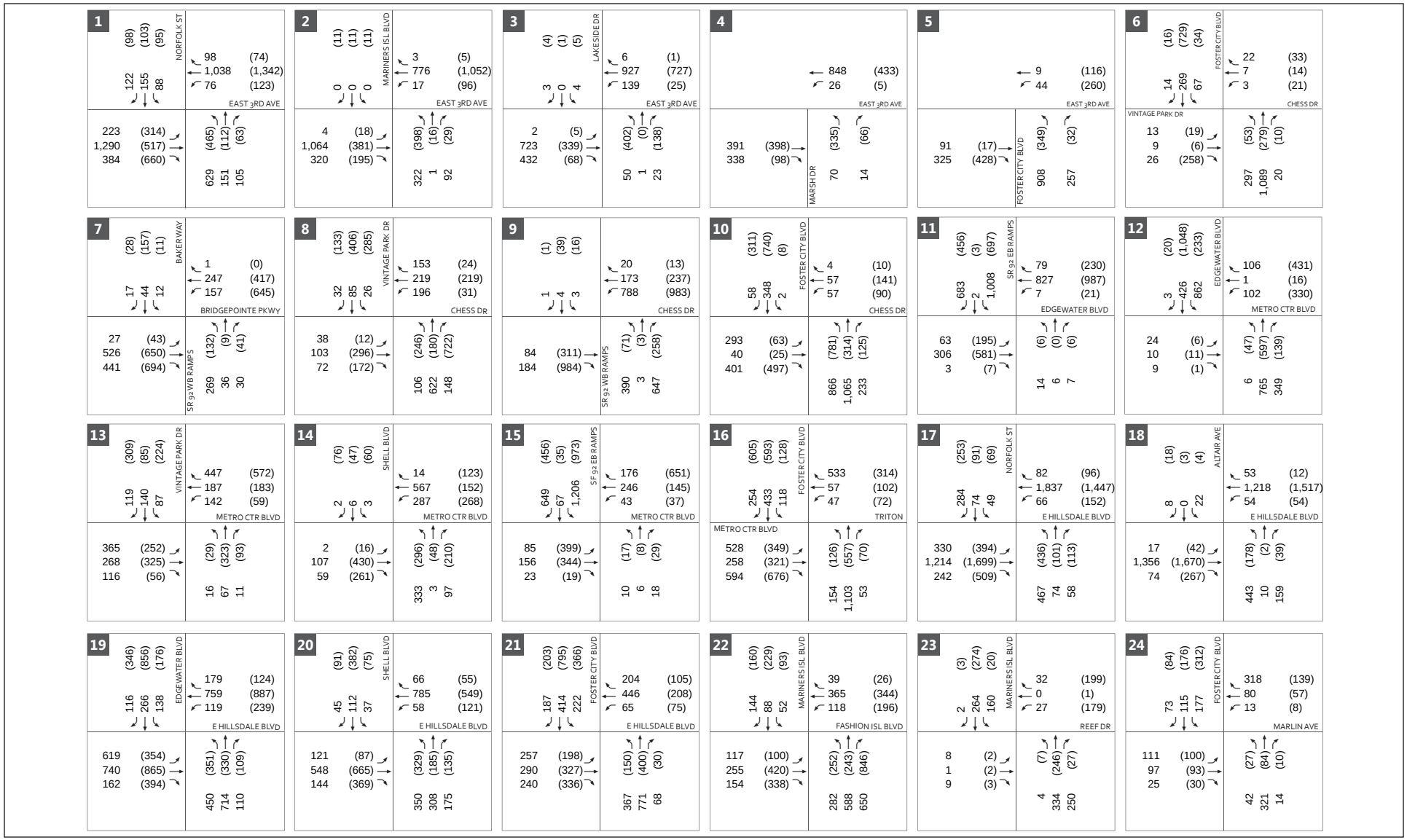

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FIGURE IV.G-8

Legend XX (YY): AM (PM)

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Existing Plus Project

Intersection Peak Hour Volumes

SOURCE: FEHR & PEERS, OCTOBER 2012.

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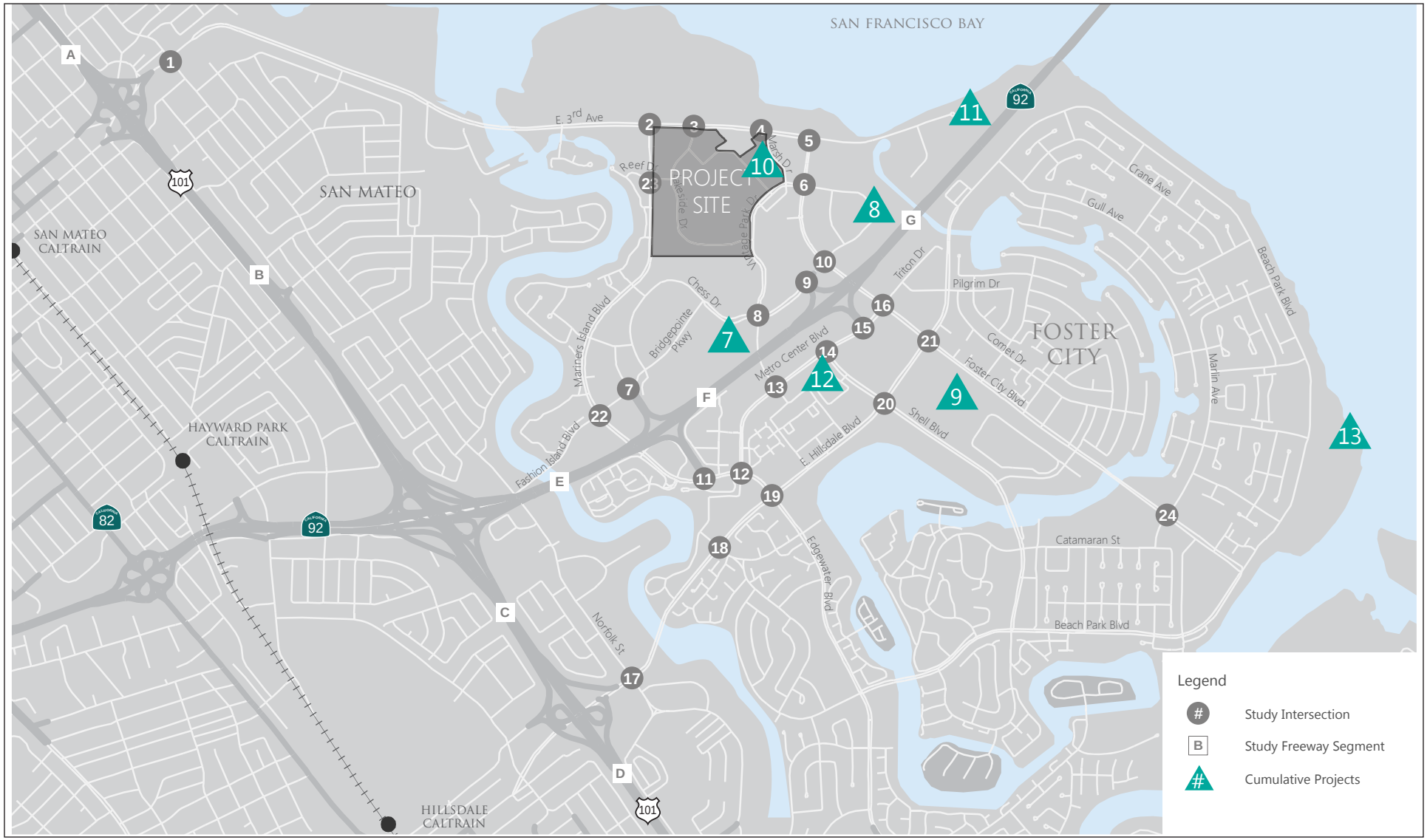

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FIGURE IV.G-9

NOT TO SCALE

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Probable Future Development Locations

SOURCE: FEHR & PEERS, OCTOBER 2012.

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Table IV.G-11: Existing Plus Project Intersection LOS Results

Intersection	Control	Existing				Existing Plus Proposed Project			
		AM		PM		AM		PM	
		Delay [a]	LOS	Delay [a]	LOS	Delay [a]	LOS	Delay [a]	LOS
1. Norfolk Street and East Third Avenue [b]	Signal	30	C	27	C	36	D	31	C
2. Mariners Island Boulevard and East Third Avenue	Signal	10	B [d]	13	B	< 10	A [d]	14	B
3. Lakeside Drive and East Third Avenue	Signal	< 10	A	11	B	< 10	A	16	B
4. Marsh Drive and East Third Avenue	Signal	< 10	A	< 10	A	< 10	A	24	C
5. Foster City Boulevard and East Third Avenue	Signal	< 10	A	< 10	A	< 10	A	< 10	A
6. Foster City Boulevard and Vintage Park Drive/Chess Drive	Signal	10	B	16	B	11	B	17	B
7. Baker Way/SR 92 Westbound Ramps and Fashion Island Boulevard/Bridgepointe Parkway [b]	Signal	17	B	20	C	17	B	22	C
8. Vintage Park Drive and Chess Drive	Signal	25	C	38	D	26	C	44	D
9. SR 92 Westbound Ramps and Chess Drive [c]	Signal	11	B	21	C	18	B	25	C
10. Foster City Boulevard and Chess Drive [c]	Signal	17	B	18	B	18	B	21	C
11. SR 92 Eastbound Ramps and Edgewater Boulevard/Mariners Island Boulevard	Signal	16	B	18	B	18	B	19	B
12. Edgewater Boulevard and Metro Center Boulevard	Signal	16	B	17	B	17	B	21	C
13. Vintage Park Drive and Metro Center Boulevard	Signal	20	B	21	C	20	B	22	C
14. Shell Boulevard and Metro Center Boulevard	Signal	17	B	23	C	18	B	24	C
15. SR 92 Eastbound Ramps and Metro Center Boulevard [c]	Signal	15	B	19	B	19	B	22	C
16. Foster City Boulevard and Metro Center Boulevard/ Triton Drive [c]	Signal	22	C	18	B	23	C	19	B
17. Norfolk Street and East Hillsdale Boulevard [b]	Signal	25	C	30	C	25	C	30	C
18. Altair Avenue and East Hillsdale Boulevard	Signal	17	B	< 10	A	17	B	< 10	A
19. Edgewater Boulevard and East Hillsdale Boulevard	Signal	26	C	31	C	28	C	34	C
20. Shell Boulevard and East Hillsdale Boulevard	Signal	20	C	22	C	21	C	23	C
21. Foster City Boulevard and East Hillsdale Boulevard	Signal	26	C	22	C	27	C	22	C
22. Mariners Island Boulevard and Fashion Island Boulevard [b]	Signal	28	C	32	C	29	C	33	C
23. Mariners Island Boulevard and Reef Drive [b]	SSS	13	B	11	B	18	C	13	B
24. Foster City Boulevard and Marlin Avenue	AWS	23	C	13	B	25	C	14	B

[a] For signalized and all-way stop controlled intersections, the delay shown is the weighted average for all movements in seconds per vehicle. For side-street stop controlled intersection, the delay shown is the worst-operating approach delay. Changes in delay to intersections operating at LOS A are imperceptible to drivers and therefore are shown to be less than 10 seconds of delay.

[b] Intersection in San Mateo.

[c] Intersection analyzed using the VISSIM microsimulation model.

[d] As shown in Appendix C, the calculated vehicle delay under Existing Conditions is 10.2 seconds, which corresponds to LOS B (greater than 10 seconds), and the calculated delay under Existing Plus Project Conditions is 9.6 seconds of delay, which corresponds to LOS A (less than 10 seconds). This slight decrease in delay is due to the large number of project trips added to the east and westbound through movements on East Third Avenue. These movements operate with lower delay than the intersection average and therefore cause the average vehicle delay to decrease. In other words, the relatively large number of trips that would be added to movements with lower delays under Existing Plus Project Conditions would reduce the average vehicle delay compared to Existing Conditions at the intersection of Mariners Island Boulevard and East Third Avenue.

Source: Fehr & Peers, September 2012.

Table IV.G-12: Existing Plus Project Freeway Segment LOS Results

Segment	CMP LOS Standard	Peak Hour	Direction	Existing		Existing Plus Proposed Project	
				Volume [a]	LOS	Volume [a]	LOS
A. US 101, north of East Third Avenue [b]	F	AM	Northbound	9,454	E	9,487	E
			Southbound	8,403	D	8,607	D
		PM	Northbound	8,845	D	9,053	D
			Southbound	8,391	D	8,430	D
B. US 101, between East Third Avenue and SR 92	F	AM	Northbound	9,049	D	9,310	E
			Southbound	8,608	D	8,648	D
		PM	Northbound	9,258	E	9,307	E
			Southbound	8,604	D	8,867	D
C. US 101, north of East Hillsdale Boulevard	E	AM	Northbound	8,166	D	8,438	D
			Southbound	7,344	C	7,389	D
		PM	Northbound	8,182	D	8,234	D
			Southbound	7,487	D	7,765	D
D. US 101, south of East Hillsdale Boulevard	E	AM	Northbound	7,592	D	7,864	D
			Southbound	9,013	D	9,057	D
		PM	Northbound	8,951	D	9,003	D
			Southbound	8,759	D	9,037	D
E. SR 92, between US 101 and Mariners Island Boulevard/Edgewater Boulevard	E	AM	Eastbound	5,634	D	5,961	D
			Westbound	5,930	D	5,979	D
		PM	Eastbound	6,400	E	6,463	E
			Westbound	5,658	C	5,953	D
F. SR 92, Mariners Island Boulevard/Edgewater Boulevard and Foster City Boulevard	E	AM	Eastbound	4,199	C	4,346	C
			Westbound	5,643	C	5,659	C
		PM	Eastbound	5,676	C	5,699	C
			Westbound	4,475	C	4,580	C
G. SR 92, east of Foster City Boulevard	E	AM	Eastbound	2,590	B	2,617	B
			Westbound	5,601	D	5,726	D
		PM	Eastbound	5,108	D	5,275	D
			Westbound	2,806	B	2,831	B

[a] Volumes presented are passenger-car equivalents.
[b] An auxiliary lane in both directions has been completed on this freeway segment since the 2010 Gilead EIR.

Source: Fehr & Peers, September 2012.

Table IV.G-13: Future Probable Developments

Category	Project Number	Project Name	Existing Land Uses	Proposed Land Uses
Background Developments				
Existing Unoccupied Space	1	Parkside Towers	7,861 s.f. retail	17,400 s.f. retail
	2	303 Velocity Way	R&D/Office 595 employees	Office, 850 employees
Approved but not yet Constructed/ Occupied Projects	3	Pilgrim-Triton Master Plan	256,000 s.f. industrial park, 38,300 s.f. office	266,000 s.f. office, 30,000 s.f. retail; 730 residential units (including 64 live-work units)
	4	2010 Gilead Sciences Master Plan (Gilead South Campus)	763,735 s.f. bio-pharmaceutical campus (office & lab)	755,048 s.f. max office, 445,432 s.f. min lab for a max total 1,200,480 s.f. biopharmaceutical campus [a]
	5	400 Mariners Island Blvd [b]	–	76 residential units
	6	1521 Lago Street [b]	28 apartments	24 condos
Probable Future Developments				
Currently Proposed Projects	7	Chess Hotel	9,385 s.f. unoccupied restaurant	76,980 s.f., 5-story, 135-room hotel
	8	Chess Drive	190,000 s.f. office/warehouse	800,000 s.f. office
	9	15 acres	–	200 multi-unit for sale senior apartments, 122 assisted/inde-pendent living apartments, 16-bed memory care facility, 66 one-bedroom senior apartments, 30,000 s.f. retail
Cumulative Conditions Projects	10	Gilead North Campus (formerly EFI) [c]	163,000 s.f. of office (301 Velocity Way)	705,000 s.f. office (includes 1,000,000 s.f. of the former EFI entitlements minus 295,000 s.f. at 303 Velocity Way)
	11	Bayside Towers III	–	92,900 s.f. office
	12	Visa V	–	8,000 s.f. office
	13	Marina	–	300 berths

[a] These land uses will be replaced by the Proposed Project or Project Alternatives under Plus Project Conditions.
[b] These developments are located in the City of San Mateo.
[c] The Gilead North Campus EFI entitlements are included under Cumulative No Project Conditions. These land uses would be replaced by the Proposed Project and Project Alternatives under Cumulative Plus Project Conditions.

Source: Fehr & Peers, September 2012.

Table IV.G-14 summarizes the trip generation estimates for the probable future developments, including cumulative development, included in this study. Overall, the probable future developments would add 17,458 daily trips, including 1,861 AM peak-hour trips, and 2,023 PM peak-hour trips to the surrounding roadway system. These trips would be added to those generated by approved developments (background developments), as indicated in Table IV.G-14.

Table IV.G-14: Cumulative Conditions Trip Generation Estimate Summary

Scenario	Daily Total	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Background Developments	12,392	784	330	1,114	384	805	1,190
Future Probable Developments	17,458	1,557	304	1,861	463	1,561	2,023
Total New Trips – Cumulative Conditions	29,850	2,341	634	2,975	847	2,366	3,213

Source: Fehr & Peers, September 2012.

The total new trips generated under Cumulative Conditions include the traffic volumes generated by buildout of the North Campus according to the former EFI entitlements and buildout of the South Campus per the 2010 Master Plan. This development on the North Campus and South Campus would be replaced by the proposed project under Cumulative Plus Project Conditions.

The 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. The trip distribution pattern is shown on Figure IV.G-10.

Intersection Volumes. The traffic projections for the probable future developments at the study intersections are presented on Figures A-17 and A-18 in the TIA appendix. Cumulative Conditions intersection turning movement volumes are shown on Figure IV.G-11.

Freeway Volumes. In addition to traffic associated with the approved and probable future developments presented in Table IV.G-14, the Cumulative Conditions freeway analysis accounts for regional increases in traffic. Regional traffic increases on US 101 and SR 92 through the cities of San Mateo and Foster City were developed from freeway forecasts using the C/CAG travel demand forecasting model and are not associated with specific developments in Foster City. The following growth factors were applied to existing volumes in order to account for regional growth and produce year 2030 forecasts:

- US 101 Northbound – 0.7 percent annually in the AM peak hour and 0.3 percent annually in the PM peak hour
- US 101 Southbound – 0.3 percent annually in the AM peak hour and 0.8 percent annually in the PM peak hour
- SR 92 Eastbound – 1.7 percent annually in the AM peak hour and 2.4 percent annually in the PM peak hour
- SR 92 Westbound – 1.4 percent annually in the AM peak hour and 1.1 percent annually in the PM peak hour

Traffic estimates for the approved and probable future developments were then added to create Cumulative Conditions freeway volumes.

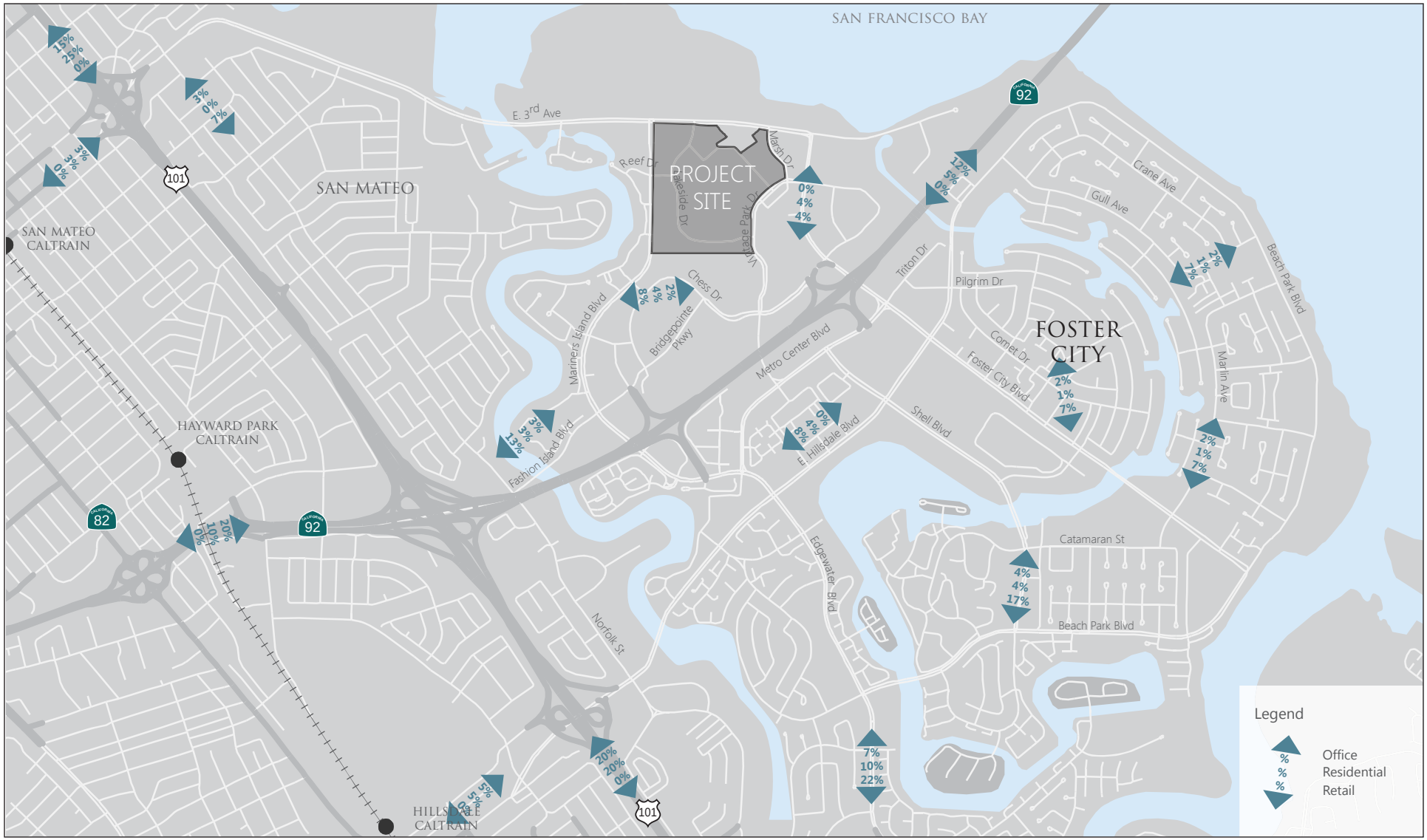

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FIGURE IV.G-10

N

NOT TO SCALE

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Cumulative Project Trip Distribution

SOURCE: FEHR & PEERS, OCTOBER 2012.

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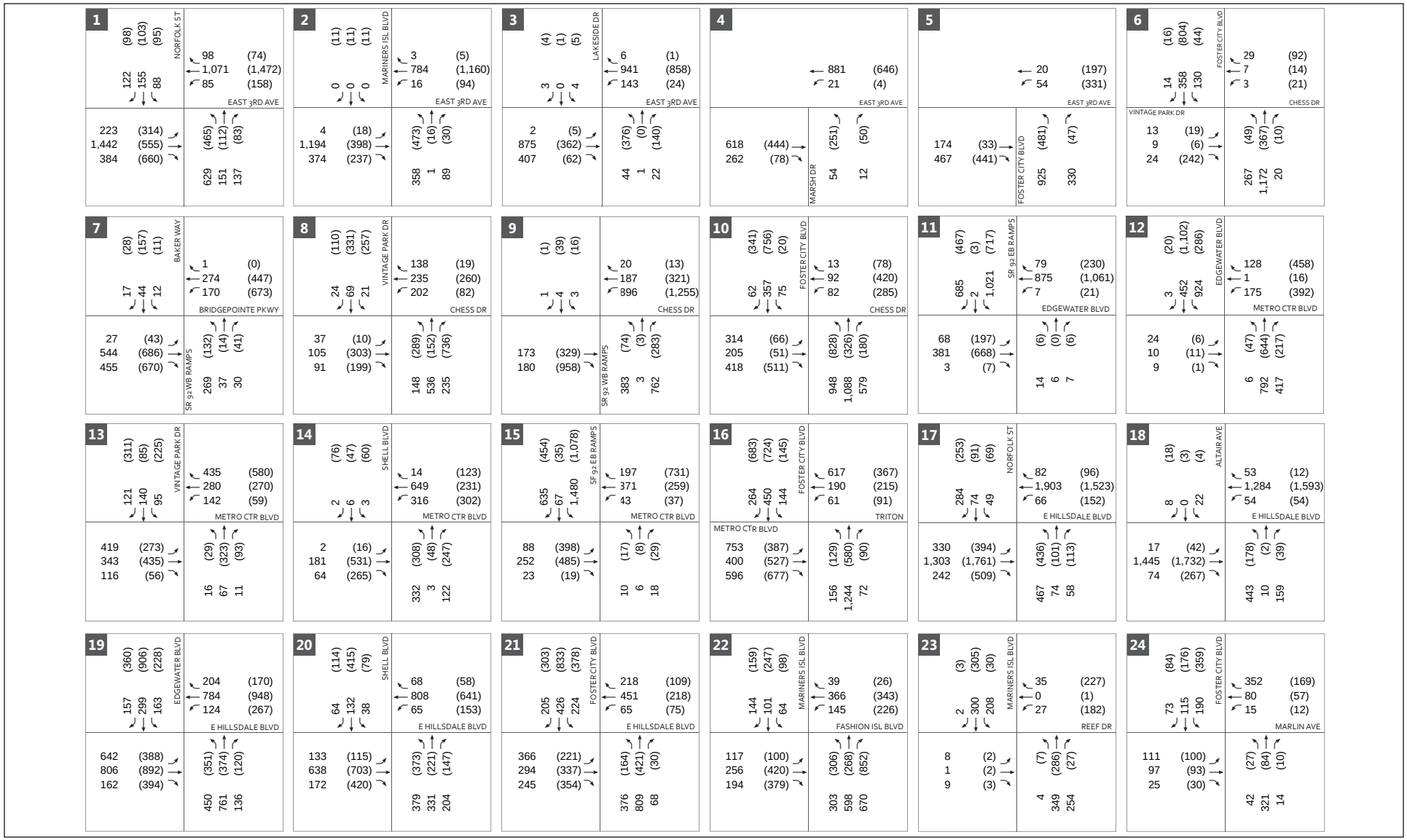

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FIGURE IV.G-11

Legend XX (YY): AM (PM)

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Cumulative Conditions

Intersection Peak Hour Volumes

SOURCE: FEHR & PEERS, OCTOBER 2012.

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(2) Cumulative 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, Mirabella (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 (South Campus) projects based on the terms of their Development Agreements. Additional funding will be provided by the developers of the Chess Drive Offices and 15-acre 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 has been funded by the developer of Phase A of the Pilgrim-Triton development. The schedule for the other roadway improvements is dependent on the progress of the developments. The improvements presented in the Foster City Multi-Project Traffic Analysis are shown in Table IV.G-15. The City has elected to proceed with seven of the eleven improvements noted in Table IV.G-15 and shown on Figure IV.G-12. These roadway improvements are included under all Cumulative Conditions analysis scenarios.

Table IV.G-15: Cumulative Roadway System Improvements

Improvement	Assigned Responsibility	Included in Cumulative Conditions
1. Reconstruct on-ramp to Westbound SR 92 to provide two lanes merging onto SR 92	All [a,b]	No[c]
2. Install signal interlock at Foster City Boulevard/Chess Drive and SR 92 Westbound Ramps/Chess Drive	All	Yes
3. Lengthen northbound left-turn lane on Foster City Boulevard at Chess Drive to 650 feet	All	Yes
4. Lengthen westbound left-turn lane on Chess Drive at Foster City Boulevard to 300 feet	Chess Offices	Yes
5. Widen Triton Drive and modify signal at Foster City Boulevard/Metro Center Boulevard/Triton Drive	Pilgrim/Triton	Yes
6. Add eastbound lane on Metro Center Boulevard between SR 92 and Foster City Boulevard, and install signal interlock (Foster City Boulevard/Metro Center Boulevard and SR 92 Eastbound Ramps/Metro Center Boulevard)	All	Yes
7. Construct northbound right-turn lane from Foster City Boulevard at Chess Drive	Chess Offices	Yes
8. Construct 2nd westbound through lane on Chess Drive at Foster City Boulevard	Chess Offices	Yes
9. Install traffic signal at Foster City Boulevard/Marlin Avenue	None [b]	No
10. Close driveway on north side of Chess Drive/Westbound SR 92 Ramps intersection	None [b]	No
11: Provide 2 right turn lanes from Westbound SR 92 off-ramp onto eastbound Chess Drive	All [b]	No

[a] "All" refers to the following projects included in the Foster City Multi-Project Traffic Analysis: Chess Drive Offices, Gilead Sciences, Pilgrim-Triton, and Mirabella (current 15-acre site).
[b] Foster City elected not to pursue these projects and therefore they are not included under Cumulative Conditions.
[c] Improvement was not approved by Caltrans and thus is not included under Cumulative Conditions.

Source: Fehr & Peers, September 2012.

Other potential roadway improvements not incorporated in this study include Caltrans' proposal for ramp metering at all freeway on-ramps to US 101 and SR 92 in the study area. The status of these improvements is uncertain and a separate ramp metering study would need to be completed to determine their feasibility.

(3) Cumulative Plus Project Conditions. The proposed project would add 595,120 square feet of office and laboratory space to the North and South Campuses compared to the proposed uses for the project site as a part of the 2010 Master Plan (South Campus) and former EFI Entitlements (North Campus). Table IV.G-16 shows the land uses proposed as part of the project compared to the approved and future probable developments for the project site. The proposed new land uses and the associated traffic generated for the proposed project are discussed in more detail below.

Table IV.G-16: Net Change in Land Uses for Project Site under Cumulative Conditions

	Lane Use Type	Proposed Project (square feet)
Proposed Land Uses	General Office	1,524,000
	Laboratory	953,000
	MSB [a]/Warehouse	23,600
	Total	**2,500,600**
Approved and Future Probable Land Uses	General Office	1,358,369
	Laboratory	547,111
	MSB [a]/Warehouse	–
	Total	**1,905,480**
Net Change	General Office	165,631
	Laboratory	405,889
	MSB [a]/Warehouse	23,600
	Total	**595,120**

[a] MSB = Material Storage Building

Source: Fehr & Peers, September 2012.

As shown in Table IV.G-16, the proposed project would add 165,631 square feet of office space, 405,889 square feet of laboratory space, and 23,600 square feet of material storage space to the approved and future probable land uses at the project site. The new trips due to the proposed project were added to the Cumulative traffic volumes to create Cumulative Plus Project traffic volumes. The net new trips include the traffic generated by the proposed project minus traffic generated by existing entitled land uses at the North and South Campuses and traffic generated by existing uses on the site. As shown in Table IV.G-10, the proposed project would add 5,222 daily trips, 360 AM peak-hour trips, and 415 PM peak-hour trips to Cumulative traffic volumes.

The new AM and PM peak-hour trips for the proposed project were assigned to the freeway segments, roadway segments, and intersection turning movements based on the directions of approach and departure shown in Figure IV.G-6. The new trips were distributed to the study intersections as shown on Figure A-19 and to the freeway mainline segments as shown in Appendix E of the TIA. Intersection turning movement volumes for Cumulative Plus Project Conditions are shown on Figure A-23 of the TIA appendix.

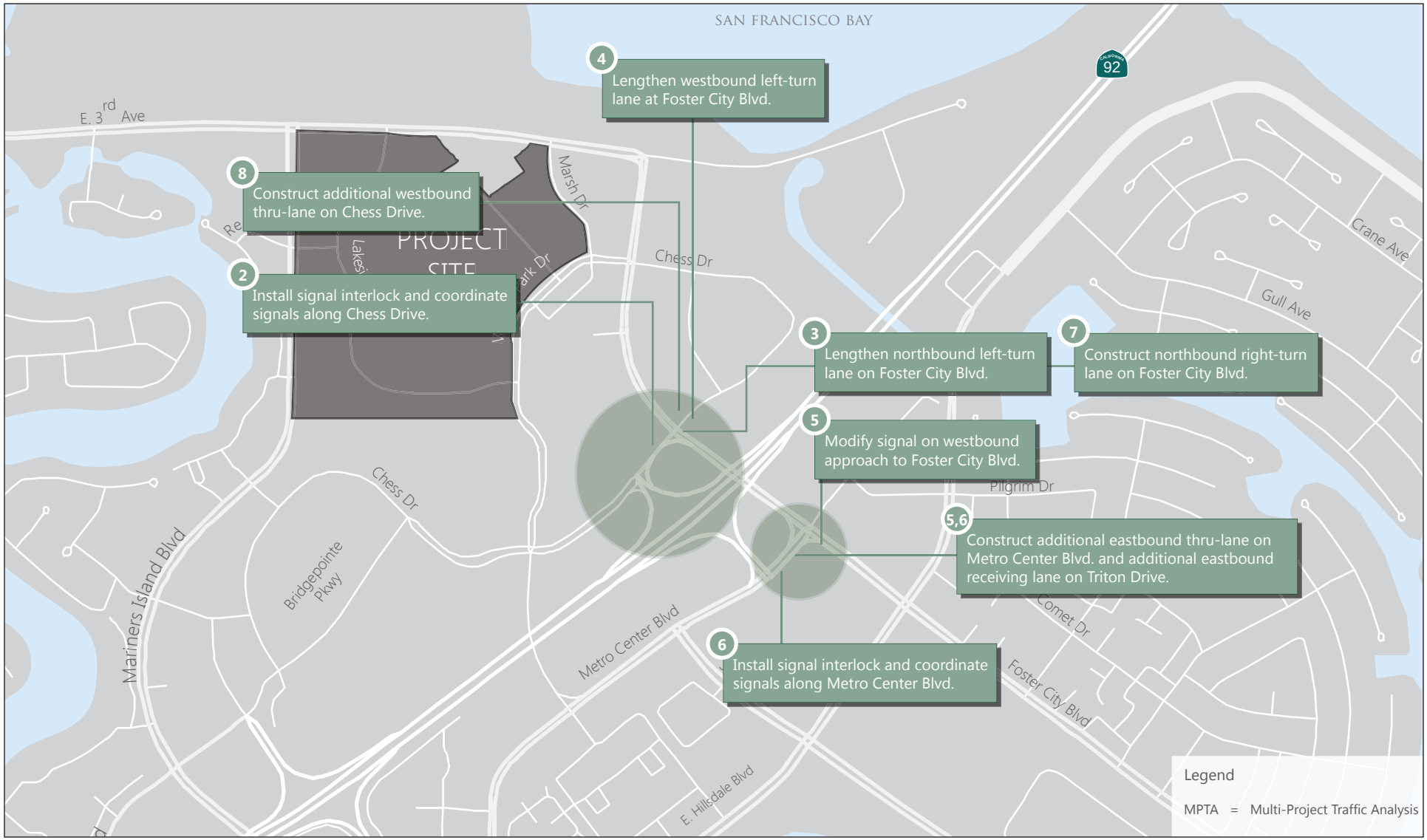

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FIGURE IV.G-12

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NOT TO SCALE

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Cumulative Roadway Improvements

SOURCE: FEHR & PEERS, OCTOBER 2012.

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(4) Intersection Operations. The cumulative intersection operations under no project and project conditions are presented below.

No Project. The intersection LOS analysis results for Cumulative Conditions (including the improvements shown on Figure IV.G-12) are presented in Table IV.G-17. The LOS results show that the study intersections would operate at an acceptable LOS D or better except for Norfolk Street at East Third Avenue and the SR 92 Westbound Ramps at Chess Drive. The intersection of Norfolk Street and East Third Avenue is located in the City of San Mateo and exceeds the threshold of mid-LOS D, with over 45 seconds of delay in the AM peak hour. This intersection would degrade to unacceptable operations due to the growth in eastbound traffic volumes during the AM peak hour. The intersection of the SR 92 Westbound Ramps and Chess Drive would degrade to LOS E during the PM peak hour due to traffic growth on the SR 92 freeway mainline and the westbound on-ramp. These results are similar to those of the Foster City Multi-Project Traffic Analysis, which determined that without additional capacity on the westbound SR 92 on-ramp, the intersection of the SR 92 Westbound Ramps and Chess Drive would degrade to LOS E or F under Cumulative Conditions. 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 this intersection under General Plan buildout.

Proposed Project. As shown in Table IV.G-17, the proposed project would contribute traffic and increase delay by more than 4 seconds at the intersection of Norfolk Street and East Third Avenue, which is operating at an unacceptable level of service during the AM peak hour. The proposed project would add 5 seconds of delay to this intersection during the AM peak hour. Therefore, the project's contribution to this cumulative impact is significant.

<u>Impact TRANS-1</u>: The addition of project traffic would increase the average delay during the AM peak hour by 5 seconds at the intersection of Norfolk Street/East Third Avenue, which would operate at unacceptable LOS D (delay in excess of 45 seconds) under Cumulative Conditions. (S)

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

> <u>Mitigation Measure TRANS-1</u>: The project sponsor shall implement the TDM Program described in Appendix G of the TIA in accordance with the C/CAG TDM Requirements. As documented in Table G-1 of Appendix G, the TDM Program would reduce project vehicle trips by at least 8 percent. The traffic counts used to determine the site-specific trip generation rates were collected in 2008, when Gilead Sciences' transit mode share was 6.5 percent. Since 2008, the transit mode and van pool share has increased from 6.5 to 15.3 percent due to increased shuttle service. Gilead Sciences shall maintain this transit mode share through completion of the proposed project, which would result in an 8 percent reduction in vehicle trips added to the roadway network compared to modeled conditions (and a continued 15.3 percent transit mode split). With this reduction, the intersection of Norfolk Street/East Third Avenue would operate with 46 seconds of delay (compared to 45 seconds without the proposed project). Therefore, with implementation of the TDM Program, the proposed project would increase the intersection delay at Norfolk Street/East Third Avenue by less than 4 seconds, and this impact would be reduced to a less-than-significant level. The City shall require the implementation of an

appropriate TDM Program for the life of the proposed project to reduce cumulative impacts on area roadways. (LTS)

The proposed project would cause the intersection of the SR 92 Westbound Ramps and Chess Drive to degrade from LOS E to LOS F. This is primarily due to congestion on the SR 92 westbound on-ramp and the added project traffic to this already congested intersection. 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. Therefore, the impact at this intersection due to the proposed project would be less than significant.

All other study intersections would operate acceptably under Cumulative Plus Proposed Project Conditions.

(5) Freeway Operations. The cumulative freeway mainline operations under no project and project conditions are presented below. Cumulative daily traffic volumes plus new vehicle trips due to the proposed project on the study freeway segments are shown in Table E-4 of Appendix E of the TIA.

No Project. The Cumulative Conditions freeway volumes and analysis results are presented in Table IV.G-18. The following three mainline segments on SR 92 or US 101 would exceed their CMP LOS threshold with the addition of traffic due to cumulative development:

Segment D. Southbound US 101, south of East Hillsdale Boulevard – LOS F during the PM peak hour

Segment E. Eastbound SR 92, between US 101 and Mariners Island Boulevard/ Edgewater Boulevard – LOS F during the PM peak hour

Segment F. Westbound SR 92, east of Foster City Boulevard – LOS F during the AM peak hour

This deterioration in freeway LOS is largely due to regional traffic growth and, to a lesser extent, development in Foster City.

In addition, northbound US 101, north of SR 92 and north of East Third Avenue would operate at LOS F during the AM peak hour. However, these levels of service are consistent with the CMP LOS standard of F for these two segments. The remaining freeway segments would operate at LOS E or better under Cumulative Conditions.

Table IV.G-17: Cumulative Plus Project Intersection LOS Results

Intersection	Control	Cumulative				Cumulative Plus Proposed Project			
		AM		PM		AM		PM	
		Delay [a]	LOS	Delay [a]	LOS	Delay [a]	LOS	Delay [a]	LOS
1. Norfolk Street and East Third Avenue [b]	Signal	**45**	**D**	34	C	**50**	**D**	36	D
2. Mariners Island Boulevard and East Third Avenue	Signal	10	B	15	B	10	B	15	B
3. Lakeside Drive and East Third Avenue	Signal	< 10	A	16	B	< 10	A	17	B
4. Marsh Drive and East Third Avenue	Signal	< 10	A	18	B	< 10	A	22	C
5. Foster City Boulevard and East Third Avenue	Signal	< 10	A	< 10	A	< 10	A	< 10	A
6. Foster City Boulevard and Vintage Park Drive/Chess Drive	Signal	13	B	18	B	13	B	19	B
7. Baker Way/SR 92 Westbound Ramps and Fashion Island Boulevard/Bridgepointe Parkway [b]	Signal	17	B	22	C	17	B	23	C
8. Vintage Park Drive and Chess Drive	Signal	26	C	47	D	26	C	49	D
9. SR 92 Westbound Ramps and Chess Drive [c,d]	Signal	17	B	**78**	**E**	20	C	**84**	**F**
10. Foster City Boulevard and Chess Drive [c]	Signal	26	C	41	D	27	C	45	D
11. SR 92 Eastbound Ramps and Edgewater Boulevard/Mariners Island Boulevard	Signal	19	B	19	B	20	B	20	C
12. Edgewater Boulevard and Metro Center Boulevard	Signal	19	B	22	C	19	B	24	C
13. Vintage Park Drive and Metro Center Boulevard	Signal	21	C	23	C	22	C	24	C
14. Shell Boulevard and Metro Center Boulevard	Signal	16	B	21	C	16	B	21	C
15. SR 92 Eastbound Ramps and Metro Center Boulevard [c]	Signal	17	B	22	C	18	B	22	C
16. Foster City Boulevard and Metro Center Boulevard/Triton Drive [c]	Signal	33	C	23	C	38	D	24	C
17. Norfolk Street and East Hillsdale Boulevard [b]	Signal	25	C	30	C	25	C	30	C
18. Altair Avenue and East Hillsdale Boulevard	Signal	17	B	< 10	A	17	B	< 10	A
19. Edgewater Boulevard and East Hillsdale Boulevard	Signal	32	C	41	D	33	C	43	D
20. Shell Boulevard and East Hillsdale Boulevard	Signal	22	C	25	C	22	C	25	C
21. Foster City Boulevard and East Hillsdale Boulevard	Signal	34	C	23	C	34	C	23	C
22. Mariners Island Boulevard and Fashion Island Boulevard [b]	Signal	29	C	35	D	29	C	36	D
23. Mariners Island Boulevard and Reef Drive [b]	SSS [e]	21	C	15	B	21	C	15	C
24. Foster City Boulevard and Marlin Avenue	AWS [f]	31	D	16	C	32	D	17	C

[a] For signalized and all-way stop controlled intersections, the delay shown is the weighted average for all movements in seconds per vehicle. For side-street stop controlled intersection, the delay shown is the worst-operating approach delay. Changes in delay to intersections operating at LOS A are imperceptible to drivers and therefore are shown to be less than 10 seconds of delay.
[b] Intersection in San Mateo.
[c] Intersection analyzed using the VISSIM microsimulation model for Cumulative No Project and Plus Proposed Project Conditions only. Similar to Existing Plus Project and Background Plus Project Conditions, the LOS analysis at these intersections would be comparable to the Proposed Project under the Lakeside Drive Open variant and Alternates A and B.
[d] 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.
[e] SSS = Side-street stop
[f] AWS = All-way stop

Bold = Unacceptable operations
Shaded = Significant Impact

Source: Fehr & Peers, September 2012.

Table IV.G-18: Cumulative Plus Project Freeway Segment LOS Results

Segment	CMP LOS Standard	Peak Hour	Direction	Cumulative		Cumulative Plus Proposed Project	
				Volume [a]	LOS	Volume [a]	LOS
A. US 101, north of East Third Avenue [b]	F	AM	Northbound	10,766	F	10,776	F
			Southbound	9,211	D	9,253	E
		PM	Northbound	9,669	E	9,718	E
			Southbound	9,726	E	9,739	E
B. US 101, between East Third Avenue and SR 92	F	AM	Northbound	10,556	F	10,573	F
			Southbound	9,148	D	9,155	D
		PM	Northbound	9,843	E	9,852	E
			Southbound	10,198	E	10,222	E
C. US 101, north of East Hillsdale Boulevard	E	AM	Northbound	9,608	E	9,666	E
			Southbound	8,341	D	8,355	D
		PM	Northbound	8,710	D	8,728	D
			Southbound	8,295	D	8,359	D
D. US 101, south of East Hillsdale Boulevard	E	AM	Northbound	9,010	D	9,068	D
			Southbound	9,622	E	9,635	E
		PM	Northbound	9,566	E	9,584	E
			Southbound	**10,466**	**F**	**10,530**	**F**
E. SR 92, between US 101 and Mariners Island Boulevard/Edgewater Boulevard	E	AM	Eastbound	6,798	E	**6,911**	**F**
			Westbound	7,429	E	7,450	E
		PM	Eastbound	**7,341**	**F**	**7,367**	**F**
			Westbound	7,206	E	7,311	E
F. SR 92, Mariners Island Boulevard/Edgewater Boulevard and Foster City Boulevard	E	AM	Eastbound	5,173	C	5,226	C
			Westbound	7,081	D	7,087	D
		PM	Eastbound	6,547	D	6,555	D
			Westbound	5,833	D	5,871	D
G. SR 92, east of Foster City Boulevard	E	AM	Eastbound	3,197	B	3,205	B
			Westbound	**7,152**	**F**	**7,173**	**F**
		PM	Eastbound	6,097	D	6,137	E
			Westbound	3,856	C	3,865	C

Notes:
[a] Volumes presented are passenger-car equivalents.
[b] An auxiliary lane in both directions has been completed on this freeway segment since the 2010 Gilead EIR.
Bold indicates locations where segment operations exceed CMP thresholds
Shaded = Significant Impact

Source: Fehr & Peers, September 2012.

Proposed Project. As shown in Table IV.G-18, with the addition of project traffic, freeway operations would be similar to Cumulative Conditions, with only small increases in traffic on most freeway segments. Traffic due to the proposed project at the three unacceptably-operating freeway segments noted above would be less than 1 percent of the total mainline capacity at each segment. However, the proposed project would cause the segment of eastbound SR 92, between US 101 and Mariners Island Boulevard/Edgewater Boulevard, to degrade from acceptable LOS E to unacceptable LOS F during the AM peak hour. This is considered a significant impact.

Impact TRANS-2: The addition of project traffic would cause the freeway segment of eastbound SR 92 between US 101 and Mariners Island Boulevard/Edgewater Boulevard to degrade from acceptable LOS E to unacceptable LOS F during the AM peak hour resulting in a significant project contribution under Cumulative Conditions. (S)

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

> Mitigation Measure TRANS-2: The project sponsor shall implement Mitigation Measure TRANS-1. With the TDM Program in place, the mainline segment of eastbound SR 92 between US 101 and Mariners Island Boulevard/Edgewater Boulevard would operate at an acceptable LOS E during the AM peak hour. (LTS)

The proposed project's contribution to other freeway segments with cumulative impacts would be less than significant and no mitigation is required.

g. 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 Facilities. This section addresses pedestrian connections to off-site destinations. In general, the proposed project would enhance pedestrian operations by closing Lakeside Drive to vehicular through traffic, which would improve pedestrian safety and mobility throughout the project site. The measures described below are recommended to improve pedestrian circulation within and around the project site, but are not required to reduce significant environmental effects of the proposed project. Select recommendations are shown on Figure IV.G-13.

Employees and visitors may be expected to travel to and from campus on foot to reach transit stops and to access local businesses. Major pedestrian access points to and from the project site include:

- Mariners Island Boulevard and Reef Drive
- Lakeside Drive and East Third Avenue
- Vintage Park Drive and Lakeside Drive

Currently, there is no marked crosswalk on Mariners Island Boulevard at the intersection with Reef Drive, at the western project entrance, which is located in the City of San Mateo. Improvements could be made to this intersection to improve safety for pedestrians wishing to access the project site from the SamTrans transit stop on the west side of Mariners Island Boulevard. According to the City of San Mateo Crosswalk Policy and Treatment Toolbox, a crosswalk should not be installed at an uncon-

trolled location if the sight distance in feet is less than ten times the speed limit. As the speed limit along Mariners Island Boulevard is 30 miles per hour, the sight distance would need to be 300 feet to safely install a marked crosswalk. Currently, the sight distance is approximately 200 feet when vehicles are parked along Mariners Island Boulevard. If the speed limit along Mariners Island Boulevard is lowered to 20 miles per hour or enough parking spaces are removed along Mariners Boulevard to increase the sight distance (and the curb where the parking spaces are removed is painted red), a marked crosswalk could be installed on the southerly leg (with the bus stop relocated to the southwest corner, in front of the crosswalk). The crosswalk would need to include high visibility striping and advance yield limit lines with post-mounted signs. Alternatively, Mariners Island Boulevard could be stop-controlled, which would allow a crosswalk to be installed. Otherwise, a crosswalk is not recommended at this location, and pedestrians should be instructed to cross Mariners Island Boulevard at East Third Avenue.

Other recommended off-site pedestrian amenities include improving the intersection of Vintage Park Drive and Lakeside Drive and enhancing existing crossings or connections. The intersection of Vintage Park Drive and Lakeside Drive has marked crosswalks, with decorative brick pavers provided on all approaches. The crosswalks across Vintage Park Drive are uncontrolled. Because these crosswalks cross a multilane road, the crosswalks should include high visibility striping and advance yield limit lines with post-mounted signs. Reduced corner radii and median refuges would further enhance safety at all three crossing locations noted above. Directional curb ramps with truncated domes would enhance access for disabled pedestrians.

(2) Bicycle Facilities. Lakeside Drive has been privatized and is no longer a public street per an approval granted independently of the proposed project, which would affect the Class III bike route currently on Lakeside Drive. The proposed circulation plan reroutes the bike route via Vintage Park Drive and Marsh Drive to East Third Avenue, where it would connect with the existing Class III bike route on East Third Avenue. The proposed circulation plan has been reviewed and approved by the City of Foster City Parks and Recreation Committee that serves as the City's Bicycle and Pedestrian Advisory Committee. The rerouting would be slightly longer than the existing route and would require bicyclists to ride on streets with higher traffic volumes. However, the increased travel distance is only about 0.1 mile. Therefore with this proposed change, the proposed project would result in no significant impacts to bicycle facilities.

(3) Transit Facilities. As discussed previously, transit lines operated by SamTrans, Caltrain, and AC Transit serve the project site. Two employer-funded shuttles, the Lincoln Centre and North Foster City shuttles, operate on Lakeside Drive through the site. All providers have a transit stop within ¼-mile of the project site. Pedestrian access is provided between the project site and the nearby transit stops, with the exception of the drop-off location for SamTrans Route FX at the northwest corner of the intersection of Mariners Island Boulevard and Reef Drive in the City of San Mateo, which lacks a marked crosswalk across Mariners Island Boulevard (as discussed above). If Lakeside Drive is closed to through traffic, the proposed project would disrupt the Lincoln Centre and North Foster City shuttle routes. This is considered a significant impact.

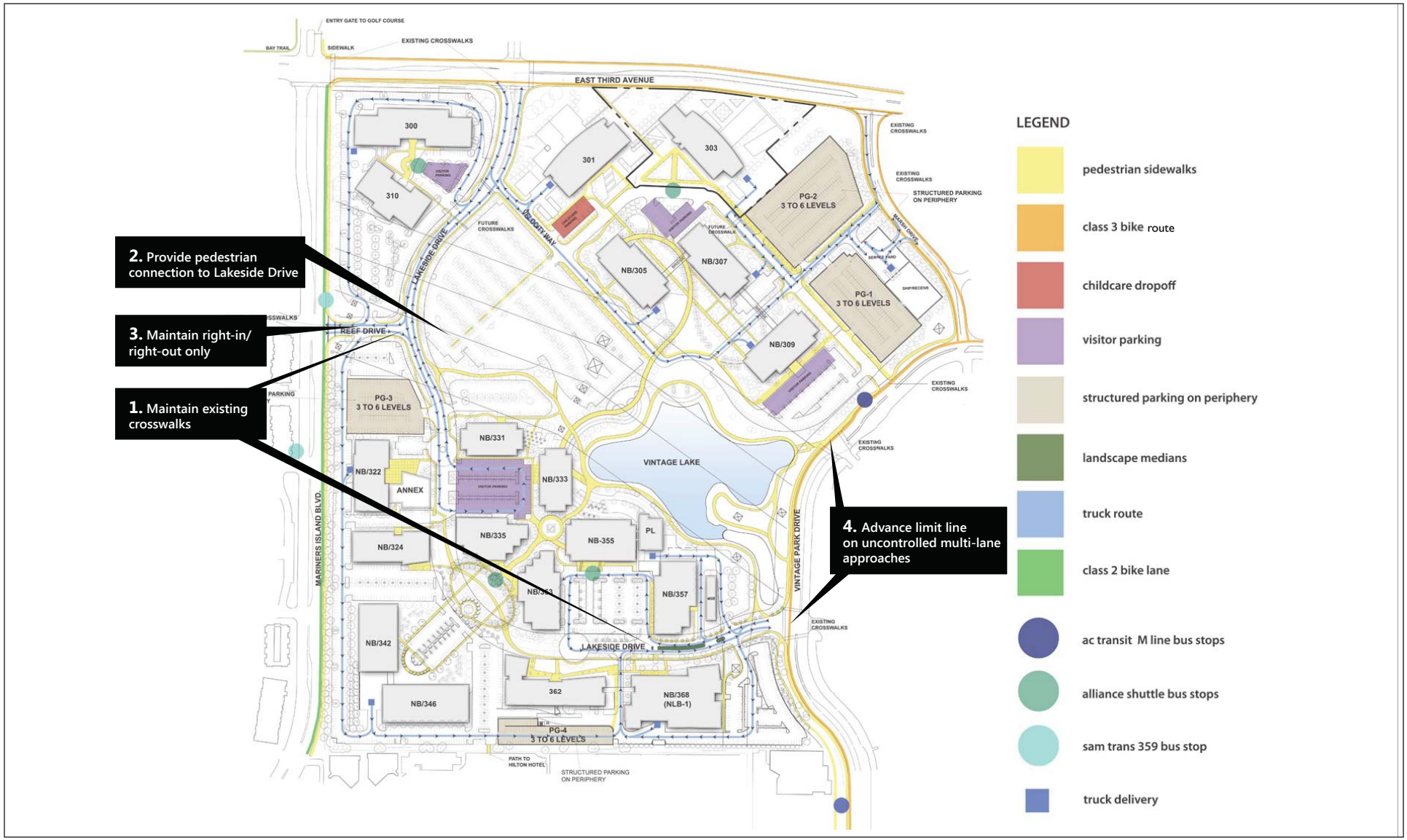

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FIGURE IV.G-13

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SOURCE: FEHR & PEERS, OCTOBER 2012.

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Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Proposed Circulation Plan and Recommendations

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Impact TRANS-3: The proposed project would affect the routes of the Lincoln Centre shuttle and the North Foster City shuttle by closing Lakeside Drive. (S)

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

> Mitigation Measure TRANS-3: The operator shall reroute these shuttles to avoid the closed-off portion of Lakeside Drive. The project sponsor shall pay for the costs associated with rerouting these shuttles. This mitigation measure shall be completed before the closure of Lakeside Drive. The North Foster City shuttle shall be re-routed to Chess Drive and Vintage Park Drive (rather than continuing north along Lakeside Drive). The Lincoln Centre shuttle route shall be re-routed to Mariners Island Boulevard via Reef Drive (rather than continuing south along Lakeside Drive), or to an alternative location that is mutually agreeable to Gilead Sciences and the Peninsula Traffic Congestion Relief Alliance. Implementation of this mitigation measure would restore the continuity of the shuttle routes and maintain shuttle access to the project site. The travel times of the shuttles are not expected to increase as a result of these changes as the shuttle travel distance would remain the same. (LTS)

Shuttle service is a key component of the TDM strategy that would be implemented as part of the project. As part of the proposed project, Gilead Sciences has made commitments to serve the future transit demand of the project through a phased funding plan. As the Gilead Sciences employee base grows, Gilead Sciences would work with the Peninsula Traffic Congestion Relief Alliance, other corporate partners, and the City on tactical next steps at each of the following Gilead Sciences employee headcount thresholds:

- 1,900 to 3,000 employees: Work with the Alliance to increase the current 24-passenger bus to a 32-35-passenger bus on the North Foster City route, if warranted.
- 3,000 to 5,500 employees: Work with the Alliance to add an additional bus (half hour bus in addition to the current hourly bus) on the North Foster City Center route, if warranted.
- 3,500 to 5,500 employees: Work with the Alliance to add an additional bus (half hour bus in addition the current hourly bus) on the Lincoln Centre route, if warranted.

This proposed shuttle plan includes approximately 140 new shuttle seats during the morning and evening commute periods under project buildout conditions. Currently, 180 employees ride Gilead campus shuttles, which represents 9.5 percent of all employee trips. The existing employer shuttle ridership currently exceeds capacity on the majority of shuttle commute trips. Assuming the existing mode share remains with the full projected employment of 5,500 employees under the proposed project, the project would generate a total of 521 shuttle riders in the future (a net increase of 341 shuttle riders). As such, the current shuttle funding plan would not adequately serve the projected shuttle ridership. This is considered a significant impact.

Impact TRANS-4: The proposed project would add ridership demand to shuttles that are over-capacity. (S)

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

Mitigation Measure TRANS-4: The project sponsor shall contribute to expansion of existing shuttle services or provide new shuttle services to local transit hubs, such as the East Hillsdale Caltrain Station and the Millbrae BART/Caltrain station, at a level commensurate with the project's shuttle ridership demand attributable to buildout and operation of one or more project elements (i.e., a net increase of 341 shuttle riders at project buildout). Gilead Sciences shall prepare an analysis of its projected shuttle ridership, develop a plan for how the ridership will be accommodated, and submit the plan to the City for approval during the use permit process. Contributions to expand existing shuttle service or provide new shuttle service shall be made concurrent with approval of a Specific Development Plan/Use Permit. (LTS)

(4) Site Access and Circulation. Figure IV.G-13 shows the circulation plan for the proposed project. Primary ingress and egress to and from the project site would continue to be provided by the intersections of Reef Drive at Mariners Island Boulevard, Lakeside Drive at East Third Avenue, Lakeside Drive at Vintage Park Drive, and East Third Avenue at Marsh Drive. Lakeside Drive and Marsh Drive would provide access to project buildings and parking facilities. Emergency vehicles would be allowed on the closed portion of Lakeside Drive, maintaining existing emergency access. Primary truck access would be provided at the shipping docks at Marsh Drive. Other truck access would be provided to shipping docks located at laboratory and office buildings throughout the site. However, truck access to these locations would be infrequent and would therefore minimize conflicts with pedestrians, bicycles, and passenger vehicles. The proposed project would not include design features that would result in roadway or vehicle hazards. In addition, no new types of land uses would be developed on the site; therefore, no incompatible land uses would be developed that would increase hazards.

As part of the proposed project, Lakeside Drive would be closed to through traffic. The purpose of the Lakeside Drive closure would be to create a more pedestrian-friendly campus. After the Lakeside Drive closure, vehicles would no longer be able to access the northern portion of the site from the eastern entrance along Vintage Park Drive (by proceeding west along Lakeside Drive) and would instead access the site via Mariners Island Boulevard or East Third Avenue. In addition to these off-site effects, the closure of Lakeside Drive would alter on-site vehicle circulation (including shuttles) by reducing vehicle mobility and connectivity between the north and south/east portions of the site. However, pedestrian connectivity would be enhanced due to the creation of the central portion of Lakeside Drive as a mainly car-free zone. In addition, it is anticipated that travel patterns would change such that employees who work in the northern portion of the site would use the north access points, and employees working in the southern and eastern portions of the site would use the east access point, further reducing the need for internal vehicle connectivity. Please refer to the discussion of the Lakeside Drive Open alternative in Chapter V, Alternatives, for a description of the environmental effects associated with continuing to allow through traffic on Lakeside Drive.

The proposed project would not result in any other major changes to internal vehicle circulation, and the expected increase in vehicular traffic to surrounding roadways caused by the closure is expected to be accommodated by the existing infrastructure.

To improve safety and mobility for all users, the following best practices are recommended for the final site plan. Implementation of these best practices would not be required to reduce the environmental effects of the project and the following discussion is provided for informational purposes only. These improvements could be funded by the project sponsor and incorporated into the Specific

Development Plan/Use Permit for specific development projects undertaken as part of the 2012 Master Plan.

Enable a walkable and bikable core campus:

- Provide efficient pedestrian connections that minimize travel through parking lots.
- Provide pedestrian and bicycle wayfinding to key destinations.
- Should Lakeside Drive remain open, use one of the following methods to enhance the walkable core campus:
    - Close Lakeside Drive to through traffic during core business hours; or
    - Provide raised pedestrian crossings or other traffic calming treatments to slow traffic and discourage through traffic.
- Provide direct connections from the parking lot at Lakeside Drive/Velocity Way to the Vintage Lake trails.
- Provide sidewalks with landscape buffers and/or landscaped medians, where feasible on Lakeside Drive (currently underway on the project site).
- Locate visitor parking adjacent to Lakeside Drive and campus entrances to ensure easy access.

Follow best practices throughout the campus and at intersections with off-site routes:

- Provide sidewalks along all roadways (currently underway on the project site).
- Limit the number of lanes and lane width.
- Tighten corner radii to reduce turning speeds.
- Provide marked crosswalks on all legs at controlled intersections.
- Provide high-visibility marked crosswalks at uncontrolled intersections and midblock locations with high pedestrian demand. Enhance crosswalks with beacons or signals where higher speeds and traffic volumes are expected.
- Provide short-term and long-term bicycle parking at all buildings.
- Provide pedestrian paths through parking lots that reduce pedestrian exposure and offer direct links.
- Limit the number of curb cuts/access points and ensure access points are located away from major intersections (for example, at Reef Drive and Mariners Island Boulevard).
- Remove parking spaces adjacent to major intersections.

The proposed circulation plan shown in Figure IV.G-13 incorporates many of the above recommendations.

In addition to the preceding general comments, the following additions are suggested to clarify the circulation plan shown in Figure IV.G-13:

A. Existing marked crosswalks along Lakeside Drive between Reef Drive and Vintage Park Drive should be shown on the circulation plan (and maintained under the future plan) as these existing marked crosswalks provide key pedestrian links between buildings and parking facilities. This includes the existing marked crosswalk into the proposed Parking Garage (PG)-3 and the existing marked crosswalks in front of New Building (NB)/368.

B. The development of additional pedestrian connections should be considered from the pedestrian pathway through the middle of the central parking facility to Lakeside Drive.

C. Consider maintaining the driveway to the proposed PG-3 parking garage from Reef Drive in its existing right-in/right-out configuration due to its proximity to the intersection of Mariners Island Boulevard/Reef Drive.

D. At Vintage Park Drive/Lakeside Drive and other uncontrolled pedestrian crossings along Vintage Park Drive, consider striping advance limit lines in addition to the highlighted cross walk signs to enhance pedestrian safety on these multi-lane, uncontrolled approaches.

The circulation plan would be subject to further review as the proposed project is implemented. Changes to the final circulation plan would be reviewed and approved by the City to ensure these recommendations are in place prior to issuance of a Specific Development Plan/Use Permit, as appropriate.

(5) Emergency Access. Emergency vehicles would be able to use the roadways surrounding the project site. In addition, emergency vehicles would be allowed on the closed portion of Lakeside Drive, maintaining existing emergency access. Therefore, the proposed project would not result in emergency vehicle access impacts.

(6) Air Traffic. Additional employment associated with the proposed project would not contribute substantially to demand for commercial flights because most new employees would be expected to work on-site. Therefore, the proposed 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.

(7) 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.

<u>Impact TRANS-5</u>: 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:

<u>Mitigation Measure TRANS-5</u>: 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. (LTS)

(8) C/CAG TDM Requirements. C/CAG is the Congestion Management Agency for San Mateo County that develops the 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 transportation demand management (TDM) programs that have the capacity to reduce the demand for new peak-hour trips. A project sponsor also has the option to modify the project such that it generates 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 proposed project would generate more than 100 new vehicle trips during both the AM and PM peak hours. Therefore, per C/CAG guidelines, Gilead Sciences has developed a draft TDM Program for the proposed project which is included in Appendix G of the TIA. The draft TDM Program 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 proposed project. The site-specific trip generation rates used in this transportation analysis include the trip reductions due to the TDM Program that were in place in 2008 when the traffic counts were collected. As shown in Appendix G of the TIA, the transit mode share has increased since 2008; therefore the trip generation rates used in this analysis ensure a reasonably cautious analysis of the potential impacts of the proposed project on the transportation system.

C/CAG has identified acceptable TDM measures and assigned peak-hour trip credits that will be granted with implementation of each measure. 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, in lieu of new vehicle trips, the full campus trip generation is used for the purpose of trip credit comparison. This reflects the nature of the TDM strategies at buildout of the project, which would comprise both existing and additional measures that affect all trips.

To select a menu of TDM strategies appropriate for the proposed project, existing mode usage was reviewed and considered a starting point for the proposed project. A 21 percent alternative (non-

single occupant vehicle, including transit, van pool, bike, and pedestrian) mode share was assumed for all 5,500 projected Gilead Sciences employees, based on information provided by Gilead for current employees. Applying the existing alternative mode share to future employees results in the following breakdown:

- Transit: 9.5 percent (521 employees)
- Carpool: 4.2 percent (232 employees)
- Vanpool: 5.8 percent (318 employees)
- Bicycle: 1.9 percent (110 employees)

The quantity and distribution of the TDM strategies presented in Appendix G of the TIA reflect this mode split. Should employee surveys suggest a different mode split distribution in the future, reallocation of the TDM strategies, and additional or substitute strategies may be appropriate.

As shown in Appendix G of the TIA, the total number of trip credits for the menu of selected TDM strategies is 3,528, which is greater than the estimated total campus AM and PM peak-hour trip generation totals for the proposed project of 2,293 and 2,425, respectively. The City would require and monitor the implementation of an appropriate TDM Program for the life of the proposed project to reduce cumulative impacts on area roadways, in compliance with C/CAG requirements.

(9) Parking. The proposed project would have 6,050 parking spaces, including spaces shared with the 303 Velocity Way building (located outside the project site). The North Campus would contain 3,796 spaces (including shared spaces) and the South Campus would contain 2,254 spaces.

Parking would be provided in a combination of parking structures and surface lots. The North Campus would include two parking structures near the intersection of Marsh Road and East Third Avenue. These parking garages would be between three and six levels. The size of the parking structures would be determined by the uses permitted for proposed buildings. Additional surface parking stalls would be provided within the South and North Campuses. Parking spaces would be universal stalls (8.5 feet wide by 18 feet long), per Foster City Municipal Code requirements.

Parking Supply Requirements. The Foster City Municipal Parking Code allows for a reduced parking ratio for laboratory buildings in biopharmaceutical campus developments, with approval by the City Council. The reduced ratio includes the following requirements for the project (Municipal Code 17.62.060(B)(5)(f)):

A. The entire land area encompassing the biopharmaceutical campus shall be owned or leased and occupied by one biopharmaceutical company, unless the city, in its sole discretion and based on the factors set forth in subsection (B)(5)(f)(vi) of this section, approves the lease or sale of a portion of the biopharmaceutical campus to another entity or entities.

B. The biopharmaceutical campus shall consist of a minimum of thirty acres, contiguous or across the street.

C. The biopharmaceutical campus shall contain sufficient land area so that at build-out it can support all required parking in either at-grade parking lots or within parking structures.

D. Once approved by the city as a part of the initial use permit, the use(s) housed within buildings in the biopharmaceutical campus shall not be changed without the prior review, evaluation of parking available to serve the changed use(s), and approval by the city.

E. If the city allows a parking ratio for laboratory buildings within a biopharmaceutical campus that is less stringent than would be required for the same type of buildings not located within the subject biopharmaceutical campus, such parking ratio shall be recorded with the San Mateo County recorder's office along with the general development plan approved by the city. The recorded document shall make clear that the reduced parking ratio applies to laboratory buildings in the subject biopharmaceutical campus only and that if removed from the bio-pharmaceutical campus or if title is transferred to another entity, at the discretion of the city, the laboratory buildings may be subject to the parking requirements then in effect for similar buildings in the city that are not located within the subject biopharmaceutical campus. The documents shall be recorded with the San Mateo County recorder's office such that this information shall be easily detected and routinely included in a standard preliminary title report.

F. No proposed sale or lease of any portion of the biopharmaceutical campus shall close escrow or otherwise be finalized without the prior review and approval of the city, which shall limit its review and approval to the impact of the proposed sale or lease on the ability of the existing and new occupants to meet their off-street parking requirements, both individually and in the aggregate. Any purchase and sale agreement or lease with respect to any portion of the biopharmaceutical campus shall be conditioned upon such city approval; shall specifically identify all land use approvals for the biopharmaceutical campus, including, without limitation, any environmental impact report, mitigation monitoring plan, general development plan, specific development plan or other approval applicable to the biopharmaceutical campus; and shall include an express obligation on the part of the transferee or lessee to abide by all conditions and requirements set forth in such existing land use approvals, including, without limitation, the conditions set forth in any environmental impact report, mitigation monitoring plan, general development plan, specific development plan or other approval applicable to the biopharmaceutical campus."

The parking ratios approved for the Gilead Sciences Campus through City Ordinance 554, which approved the 2010 Master Plan, are:

- Office Uses: 1 space per 250 gross square feet
- Laboratory Uses: 1 space per 833 gross square feet
- Warehouse/Material Storage Uses: 1 space per 500 gross square feet

In addition, the 2010 Master Plan incorporated the following reduction for the purposes of calculating parking requirements:

- Efficiency Factor: This factor recognizes that not all of a building's square footage is occupied by employees (e.g., hallways, lobbies, and restrooms). An efficiency factor of 85 percent was used to approximate the actual usable square footage proposed in the 2010 Master Plan.

Pursuant to Section 17.62.060D of the Foster City Municipal Code, a 15 percent reduction in parking supply is being considered by Foster City to account for reductions due to the TDM Program presented in Appendix G of the TIA. Further reductions from these ratios account for motorcycle and bicycle parking. These credits include:

- Motorcycle spaces in 1 percent of parking stalls (one parking space credited for every two motorcycle spaces)
- Bicycle spaces in 5 percent of parking stalls (one parking space credited for every eight bicycle spaces)

The 2010 approved rates and parking supply methodologies have been carried forward for the proposed project. As part of the 2009 sale of the North Campus, EFI retained access to parking on the project site. On January 19, 2009, Gilead Sciences entered into a Reciprocal Easement Agreement and Declaration of Covenants, Conditions and Restrictions (REA) with EFI. The REA granted EFI an easement to utilize parking spaces within the shared parking lots. Gilead Sciences retained the right to relocate the parking easement area to another location on the property with 30 days written notice to EFI. The REA remained in effect until November 1, 2012, when Gilead Sciences assumed ownership of Building 303 (which is not part of the project site). This parking is included in the total count of spaces provided for the project site. Table IV.G-19 identifies the parking supply proposed as part of the project.

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.

According to the Institute of Transportation Engineers' (ITE) Parking Generation, 3rd Edition, the peak parking demand ratio is 2.84 spaces per 1,000 square feet of office uses and 1.27 spaces per 1,000 square feet of industrial park uses. 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 IV.G-20. 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. As shown in Table IV.G-20, based on empirical data and ITE's published data for similar land uses, the parking supply associated with the proposed project would not result in a parking shortage or adverse secondary impacts.

Table IV.G-19: Required Parking Supply Calculation

Building Type	Square Footage (k.s.f.)	Efficiency Factor	Square Footage for Parking Calcula-tions (k.s.f)	Parking Ratio (space/ s.f.)	Resulting Parking (spaces)	Parking Required (with 15% reduction)	Motorcycle Parking Credit [a]	Bicycle Parking Credit [a]	Total Parking Required [b]	Proposed Parking Supply
Office	1,524	0.85	1,295.4	1/250	5,182	4,405	–	–	–	–
Lab	953	0.85	810.05	1/833	973	828	–	–	–	–
MSB + Warehouse	23.6	0.85	20.06	1/500	41	36	–	–	–	–
Proposed Project Subtotal	*2,500.6*	–	–	–	*6,194*	*5,269*	*27*	*34*	*5,208*	–
Former EFI/303 Velocity Way (Shared Supply)	295	0.85	250.75	1/250	1,003	853	9	43	842	–
Total with EFI	**2,795.6**	–	–	–	**7,197**	**6,122**	**62**	**308**	**6,050**	**6,050**

Notes:
[a] A total of 53 motorcycle parking spaces are required (per the one percent requirement) and 263 bicycle parking spaces are required (per the five percent requirement). For the purpose of identifying required parking spaces, one standard parking space is credited for every two motorcycle spaces and for every eight bicycle spaces.
b Includes credit for motorcycle and bicycle parking.
k.s.f. = 1,000 square feet
MSB = Material Storage Building

Source: Fehr & Peers, September 2012.

Table IV.G-20: Parking Demand Estimate and Supply Comparison

Building Type	Square Footage (k.s.f)	Efficiency Factor	Square Footage for Parking Calculations (k.s.f.)	ITE Ratio [a]	ITE Demand Estimate [a]	Gilead's Empirical Ratio [b]	Empirical Demand Estimate [b]	Total Parking Supply Provided
Office	1,524	0.85	1,295.4	2.84 per k.s.f	3,679	2.64 per k.s.f	3,420	–
Lab	953	0.85	810.05	1.27 per k.s.f	1,029	1.35 per k.s.f	1,094	–
MSB + Warehouse [b]	23.6	0.85	20.06	0.51 per k.s.f	12	N/A	12	–
Proposed Project Subtotal	*2,500.6*	–	–	–	*4,720*	–	*4,526*	*5,208*
Former EFI/303 Velocity Way (Shared Supply)	295	0.85	250.75	2.84 per k.s.f	838	N/A	838	842
Total with EFI	**2,795.6**	–	–	–	**5,654**	–	**5,364**	**6,050**

Notes:
[a] Based on parking demand rates contained within the Institute of Transportation Engineers' (ITE) Parking Generation, 3rd Edition.
[b] Empirical ratio and demand estimates are based on parking rates determined from the Kimley-Horn and Associates, Inc. April 1, 2008 parking study conducted at the Gilead Sciences campus. This study did not include MSB or Warehouse space.
k.s.f = 1,000 square feet
MSB = Material Storage Building

Source: Fehr & Peers, September 2012.

H. NOISE

This section describes existing noise conditions in the vicinity of the 2012 Master Plan area, describes criteria for determining the significance of noise impacts, and estimates noise levels that would result from implementation of the proposed project. Where appropriate, mitigation measures are recommended to reduce noise impacts.

1. Setting

The setting section begins with an introduction to several key concepts and terms that are used in evaluating noise. It then explains the various agencies that regulate the noise environment in the City and summarizes key standards that are applied to proposed development. This setting section concludes with a description of current noise sources that affect the project area and the noise conditions that are experienced in the project site vicinity.

a. Fundamentals of Noise. Noise is defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB) with 0 dB corresponding roughly to the threshold of hearing. Table IV.H-1 contains a list of typical acoustical terms and definitions.

Most of the sounds that we hear in the environment do not consist of a single frequency, but rather a broad band of frequencies, with each frequency differing in sound level. The intensities of each frequency add together to generate a sound. The method commonly used to quantify environmental sounds consists of evaluating all the frequencies of a sound in accordance with a weighting that reflects the facts that human hearing is less sensitive to low frequencies and extreme high frequencies than in the frequency mid-range. This is called “A” weighting, and the decibel level thus measured is called the A-weighted sound level (dBA). In practice, the level of a sound source is measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. Table IV.H-2 shows representative outdoor and indoor A-weighted sound levels.

Although the A-weighted noise level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of noise from distant sources that creates a relatively steady background noise in which no particular source is identifiable. To describe the time-varying character of environmental noise, the statistical noise descriptors, L_{01}, L_{10}, L_{50}, and L_{90}, are commonly used. They are the A-weighted noise levels equaled or exceeded during 1 percent, 10 percent, 50 percent, and 90 percent of a stated time period. A single number descriptor called the L_{eq} is also widely used. The L_{eq} is the average A-weighted noise level during a stated period of time.

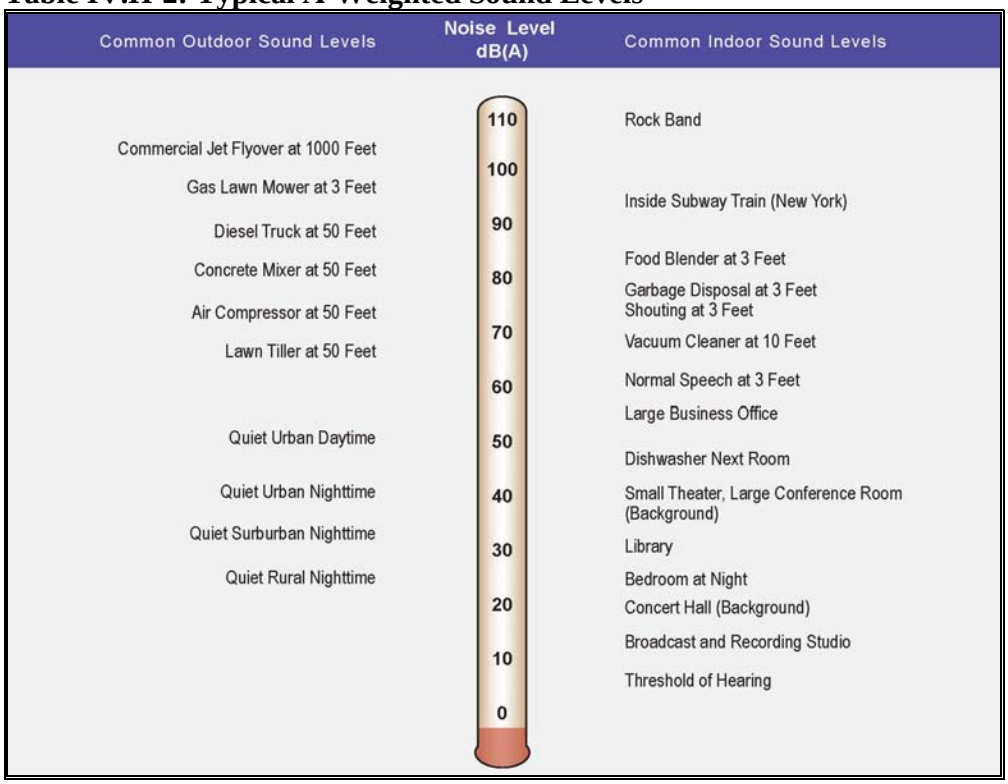
In determining the daily level of environmental noise, it is important to account for the difference in response of people to daytime and nighttime noises. During the nighttime, exterior background noises are generally lower than the daytime levels. Most people sleep at night and are very sensitive to noise intrusion at that time. To account for human sensitivity to nighttime noise levels, a descriptor, L_{dn} (day/night average sound level), was developed. The L_{dn} divides the 24-hour day into the “daytime” of 7:00 a.m. to 10:00 p.m. and the “nighttime” of 10:00 p.m. to 7:00 a.m. The nighttime noise level is weighted 10 dB higher than the daytime noise level. The Community Noise Equivalent Level (CNEL) is another 24-hour average that includes both an evening and nighttime weighting.

Table IV.H-1: Definitions of Acoustical Terms

Term	Definition
Decibel, dB	A unit that denotes the ratio between two quantities proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this analysis are A-weighted, unless reported otherwise.
L_{01}, L_{10}, L_{50}, L_{90}	The fast A-weighted noise levels equaled or exceeded by a fluctuating sound level for 1 percent, 10 percent, 50 percent, and 90 percent of a stated time period.
Equivalent Continuous Noise Level, L_{eq}	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 decibels to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 decibels to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level, L_{dn}	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 decibels to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
L_{max}, L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time, usually a composite of sound from many sources at many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Harris, Cyril M., 1998. *Handbook of Acoustical Measurements and Noise Control*.

Table IV.H-2: Typical A-Weighted Sound Levels



Source: Compiled by LSA Associates, Inc., 2008.

b. Noise Regulatory Framework. The following section summarizes the regulatory framework for noise established by the City of Foster City. The City addresses noise in the Noise Element of the General Plan[1] and in the Municipal Code.[2]

The goals, policies and programs listed in the Noise Element that are applicable to the proposed project are summarized as follows:

- The Land Use Compatibility Standards identify acceptable noise exposure levels for new development according to land use. Community noise exposure levels up to 65 dBA L_{dn} are considered normally acceptable for office buildings, business, and commercial uses. Interior noise levels are a function of the use of space but should generally be limited to 45 dBA L_{eq} or less.

[1] Foster City, City of, 1993. *Foster City General Plan, Chapter 6: Noise Element*. May.

[2] Foster City, City of, 2012. *City of Foster City Municipal Code*. May 21.

- The noise environment in existing residential areas is required to be protected. The City will require mitigation measures for projects that would cause the L_{dn} to increase by 3 dBA or more where noise levels would exceed or currently exceed 60 dBA L_{dn}. Noise created by commercial or industrial sources associated with new projects are required to be controlled so as not to exceed the standards presented in the "Noise and Land Use Compatibility Standards for Industrial and Commercial Noise Sources" table as measured at any affected residential land use (Table IV.H-3).

Table IV.H-3: Noise and Land Use Compatibility Standards for Industrial and Commercial Noise Sources

Cumulative Duration of Noise Event in any One-Hour Period (In Minutes)	Exterior Noise Level Standards	
	Daytime (7:00 a.m. – 10:00 p.m.)	**Nighttime** (10:00 p.m. – 7:00 a.m.)
30	50	45
15	55	50
5	60	55
1	65	60
0	70	65

Source: Foster City, City of. 1993. *General Plan, Chapter 6: Noise Element*, page 6-15. May.

The City of Foster City further addresses noise in the Municipal Code in section 17.68.030. The ordinance limits, only in residential districts or within 100 yards of a residential district, noise-generating construction activities to the hours of 8:00 a.m. to 5:00 p.m. In addition, at no time may the noise level from single or multiple sources exceed 100 dBA at the producer's property plane unless prior authorization is obtained from the Community Development Director.

The City's Municipal Code also restricts the loading, unloading, opening, closing, or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects prior to 7:30 a.m. or after 8:00 p.m. on weekdays, and before 9:00 a.m. or after 8:00 p.m. on weekends and holidays in a residential district or within 100 yards (300 feet) of a residential district.

The Municipal Code further establishes the City's general noise limits for receiving land use categories. These noise limits are summarized in Table IV.H-4.

Table IV.H-4: Noise Limits

Receiving Land Use Category	Time Period	Noise Level (dBA)	
		Time Duration Greater Than 3 Minutes	**Time Duration Less Than 3 Minutes**
One- or two-family residential	10:00 p.m. – 7:30 a.m.	50	55
	7:30 p.m. – 10:00 a.m.	60	65
Multiple family, public space	10:00 p.m. – 7:30 a.m.	55	60
	7:30 p.m. – 10:00 a.m.	60	65
Commercial, Office	10:00 p.m. – 7:30 a.m.	60	65
	7:30 p.m. – 10:00 a.m.	65	70
Light Industrial	10:00 p.m. – 7:30 a.m.	65	70
	7:30 p.m. – 10:00 a.m.	70	75

Source: Foster City, City of. 2012. *Foster City Municipal Code*. Chapter 17.68. May.

c. Existing Noise Environment. The Master Plan area is located within the Vintage Park General Development Plan area, which is north of SR 92 and east of Mariners Island Boulevard. There are noise- sensitive residential areas to the south and west of the project site. Office uses and Mariners

Point Golf Course are located north of the project site. Office and light industrial uses are to the east. Uses to the south include Home Depot, Hilton Garden Inn, and Bridgepointe Shopping Center, beyond which are multi-family residential uses. A mix of multi-family and single-family residential uses and a lagoon are located west of Mariners Island Boulevard. The following section describes the existing noise environment and identifies primary noise sources in the vicinity of the project site.

(1) Existing Noise Environment. The baseline noise levels in the project site vicinity are dominated by vehicular traffic on SR 92, Mariners Island Boulevard, East Third Avenue, and other nearby roadways. Other audible mobile noise sources in the project site vicinity include motorboat operation on the lagoon waterway west of Mariners Island Boulevard and occasional aircraft over-flights. Audible stationary noise sources in the project site vicinity include mechanical equipment operation, such as air conditioner fans and compressors, as well as truck deliveries and general parking lot activities.

Noise measurements taken in preparation of the noise analysis for the 2010 Master Plan EIR documented ambient noise levels in the project site vicinity as ranging from 54 dBA to 62 dBA L_{eq}. Long-term ambient noise monitoring results show that the existing ambient noise levels at receivers west of the site are 55 dBA L_{dn}. Because local and regional traffic levels have not substantially increased since 2010, ambient noise levels have remained generally static over the past few years. Therefore, the ambient noise levels documented as part of the 2010 Master Plan EIR continue to accurately characterize the project site and its vicinity.

(2) Existing Traffic Noise Levels. Existing traffic noise levels were calculated using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model. Traffic data used in the model were obtained from the Transportation Impact Analysis[3] prepared by Fehr & Peers Transportation Consultants for the proposed 2012 Master Plan. The traffic noise model printouts are included in Appendix D.

Table IV.H-5 lists the calculated traffic noise levels along roadway segments in the project site vicinity under existing conditions. In order to analyze the worst case scenario and highest traffic volumes for each of the modeled scenarios, PM traffic volumes were used to calculate the Average Daily Traffic (ADT) volumes, as PM volumes were higher overall than the AM traffic volumes. Results indicate that existing traffic noise levels from modeled roadway segments in the project vicinity range from approximately 52.2 dBA to 66.4 dBA CNEL as measured at 50 feet from the centerline of the outermost travel lane.

[3] Fehr & Peers, 2012. *Transportation Impact Analysis for the Gilead Sciences Integrated Corporate Campus Master Plan*. October.

Table IV.H-5: Existing Traffic Noise Levels

Roadway Segment	Average Daily Trips[a]	Centerline to 70 dBA L_{dn} (feet)	Centerline to 65 dBA L_{dn} (feet)	Centerline to 60 dBA L_{dn} (feet)	L_{dn} (dBA) 50 Feet From Centerline of Outermost Lane[b]
East Third Avenue - Anchor Road to Mariners Island Blvd.	14,200	< 50	90	189	66.4
East Third Avenue - Mariners Island Blvd. to Lakeside Drive	9,000	< 50	69	141	64.5
East Third Avenue - Lakeside Drive to Marsh Drive	7,900	< 50	64	129	63.9
East Third Avenue - Marsh Drive to Foster City Blvd.	7,400	< 50	61	124	63.6
Mariners Island Blvd. - East Third Avenue to Reef Drive	5,900	< 50	< 50	74	60.0
Mariners Island Blvd. - Reef Drive to Trader Lane	5,500	< 50	< 50	71	59.6
Mariners Island Blvd. - Armada Drive to Fashion Island Blvd.	5,100	< 50	< 50	67	59.3
Marsh Drive - East Third Avenue to Vintage Park Drive	800	< 50	< 50	< 50	52.2
Vintage Park Drive - Lakeside Drive to Chess Drive	5,100	< 50	< 50	67	59.3
Foster City Blvd. - East Third Avenue to Vintage Park Drive	9,000	< 50	< 50	95	61.8
Foster City Blvd. - Vintage Park Drive to Chess Drive	11,100	< 50	< 50	109	62.7
Chess Drive - Vintage Park Drive to SR 92 WB Ramps	14,900	< 50	< 50	104	62.4

[a] Average daily trips are estimated based on the peak hour traffic volumes.
[b] Traffic noise within 50 feet of the roadway centerline requires a site-specific analysis.
Note: Shaded cells indicate roadway segments adjacent to the project site.

Source: LSA Associates, Inc., 2012.

(3) Existing Aircraft Noise Levels. San Francisco International Airport is located approximately 5 miles north of the project site. Aircraft-related noise is audible on the project site, which is located within Area B of the Airport Influence Area (AIA). Area B is a combination of the outer boundaries of the noise (CNEL 65 dB) boundaries and various safety (primarily building height) boundaries.[4]

San Carlos Airport is located approximately 4 miles south of the project site. The project site is located within Area A of the San Carlos Airport AIA, which denotes locations where a real estate disclosure notice regarding the proximity of the nearby airport must be provided to a buyer or lessee of property within the boundary. Projects within Area A do not require detailed review in light of airport safety or noise considerations.[5]

[4] City/County Association of Governments of San Mateo County. 2012. *Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport.* July.

[5] City/County Association of Governments of San Mateo County, 1996. *San Mateo County Comprehensive Airport Land Use Plan.* December.

No private airstrips are located near the project site.

2. Impacts and Mitigation Measures

This section evaluates potential noise impacts associated with implementation of the proposed 2012 Master Plan and mitigation measures to reduce these impacts, where appropriate.

a. Criteria of Significance. A project would have a significant noise effect if it would substantially increase the ambient noise levels for adjoining areas or conflict with adopted environmental plans and goals of Foster City. The applicable noise standards governing the project are those in the City of Foster City's Noise Element of the General Plan and applicable sections of the City's Municipal Code. For the purposes of this Subsequent EIR, the project would result in a significant noise impact if it would:

- Expose persons to or generate noise levels in excess of normally acceptable standards established in the General Plan or noise ordinance (i.e., L_{dn} of 60 dBA for residential uses and L_{dn} of 65 dBA for office and other commercial uses);
- Expose persons to or generate excessive groundborne vibration or noise;
- Create a clearly noticeable permanent change (a 3 dBA increase) in the noise environment, even though the acceptability threshold (L_{dn} of 60 dBA for residential uses and L_{dn} of 65 dBA for office and other commercial uses) has not been reached;
- Be located within an airport land use plan or within 2 miles of a public airport or public use airport, and would expose people residing or working in the project area to excessive noise levels;
- Be located in the vicinity of a private airstrip and would expose people residing or working in the project area to excessive noise levels; or
- 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.

Acceptable interior noise level standards are reflected in the normally acceptable exterior noise standards established by the City (and incorporated into the criteria of significance above). Acceptable interior noise levels are a function of the use of space, but should normally not exceed 45 dBA L_{eq}. If exterior noise level standards are met, the interiors of buildings constructed in compliance with the State Building Code would experience acceptable noise levels. Therefore, the criteria of significance listed above focus on exterior noise standards.

b. Less-Than-Significant Impacts. The following project impacts would be considered less than significant and would not require mitigation.

(1) Groundborne Vibration. According to the significance criteria, a significant impact would occur if implementation of the project would expose persons to or generate excessive groundborne vibration or noise. No permanent noise sources that would expose persons to excessive groundborne vibration or noise levels would be located within the project site. In addition, there are no known existing sources of vibration that would affect the project site (e.g., railroad trains). Construction activities related to development of the proposed project could result in groundborne vibration levels that would be perceptible at points along the project site property line when heavy earthmoving equipment operates near the periphery of the site.

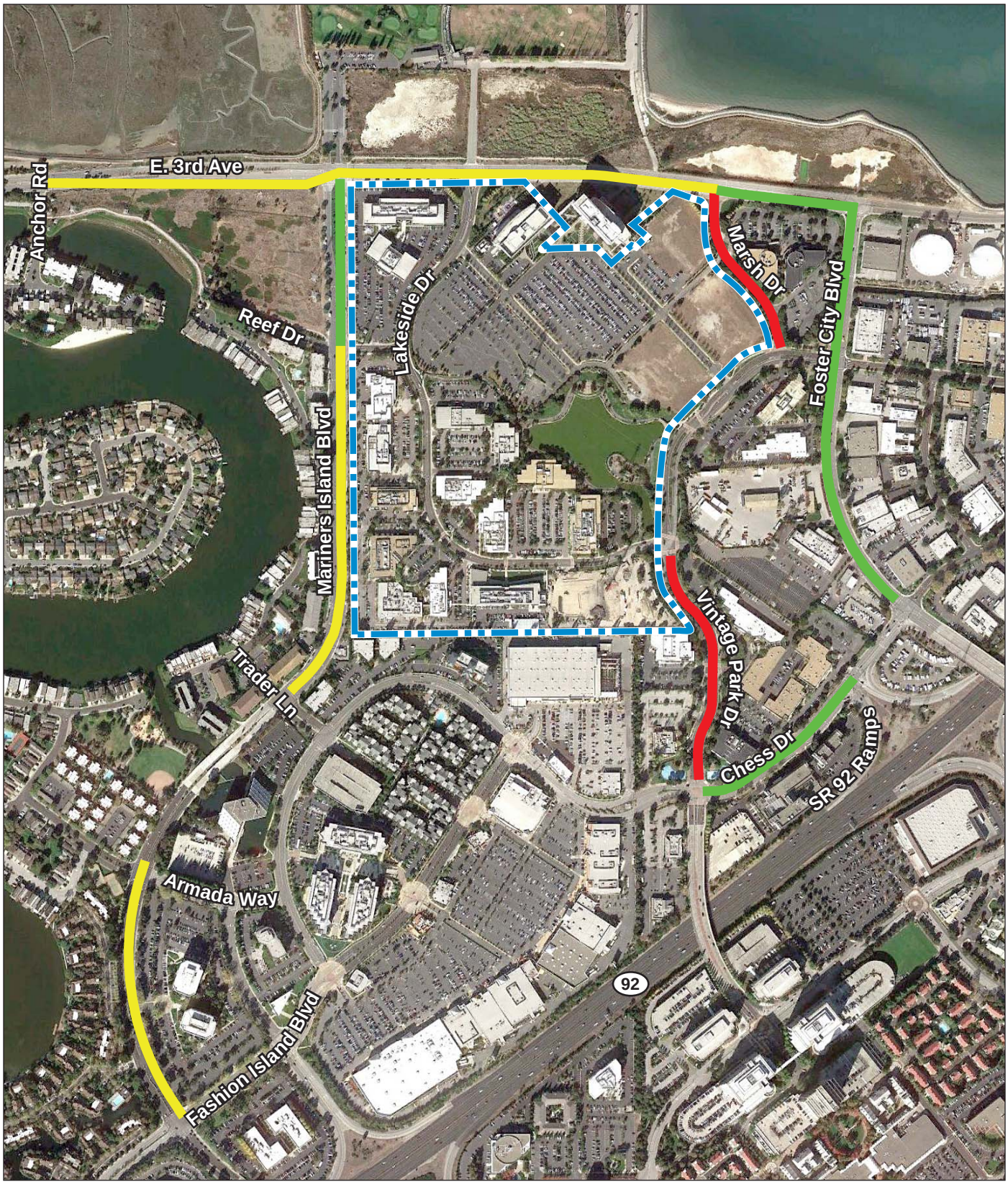
Demolition and construction activities proposed as part of the project may generate perceptible vibration levels when heavy equipment or impact tools (e.g., jackhammers, pile drivers, hoe rams) are used in the vicinity of nearby sensitive land uses. Distinctly perceptible groundborne vibration levels could be generated by heavy tracked vehicles (e.g., bulldozers or excavators) when this equipment operates within approximately 25 feet of sensitive land uses. Impact pile drivers can generate distinctly perceptible groundborne vibration levels at distances of up to about 100 feet.

Buildings proposed for demolition or construction are a minimum distance of 75 feet from the nearest adjacent commercial use (i.e., the commercial uses to the south of the site) and 200 feet or more from existing residences or hotels. Groundborne vibration levels generated by demolition or construction activities within the Master Plan area would not generally be perceptible at adjacent buildings because of the distance separating these receivers from such vibration-producing events. Anticipated vibration levels would not be expected to result in cosmetic or structural damage to adjacent buildings. Therefore, groundborne vibration resulting from the project would result in a less-than-significant impact.

(2) On-Site Traffic Noise Impacts. According to the significance criteria, a significant impact would occur if implementation of the project would expose persons to or generate noise levels in excess of normally acceptable standards established in the General Plan or noise ordinance. The City's land use compatibility standards for new development have established a normally acceptable threshold of 60 dBA L_{dn} for new residential uses and 65 dBA L_{dn} for new office and commercial uses. This standard applies to new development and is not intended to apply as a threshold for existing land uses (i.e., off-site land uses). Project-related traffic noise impacts to off-site land uses are analyzed in a separate impact discussion, below.

The FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate traffic-related noise conditions in the vicinity of the project site. The resultant noise levels were weighed and summed over a 24-hour period in order to determine the L_{dn} values. The existing and cumulative (year 2030) traffic volumes for roadway segments in the project site vicinity were used in the traffic noise impact analysis. Table IV.H-6 shows the traffic noise levels for each scenario as calculated at 50 feet from the centerline of the outermost travel lanes. The model inputs and outputs, including the 60 dBA, 65 dBA, and 70 dBA noise contour distances for each modeled roadway segment, are provided in Appendix D. Figure IV.H-1 shows the change in noise levels along modeled roadway segments from Existing to Existing Plus Project conditions.

Traffic noise levels on modeled roadway segments of East Third Avenue, Mariners Island Boulevard, Marsh Drive, and Vintage Park Drive that are adjacent to the project site would range from 60.2 dBA to 66.8 dBA L_{dn} at 50 feet from the centerline of the outermost travel lane under Existing Plus Project conditions, and from 60.7 dBA to 67.7 dBA L_{dn} under Cumulative Plus Project Conditions.



LSA

FIGURE IV.H-1

Project Boundary
Increases of 3 dBA or greater
Increases of 1 dBA to 3 dBA
Increases of less than 1 dBA

N

0 400 800
FEET

Gilead Sciences Integrated Corporate Campus Master Plan Subsequent EIR

Modeled Traffic Noise Levels
Change from Existing to Existing with Project

SOURCES: GOOGLE EARTH, NOV 2011; LSA ASSOCIATES, INC., 2012.

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Table IV.H-6: Modeled Traffic Noise Levels at 50 feet from Centerline of Outermost Travel Lane, dBA

Roadway Segment	Existing (L_{dn})	Existing + Project (L_{dn})	Change from Existing to Existing + Project	Cumulative (2030) No Project (L_{dn})	Cumulative (2030) + Project (L_{dn})	Change from Cumulative to Cumulative + Project	Change from Existing to Cumulative + Project
East Third Avenue - Anchor Road to Mariners Island Blvd.	66.4	68.0	1.6	68.6	68.8	0.2	2.4
East Third Avenue - Mariners Island Blvd. to Lakeside Drive	64.5	66.8	2.3	67.3	67.7	0.4	3.2
East Third Avenue - Lakeside Drive to Marsh Drive	63.9	65.9	2.0	66.6	66.9	0.3	3.0
East Third Avenue - Marsh Drive to Foster City Blvd.	63.6	64.5	0.9	65.6	65.7	0.1	2.1
Mariners Island Blvd. - East Third Avenue to Reef Drive	60.0	61.0	1.0	61.5	61.5	0.0	1.5
Mariners Island Blvd. - Reef Drive to Trader Lane	59.6	60.9	1.3	61.3	61.5	0.2	1.9
Mariners Island Blvd. - Armada Drive to Fashion Island Blvd.	59.3	61.6	2.3	61.9	62.0	0.1	2.7
Marsh Drive - East Third Avenue to Vintage Park Drive	52.2	60.2	8.0	59.4	60.7	1.3	8.5
Vintage Park Drive - Lakeside Drive to Chess Drive	59.3	62.4	3.1	61.8	62.7	0.9	3.4
Foster City Blvd. - East Third Avenue to Vintage Park Drive	61.8	62.5	0.7	63.5	63.5	0.0	1.7
Foster City Blvd. - Vintage Park Drive to Chess Drive	62.7	63.5	0.8	64.1	64.2	0.1	1.5
Chess Drive - Vintage Park Drive to SR 92 WB Ramps	62.4	62.7	0.3	62.9	63.0	0.1	0.6

Note: Shaded cells indicate roadway segments adjacent to the project site.

Source: LSA Associates, Inc., 2012.

New laboratory and office buildings are proposed for development as close as 525 feet from East Third Avenue, as close as 140 feet from the centerline of Mariners Island Boulevard, as close as 550 feet from Marsh Drive, and as close as 250 feet from Vintage Park Drive. At these distances, future traffic noise levels would attenuate to 54.5 dBA L_{dn} or less at the nearest proposed new buildings adjoining these roadways. The future noise environment at the new proposed facilities would be within the City's normally acceptable range for the proposed land uses (65 dBA L_{dn} or less). Thus, project-related traffic noise levels would not result in an exceedance of the City's land use compatibility standards and would therefore be considered less than significant.

(3) Aircraft Noise and Land Use Compatibility. According to the significance criteria, a significant impact would occur if the project would be located within an airport land use plan or within 2 miles of a public airport or public use airport, and would expose people residing or working in the project area to excessive noise levels; or be located in the vicinity of a private airstrip and would expose people residing or working in the project area to excessive noise levels. As discussed in the Setting section, the project site is located within Area B of the San Francisco International Airport AIA and is not within the 60 dBA CNEL noise zone of the airport. Therefore, exterior noise levels associated with aircraft at San Francisco International Airport would be compatible with the proposed office and laboratory land uses. Interior noise levels would be less than 45 dBA L_{eq}, taking into account aircraft operations around the site, and assuming standard construction methods. The project site is located within Area A of the San Carlos Airport AIA, which indicates a location that is only marginally influenced by airport-related noise. Therefore, persons on the project site would not be exposed to unacceptable exterior or interior noise levels associated with San Carlos Airport.

(4) Operational Delivery and Parking Lot Activities Noise. Implementation of the proposed project would result in noise from stationary noise sources, including parking lot activity and delivery truck loading and unloading activities.

Parking activities, such as people conversing or doors slamming, generate noise levels of approximately 60 dBA to 70 dBA L_{max} at 50 feet. The 2012 Master Plan would locate parking facilities adjacent to existing and proposed laboratory and office buildings – a land use mix that currently exists within the project site. The proposed parking garages would consolidate much of the proposed parking within interior spaces, and associated parking-related noises would be reduced for surrounding uses compared to the provision of that parking in surface lots. Under existing conditions, no garage spaces are provided on the project site, and all 3,847 parking spaces are located in surface lots. Under the proposed project, the total number of parking spaces on the site would increase to 6,050, but approximately 52 percent of these spaces (3,170) would be provided within parking garages, within which associated noise would be attenuated to outside receptors. With implementation of the proposed project, the total number of surface parking spaces would decrease from 3,847 to 2,880. Therefore, noise levels from parking activities would remain similar to, or even be lower than current levels.

Of the on-site stationary noise sources, noise generated by delivery truck activity would generate the highest maximum noise levels. Noise from delivery truck loading and unloading activities can result in maximum noise levels ranging from 75 dBA to 85 dBA L_{max} at 50 feet.

The 2012 Master Plan would locate a shipping/receiving center and service yard in the northeast corner of the project site. The shipping/receiving center would be used as a location for centralized deliveries made by trucks for all campus buildings. Laboratory and other items would be delivered to

the appropriate buildings or temporarily stored in the materials storage building located adjacent to NB/357. Gilead Sciences-owned vehicles would deliver items from the shipping/receiving center to each of the campus buildings.

The City's Municipal Code restricts the loading, unloading, opening, closing, or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects prior to 7:30 a.m. or after 8:00 p.m. on weekdays, and before 9:00 a.m. or after 8:00 p.m. on weekends and holidays in a residential district or within 100 yards (300 feet) of a residential district. The closest residential land uses are located over 2,000 feet west of the proposed shipping/receiving center.

The closest existing off-site noise sensitive receptors to the shipping/receiving center are the office land uses bordering the project site to the east of Marsh Road and Vintage Park Drive. These uses are located over 200 feet from the shipping/receiving center. At this distance, assuming a direct line of sight with no intervening buildings or structures, these land uses could experience noise levels from delivery truck activities of up to 73 dBA L_{max}. However, the structure that would enclose the proposed shipping/receiving center would reduce these activity noise levels by a minimum of 8 dBA by blocking the direct line of sight to these activities. Therefore, maximum noise levels from these activities would not exceed the City's noise level thresholds for office land uses shown in Table IV.H-4. Thus noise levels from project-related stationary noise sources would result in a less-than-significant impact on off-site sensitive receptors.

Similar conclusions would apply to proposed office and laboratory buildings in the vicinity of the shipping/receiving center. The shipping/receiving center would not expose occupants of proposed office and laboratory buildings to unacceptable noise levels primarily because noise generated by the shipping/receiving center would be reduced by the structural enclosure and the three- to six-level parking garages that would be developed adjacent to the shipping/receiving center.

c. Significant Impacts. The following section discusses noise sources that would substantially increase ambient noise levels in the vicinity of the project site over a temporary or permanent basis.

(1) Construction Period Noise. According to the significance criteria, a significant noise impact would occur where noise from construction activities exceeds 60 dBA L_{eq} and exceeds ambient noise levels by at least 5 dBA at noise-sensitive residential uses in the project site vicinity for a period of more than 1 year. A significant noise impact would also be identified where noise from construction activities exceeds 70 dBA L_{eq} and exceeds ambient noise levels by at least 5 dBA at adjacent offices or other commercial, retail, or institutional uses with interior spaces sensitive to noise for a period of more than 1 year.

Construction of the project could result in a substantial temporary noise increase at existing residential land uses in the vicinity of the site. Construction activities could also substantially increase ambient noise levels at Gilead Sciences office buildings that remain in use during the construction of the project and at other existing noise sensitive land uses located adjacent to the project site. Construction noise impacts that would occur as a result of the project are described below.

<u>Impact NOI-1</u>: Construction period activities would create significant temporary noise impacts on existing noise sensitive land uses adjacent to the site. (S)

The 2012 Master Plan would be completed over an up to 15- to 20-year period extending to 2028 to 2033, in accordance with the projected business needs of Gilead Sciences. The construction period for each building would last approximately 12 to 18 months.

Table IV.H-7: Typical Construction Equipment Maximum Noise Levels, L_{max}

Type of Equipment	**Range of Maximum Sound Levels** (dBA at 50 feet)	**Suggested Maximum Sound Levels for Analysis** (dBA at 50 feet)
Pile Drivers	81 to 96	93
Rock Drills	83 to 99	96
Jackhammers	75 to 85	82
Pneumatic Tools	78 to 88	85
Pumps	74 to 84	80
Scrapers	83 to 91	87
Haul Trucks	83 to 94	88
Cranes	79 to 86	82
Portable Generators	71 to 87	80
Rollers	75 to 82	80
Dozers	77 to 90	85
Tractors	77 to 82	80
Front-End Loaders	77 to 90	86
Hydraulic Backhoe	81 to 90	86
Hydraulic Excavators	81 to 90	86
Graders	79 to 89	86
Air Compressors	76 to 89	86
Trucks	81 to 87	86

Source: Bolt, Beranek & Newman, 1987. *Noise Control for Buildings and Manufacturing Plants*.

Two types of short-term noise impacts would occur during site preparation and project construction. The first type would result from the increase in traffic flow on local streets, associated with the transport of workers, equipment, and materials to and from the project site.

The transport of workers, construction equipment, and materials to the project site would incrementally increase noise levels on access roads leading to the site. Because workers and construction equipment would use existing routes, noise from passing trucks would be similar to existing vehicle-generated noise on these local roadways. For this reason, short-term intermittent noise from trucks would be minor when averaged over a longer time period and would not be expected to exceed existing peak noise levels in the project vicinity. Therefore, short-term construction-related noise associated with worker and equipment transport to the project site would result in a less-than-significant impact on receptors along the access routes leading to the site.

The second type of short-term noise impact is related to the noise generated by heavy construction equipment operating on the project site. These impacts are influenced by the types of construction equipment in use, the timing and duration of noise-generating activities, and the distance between construction noise sources and noise sensitive receptors. Existing receptors in the vicinity of the site, including residential land uses, would be subject to short-term noise generated by construction equipment and activities on the project site when construction occurs near the project boundary.

Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These phases would change the character of the noise generated on the project site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction- related noise ranges to be categorized by work phase. Table IV.H-7 lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor.

The demolition and site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels, because the noisiest construction equipment is earthmoving

equipment. Earthmoving equipment includes excavating machinery such as backhoes, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

Demolition associated with implementation of the proposed project is expected to require the use of jackhammers, haul trucks, dozers, front-end loaders, and water trucks. Assuming each piece of construction equipment operates at some distance apart from the other equipment, the worst-case combined noise level during demolition could range up to 92 dBA L_{max}, with the peak hourly noise levels ranging up to 74 dBA L_{eq}(h), as measured at a distance of 50 feet from multiple pieces of equipment operating at full power.

Construction of the proposed project is expected to require the use of earthmovers such as bulldozers and scrapers, loaders and graders, water trucks, and pickup trucks. The use of impact pile driving equipment may also be required during construction of foundations for some project buildings. Assuming each piece of construction equipment operates at some distance apart from the other equipment, the worst-case combined noise level during the site preparation phase of construction (taking into account the potential use of impact pile drivers) could range up to 95 dBA L_{max}, with the peak hourly noise levels ranging up to 75 dBA L_{eq}(h), as measured at a distance of 50 feet from multiple pieces of equipment operating at full power.

Table IV.H-8 shows the worst-case combined noise levels that could be expected at the nearest off-site sensitive receptor during the demolition and site preparation phases.

As shown in Table IV.H-8, peak hourly construction noise levels would extend up to 63 dBA L_{eq}(h) and thus exceed 60 dBA L_{eq}(h) and the ambient noise level by 5 dBA at noise-sensitive residential uses in the project site vicinity for a period of more than 1 year (existing measured ambient noise levels at receivers west of the site are 54 to 55 dBA L_{dn}). The construction of the project would thus result in a significant temporary noise level increase at neighboring noise-sensitive residential properties.

Pursuant to the Foster City Municipal Code, the construction contractor is required to limit noise-generating construction activities to the hours of 8:00 a.m. to 5:00 p.m. on weekdays in residential districts or within 100 yards of a residential district, or as required in a Specific Development Plan/ Use Permit. At no time may the noise level from single or multiple sources exceed 100 dBA at the producer's property plane unless prior authorization is obtained from the Community Development Director. The following multi-part mitigation measure would reduce the construction period noise impact of the project to a less-than-significant level:

> Mitigation Measure NOI-1a: The construction contractor(s) shall designate a "noise disturbance coordinator" who shall be responsible for responding to any local complaints about construction noise. The contractor(s) shall provide the City with the name and contact information of the coordinator. The disturbance coordinator shall determine the cause of the noise complaints (e.g., beginning work too early, bad muffler) and institute reasonable measures to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.

Table IV.H-8: Construction-related Noise Levels, dBA

Building	Activity	Distance to Nearest Sensitive Receiver (feet)	Hourly Average Noise Level ($L_{eq}(h)$) at Nearest Receiver	Single Source Maximum Noise Level (L_{max}) at Nearest Receiver
320	Demolition	250	60	78
322	Demolition	250	60	78
324	Demolition	315	58	76
331	Demolition	675	51	69
333	Demolition	1,040	47	65
335	Demolition	720	50	68
342	Demolition	270	59	77
344	Demolition	275	59	77
346	Demolition	225	60	78
353	Demolition	625	52	70
355	Demolition	1,100	47	65
357	Demolition	850	49	67
366	*Already Demolished*	–	–	–
368	*Already Demolished*	–	–	–
PG-1	Construction	250	61	81
PG-2	Construction	200	63	83
PG-3	Construction	225	62	82
PG-4	Construction	200	63	83
NB/322	Construction	250	61	81
NB/324	Construction	315	59	79
NB/331	Construction	675	52	72
NB/333	Construction	1,040	48	69
NB/335	Construction	720	52	72
NB/342	Construction	370	57	78
NB/346	Construction	275	60	80
NB/353	Construction	625	53	73
NB/355	Construction	1,100	48	68
Pilot Lab	Construction	1,075	48	68
NB/357	Construction	850	50	70
Annex (322)	Construction	430	56	76
NB/305	Construction	1,050	48	69
NB/307	Construction	700	52	72
NB/309	Construction	650	52	73
Ship/Receive	Construction	200	63	83
MSB	Construction	430	56	76
NB/368	Construction	530	54	74

PG = Parking Garage
NB = New Building
MSB = Material Storage Building

Source: LSA Associates, Inc., 2012.

Mitigation Measure NOI-1b: The construction contractor(s) shall implement the following measures at the project site during all demolition and construction activities:

- Construction activities shall be limited to the hours of 8:00 a.m. to 5:00 p.m. on weekdays unless deviations from this schedule are approved in advance by the City. Non-construction activities may take place between the hours of 7:00 a.m. and 8:00 p.m. on weekdays and 9:00 a.m. and 4:00 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 7:00 a.m. and 8:00 a.m., except that when post-tension slab foundations are being poured, the concrete pumper may be set up but no concrete may be poured. Forklifts may operate on-site between the hours of 5:00 p.m. and 6:30 p.m. on weekdays. The Community Development Director may temporarily approve construction activities outside of the approved hours.
- During all project site excavation and on-site grading, fit all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
- Locate stationary noise generating equipment such as air compressors or portable power generators as far as possible from sensitive receptors. Construct temporary noise barriers to screen stationary noise-generating equipment when located near adjoining sensitive land uses. Temporary noise barriers could reduce construction noise levels by 5 dBA.
- 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.
- Utilize "quiet" air compressors and other stationary noise sources where such technology exists.
- Route all construction traffic to and from the project site via designated truck routes and prohibit construction-related heavy truck traffic in residential areas where feasible.
- Control noise from construction workers' radios to a point that they are not audible at existing residences bordering the project site.
- Prepare and submit to the City for approval a detailed construction plan identifying the schedule for major noise-generating construction activities.
- Pre-drill foundation pile holes to minimize the number of impacts required to seat the pile.
- Use multiple pile driving rigs to expedite pile driving activities.
- Use "acoustical blankets" to shroud the pile hammer.

Implementation of these measures would reduce construction-related noise levels by 5 to 10 dBA. This reduction would reduce construction noise levels to below the City's threshold for construction noise impacts on noise sensitive land uses. Therefore, with implementation of this mitigation measure, project-related construction noise impacts would be reduced to a less-than-significant level. (LTS)

(2) Operational Mechanical Noise. According to the significance criteria, a significant impact would occur if implementation of the project would expose persons to or generate noise levels in excess of normally acceptable standards established in the General Plan or noise ordinance.

Implementation of the proposed project could result in noise levels from the operation of mechanical equipment that could result in exceedances of the City's operational noise limits.

Impact NOI-2: Mechanical equipment used as part of the project may generate noise levels that would exceed the noise level standards in the Foster City Municipal Code. (S)

Operation of the project would introduce new sources of noise to the project site. Mechanical equipment expected to be installed on the site would be similar to existing equipment on the site, and would include emergency diesel engine generators, cooling towers, heating, ventilation, and air conditioning systems, and exhaust fans. The Municipal Code requires that noise from the operation of such equipment during the hours of 7:00 a.m. to 10:00 p.m. not exceed 50 dBA for more than 30 minutes out of an hour, 55 dBA for more than 15 minutes out of an hour, 60 dBA for a period of more than 5 minutes out of the hour, 65 dBA for a period of more than 1 minute out of an hour, or 70 dBA for any period of time. The nighttime noise level limits are 5 dBA more restrictive (e.g., during the hours of 10:00 p.m. to 7:00 a.m. noise levels cannot exceed 45 dBA for more than 30 minutes out of an hour). Refer to Table IV.H-3 for a summary of these noise and land use compatibility standards.

Noise levels generated by the project would be dependent on the number and type of equipment selected, the location of the equipment relative to nearby sensitive receivers, and the presence of shielding. In general, mechanical equipment would be placed at the tops of proposed buildings, and would be enclosed with roof screens, reducing adverse impacts to noise levels. However, noise levels generated by mechanical equipment, if not properly controlled, could result in a significant impact by exceeding the Municipal Code noise level limits.

Implementation of the following mitigation measure would reduce potential noise impacts associated with the operation of mechanical equipment to a less-than-significant level:

> Mitigation Measure NOI-2: At the time that specific buildings envisioned under the Master Plan are proposed, the project sponsor shall conduct a design-level acoustical analysis to ensure that mechanical equipment noise resulting from the project complies with applicable General Plan policies and Municipal Code noise level limits. The acoustical analysis shall include a calculation of noise levels resulting from the proposed equipment at the nearest sensitive receiving land uses, an assessment of noise levels relative to applicable standards, and recommendations to control noise levels in accordance with the applicable limits. The report shall be completed and submitted to the Community Development Department for approval prior to the issuance of building permits. (LTS)

(3) Off-Site Traffic Noise Impacts. One of the aforementioned significance criteria establishes that a significant impact would occur if implementation of the project would create a clearly noticeable permanent change (a 3 dBA increase) in the noise environment, even though the acceptability threshold (i.e., L_{dn} of 60 dBA for residential uses and L_{dn} of 65 dBA for office and commercial uses) has not been reached.

Impact NOI-3: Project-related traffic would create a clearly noticeable permanent change in the noise environment. (S)

The FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate traffic-related noise conditions along roadway segments in the vicinity of the project site. The resultant noise levels were weighed and summed over a 24-hour period in order to determine the L_{dn} values. The existing and future (year 2030) traffic volumes for roadway segments in the project site vicinity were used in the traffic noise impact analysis. Table IV.H-6 summarizes the traffic noise modeling results for each scenario as calculated at 50 feet from the centerline of the outermost travel lanes. Figure IV.H-1 shows the change in noise levels along modeled roadway segments from Existing to Existing Plus Project conditions.

Review of the traffic noise modeling data indicates that the project would result in a substantial (3 dBA or greater) increase in noise above existing noise levels under existing plus project conditions. A segment of Marsh Drive would experience an increase of up to 8.0 dBA under existing plus project conditions compared to existing conditions. Vintage Park Drive, from Lakeside Drive to Chess Drive, would experience an increase of up to 3.1 dBA under existing plus project conditions compared to existing conditions.

Implementation of the following mitigation measure would reduce the contribution of the project to roadway noise on the segments of Marsh Drive and Vintage Park Drive identified above, but noise along the segment of Marsh Drive would not be reduced to a less-than-significant level:

Mitigation Measure NOI-3: Implement Mitigation Measure TRANS-1. (SU)

Implementation of Mitigation Measure TRANS-1 would result in an overall 8 percent reduction in daily project trips through the implementation of a more robust TDM Program. Under existing plus project conditions, assuming implementation of Mitigation Measure TRANS-1, noise levels would increase by up to 7.7 dBA along the segment of Marsh Drive from East Third Avenue to Vintage Park Drive, and increase by up to 2.9 dBA along the segment of Vintage Park Drive as measured at 50 feet from the centerline of the outermost travel lane.

Therefore, the contribution to roadway noise along Marsh Drive would remain significant and unavoidable (as the expected noise increase would be above 3dBA), although the contribution to roadway noise along Vintage Park Drive would be reduced to a less-than-significant level. Due to the existing required access driveways along the impacted segment of Marsh Drive, and for aesthetic reasons, mitigation in the form of sound walls would not be feasible or desirable. An alternative mitigation measure would be to resurface this roadway segment with Rubberized Hot Mix Asphalt-Open Graded (RHMA-O) or similar quieter pavement. This type of pavement has been shown in various studies to result in a 4 to 6 dBA reduction in noise levels with an average 4 dBA reduction in traffic noise realized in a California long-term study.[6] However, even by using RHMA-O or a similar quiet pavement to resurface the segment of Marsh Drive from East Third Avenue to Vintage Park Drive, project-related traffic noise levels would still result in a clearly noticeable permanent change of approximately 3.7 dBA. In addition, the use of quiet pavement would pose long-term costs to the City and would be inconsistent with street resurfacing plans in the Foster City Capital Improvement Program. Therefore, as no feasible mitigation exists to reduce this impact to a less-than-significant level, project-related traffic noise increases would remain significant and unavoidable.

[6] Sacramento County, 1999. Department of Environmental Review and Assessment, *Report of the Status of Rubberized Asphalt Traffic Noise Reduction in Sacramento County*. November.

d. Cumulative Impacts. A project would make a significant contribution to a cumulative noise impact if it contributes 1 dBA or greater to an environment with existing noise levels in excess of normally acceptable standards for the designated land uses. As shown in Table IV.H-6, existing traffic noise levels along modeled roadway segments in the project vicinity would experience traffic noise levels ranging from 52.2 dBA to 66.4 dBA L_{dn} as measured at 500 feet from the centerline of the outermost travel lane.

The City's normally acceptable land use compatibility standard for new residential and transient lodging land use development is 60 dBA L_{dn}. There are existing residential and transient lodging land uses located along segments of Mariners Island Boulevard and Chess Drive that would be affected by project traffic. However, as shown in Table IV.H-6, existing traffic noise levels along Mariners Island Boulevard do not exceed 60 dBA L_{dn} as measured at 50 feet from the centerline of the outermost travel lane. Existing traffic noise levels along the modeled segment of Chess Drive are 62.4 dBA L_{dn} at 50 feet from the outermost travel lane. The closest noise sensitive land use to this roadway segment is the Crowne Plaza hotel, located 75 feet from the centerline of the outermost travel lane. At this distance, existing traffic noise levels are approximately 58.9 dBA L_{dn}, which is below the City's normally acceptable threshold for this type of land use.

Other land uses adjacent to the modeled roadway segments shown in Table IV.H-6 include commercial and office land uses as well as parks and golf courses. The City's normally acceptable land use compatibility standards for new development of these types of land uses is 65 dBA L_{dn}. The existing traffic noise level along East Third Avenue from Anchor Road to Mariners Island Boulevard is 66.4 dBA L_{dn}, as measured at 50 feet from the outermost travel lane. However, this segment is bordered only by open space or undeveloped land uses. All other modeled roadway segments have existing traffic noise levels below 65 dBA L_{dn}. Therefore, the project would not make a significant contribution to a cumulative impact by contributing 1 dBA or greater to an environment with existing noise levels in excess of normally acceptable standards for the designated land uses.

Traffic noise levels under Cumulative Plus Project conditions would result in increases along modeled roadway segments ranging up to 1.3 dBA compared to traffic noise levels under Cumulative conditions without the project. Only increases of 3 dBA or greater are considered perceptible in outdoor environments. Because existing traffic noise levels along modeled roadway segments in the project vicinity do not exceed the City's normally acceptable land use compatibility standards for the adjacent types of land uses, the resulting less-than-perceptible increases in Cumulative Plus Project traffic noise levels compared to Cumulative conditions would be considered less than significant.

I. AIR QUALITY

This section has been prepared using the methodologies and assumptions recommended by the Bay Area Air Quality Management District (BAAQMD)[1] and the CEQA Guidelines. In keeping with these guidelines, this section describes existing air quality and the potential effects of the 2012 Master Plan on air quality, including impacts of traffic on local carbon monoxide and regional pollutant levels. Mitigation measures to reduce potentially significant air quality impacts are identified, where appropriate.

1. Setting

This section describes existing air quality conditions in the City of Foster City, beginning with a discussion of typical air pollutant types and sources, health effects, and climatology relating to air quality.

a. Air Pollutants and Health Effects. Both State and federal governments have established health-based Ambient Air Quality Standards for six criteria air pollutants:[2] carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and suspended particulate matter (PM). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles. These standards are designed to protect the health and welfare of the population with a reasonable margin of safety. Long-term exposure to elevated levels of criteria pollutants may result in adverse health effects. Emission thresholds established by an air district are used to manage total regional emissions within an air basin based on the air basin's attainment status for criteria pollutants. These emission thresholds were established for individual projects that would contribute to regional emissions and pollutant concentrations and may adversely affect or delay the projected attainment target year for certain criteria pollutants.

Because of the conservative nature of the thresholds and the basin-wide context of individual project emissions, there is no direct correlation between a single project and localized air quality-related health effects. One individual project that generates emissions exceeding a threshold does not necessarily result in adverse health effects for residents in the project vicinity. This condition is especially true when the criteria pollutants exceeding thresholds are those with regional effects, such as ozone precursors like nitrogen oxides (NO_x) and reactive organic gases (ROG).

Occupants of facilities such as schools, day care centers, parks and playgrounds, hospitals, and nursing and convalescent homes are considered to be more sensitive than the general public to air pollutants because these population groups have increased susceptibility to respiratory disease. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality. Residential areas are considered more sensitive to air quality conditions, compared to commercial and industrial areas, because people generally spend longer periods of time at their residences, with greater associated exposure to ambient air quality conditions. Recreational uses are also considered

[1] Bay Area Air Quality Management District, 2011. *CEQA Air Quality Guidelines*. May.

[2] Criteria pollutants are defined as those pollutants for which the federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health.

sensitive compared to commercial and industrial uses, as people exercising inhale greater volumes of air, and thus may be exposed to higher pollutant volumes.

Air pollutants and their health effects, and other air pollution-related considerations are summarized in Table IV.I-1 and are described in more detail below.

Table IV.I-1: Sources and Health Effects of Air Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood functions and nerve construction. • Behavioral and hearing problems in children.
Suspended Particulate Matter ($PM_{2.5}$ and PM_{10})	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardiorespiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board (ARB), 2012.

(1) Ozone. Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving ROG and NO_x. The main sources of ROG and NO_x, often

referred to as ozone precursors, are combustion processes (including combustion in motor vehicle engines) and the evaporation of solvents, paints, and fuels. In the Bay Area, automobiles are the single largest source of ozone precursors. Ozone is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

(2) Carbon Monoxide. CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles. While CO transport is limited, it disperses with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations near congested roadways or intersections may reach unhealthful levels that adversely affect local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service (LOS) or with extremely high traffic volumes. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue, impair central nervous system function, and induce angina (chest pain) in persons with serious heart disease. Extremely high levels of CO, such as those generated when a vehicle is running in an unventilated garage, can be fatal.

(3) Particulate Matter. Particulate matter is a class of air pollutants that consists of heterogeneous solid and liquid airborne particles from manmade and natural sources. Particulate matter is categorized in two size ranges: PM_{10} for particles less than 10 microns in diameter and $PM_{2.5}$ for particles less than 2.5 microns in diameter. In the Bay Area, motor vehicles generate about half of the air basin's particulates, through tailpipe emissions as well as brake pad and tire wear. Wood burning in fireplaces and stoves, industrial facilities, and ground-disturbing activities such as construction are other sources of such fine particulates. These fine particulates are small enough to be inhaled into the deepest parts of the human lung and can cause adverse health effects. According to the California Air Resources Board (ARB), studies in the United States and elsewhere have demonstrated a strong link between elevated particulate levels and premature deaths, hospital admissions, emergency room visits, and asthma attacks, and studies of children's health in California have demonstrated that particle pollution may significantly reduce lung function growth in children. The ARB also reports that Statewide attainment of particulate matter standards could prevent thousands of premature deaths, lower hospital admissions for cardiovascular and respiratory disease and asthma-related emergency room visits, and avoid hundreds of thousands of episodes of respiratory illness in California.[3]

(4) Nitrogen Dioxide. NO_2 is a reddish brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Aside from its contribution to ozone formation, NO_2 also contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO_2 may be visible as a coloring component of smog on high pollution days, especially in conjunction with high ozone levels. NO_2 decreases lung function and may reduce resistance to infection. On January 22, 2010, the U.S.

[3] California Air Resources Board, 2011. *Fact Sheets*. Website: www.arb.ca.gov/htm/fslist.htm#Health.pdf. October.

Environmental Protection Agency (U.S. EPA) strengthened the health-based National Ambient Air Quality Standards (NAAQS) for NO_2.

(5) Sulfur Dioxide. SO_2 is a colorless acidic gas with a strong odor. It is produced by the combustion of sulfur-containing fuels such as oil, coal, and diesel. SO_2 has the potential to damage materials and can cause health effects at high concentrations. It can irritate lung tissue and increase the risk of acute and chronic respiratory disease.[4] SO_2 also reduces visibility and the level of sunlight at the ground surface.

(6) Lead. Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions. The highest levels of lead in the air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery factories.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the U.S. EPA established national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The U.S. EPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of the U.S. EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically.

(7) Odors. Odors are also an important element of local air quality conditions. Specific activities can raise concerns related to odors on the part of nearby neighbors. Major sources of odors include restaurants and manufacturing plants. Other odor producers include the industrial facilities within the region. While sources that generate objectionable odors must comply with air quality regulations, the public's sensitivity to locally-produced odors often exceeds regulatory thresholds.

(8) Toxic Air Contaminants. In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern. Some examples of TACs include: benzene, butadiene, formaldehyde, and hydrogen sulfide. Potential human health effects of TACs include birth defects, neurological damage, cancer, and death. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

TACs do not have associated ambient air quality standards, but are regulated by the U.S. EPA, ARB, and BAAQMD. In 1998, ARB identified particulate matter from diesel-fueled engines as a TAC. ARB has completed a risk management process that identified potential cancer risks for a range of activities and land uses that are characterized by use of diesel fueled engines.[5] High-volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic (distribution centers, truck stops) were identified as posing the highest risk to adjacent receptors. Other

[4] Bay Area Air Quality Management District, 2011, op. cit.

[5] California Air Resources Board, 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October.

facilities associated with increased risk include warehouse distribution centers, large retail or industrial facilities, high-volume transit centers, and schools with a high volume of bus traffic. Health risks from TACs are a function of both concentration and duration of exposure.

Monitoring data and emissions inventories of TACs help the BAAQMD determine health risks to Bay Area residents. Ambient monitoring concentrations of TACs indicate that pollutants emitted primarily from motor vehicles (1,3-butadiene and benzene) account for slightly over 50 percent of the average calculated cancer risk from ambient air in the Bay Area.[6]

Unlike TACs emitted from industrial and other stationary sources noted above, most diesel particulate matter is emitted from mobile sources – primarily "off-road" sources such as construction and mining equipment, agricultural equipment, and truck-mounted refrigeration units, as well as trucks and buses traveling on freeways and local roadways. Agricultural and mining equipment is not commonly used in urban parts of the Bay Area, while construction equipment typically operates for a limited time at various locations. As a result, the readily identifiable locations where diesel particulate matter is emitted in the City of Foster City include high-traffic roadways and other areas with substantial truck traffic.

Although not specifically monitored, recent studies indicate that exposure to diesel particulate matter may contribute significantly to a cancer risk (a risk of approximately 500 to 700 in a population of 1,000,000) that is greater than all other measured TACs combined.[7] The technology for reducing diesel particulate matter emissions from heavy-duty trucks is well established, and both State and federal agencies are moving aggressively to regulate engines and emission control systems to reduce and remediate diesel emissions. ARB anticipates that by 2020 average Statewide diesel particulate matter concentrations will decrease by 85 percent from levels in 2000 with full implementation of the Diesel Risk Reduction Plan, meaning that the Statewide health risk from diesel particulate matter is expected to decrease from 540 cancer cases in 1,000,000 to 21.5 cancer cases in 1,000,000. It is likely that the Bay Area cancer risk from diesel particulate matter will decrease by a similar factor by 2020.

(9) High Volume Roadways. Air pollutants and their associated health burdens vary considerably within places in relation to sources of air pollution. Motor vehicle traffic is perhaps the most important source of intra-urban spatial variation in air pollution concentrations. Air quality research consistently demonstrates that pollutant levels are substantially higher near freeways and busy roadways, and human health studies have consistently demonstrated that children living within 100 to 200 meters of freeways or busy roadways have reduced lung function and higher rates of respiratory disease.[8] At present, it is not possible to attribute the effects of roadway proximity on non-cancer health effects to one or more specific vehicle types or vehicle pollutants. Engine exhaust, from diesel, gasoline, and other combustion engines, is a complex mixture of particles and gases, with collective and individual toxicological characteristics. Four epidemiological studies on roadways and health impacts conducted in California populations are described below.

[6] Bay Area Air Quality Management District, 2007. Toxic Air Contaminant Control Program Annual Report 2003 Volume 1. August.

[7] Ibid.

[8] Delfino, RJ., 2002. Epidemiologic Evidence for Asthma and Exposure to Air Toxics: Linkages Between Occupational, Indoor, and Community Air Pollution Research. *Environmental Health Perspectives*.

- In Oakland, California, children at schools in proximity to high volume roadways experienced more asthma and bronchitis symptoms.[9]
- In a low-income population of children in San Diego, children with asthma living within 550 feet of roadways with high traffic volumes were more likely than those residing near roadways with lower traffic volumes to have medical care visits for asthma.[10]
- In a study of southern California school children, residence location within 75 meters (246 feet) of a major road was associated with an increased risk of asthma.[11]
- In a study conducted in 12 southern California communities, children who lived within 500 feet of a freeway had reduced growth in lung capacity compared to those living greater than 1,500 feet from a freeway.[12]

Federal and State regulations control air pollutants at the regional level by limiting vehicle and stationary source emissions. However, air quality regulations have not limited the use of vehicles and generally have not protected sensitive land uses from air pollution "hot spots" associated with proximity to transportation facilities.

b. Existing Climate and Air Quality. Regional air quality, local climate, air quality in the peninsula region, and air pollution climatology are described below.

(1) Local Climate and Topography. The San Francisco Bay Area is a large shallow air basin ringed by hills that taper into a number of sheltered valleys around the perimeter. Two primary atmospheric outlets exist. One is through the strait known as the Golden Gate, a direct outlet to the Pacific Ocean. The second extends to the northeast, along the west delta region of the Sacramento and San Joaquin Rivers. The City of Foster City is located in the peninsula region of the Bay Area, which extends from the area northwest of San Jose to the Golden Gate of San Francisco Bay. The Santa Cruz Mountains extend up the center of the peninsula, with elevations exceeding 2,000 feet at the south end, and gradually decreasing to 500 feet in South San Francisco, where the mountains terminate.

Air quality is a function of both local climate and local sources of air pollution. Air quality is the balance of the natural dispersal capacity of the atmosphere and emissions of air pollutants from human uses of the environment. The City of Foster City is located on the east side of the mountain range, which experiences warmer temperatures and few foggy days because the marine layer, with an average depth of 1,700 feet, is blocked by the 2,000-foot ridge to the west. Annual average wind speeds range from 5 to 10 miles per hour throughout the peninsula. However, the Crystal Springs

[9] Kim, J., et al., 2004. Traffic-Related Air Pollution and Respiratory Health: East Bay Children's Respiratory Health Study. *American Journal of Respiratory and Critical Care Medicine.*

[10] English, P., et al., 1999. Examining Associations Between Childhood Asthma and Traffic Flow Using a Geographic Information System. *Environmental Health Perspectives.*

[11] McConnell, R., et al., 2006. Traffic, Susceptibility, and Childhood Asthma. *Environmental Health Perspectives.*

[12] Gauderman, W.J., 2005. The Effect of Air Pollution on Lung Development From 10 to 18 Years of Age. *New England Journal of Medicine.* March.

Gap, located along State Route 92 between Half Moon Bay and San Carlos, permits maritime air to pass across the mountains and has a cooling effect commonly seen from San Mateo to Redwood City.

Topography can restrict horizontal dilution and mixing of pollutants by creating a barrier to air movement. Air pollution potential is lowest in San Francisco and highest along the southeastern portion of the peninsula because this area is most shielded from the high winds and fog of the marine layer, there is a high-concentration of pollutant sources, and pollutant transport from upwind sites is possible.

The combined effects of topography and climate give Foster City a moderate atmospheric potential for air pollution compared to other parts of the San Francisco Bay Air Basin.

(2) Air Monitoring Data. The City of Foster City is within the jurisdiction of the BAAQMD, which has seen air quality conditions improve significantly since the organization was created in 1955. Ambient concentrations of air pollutants and the number of days during which the region exceeds air quality standards have fallen dramatically. Exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons.

The Air Monitoring Program of the BAAQMD operates a 28-station monitoring network which provides the data required to determine whether the Bay Area is in compliance with State and federal air quality standards. Most monitoring stations sample air levels for criteria pollutants, while only some of the monitoring sites include toxics sampling equipment. The monitored toxic compounds include benzene; 1,1,1 trichloroethane (TCA); trichloroethylene (TCE); chloroform (TCM); 1,2 dichloroethane (EDC); 1,2 dibromoethane (EDB); methylene dichloride (DCM); carbon tetrachloride, and tetrachloroethylene (perc); and vinyl chloride and toluene (while not considered a toxic air contaminant, toluene was chosen to better assess the origin of benzene emissions). In addition, sampling for the heavy metals lead, nickel, manganese and total chromium is carried out at the five ARB sites in Fremont, Richmond, Concord, San Francisco, and San Jose.

Pollutant monitoring results for the years 2009 to 2011 at the 897 Barron Ave. (Redwood City) ambient air quality monitoring station (the closest monitoring station to the project site) and, where data was not available there, the 158 Jackson Street monitoring station in San Jose, are shown in Table IV.I-2. Based on the monitoring data, Foster City air pollutant levels were below all applicable State and national Ambient Air Quality Standards for gaseous criteria pollutants, including CO, NO_2 and SO_2.

Ozone levels, measured by peak concentrations and the number of days over the State 1-hour standard, have declined substantially as a result of aggressive programs by the BAAQMD and other regional, State, and federal agencies. The reduction of peak concentrations represents progress in improving public health. However, ozone levels exceeded the State 1-hour standard on two days, and exceeded both the State and federal 8-hour standard on one day in 2010.

Similarly, the Bay Area has achieved significant reductions in PM concentrations since 1990, but continues to exceed several State and federal PM standards. Monitoring results show that the State annual PM_{10} standard was exceeded locally in 2009 and the federal 24-hour $PM_{2.5}$ standard was exceeded once in 2010 and once in 2011.

Table IV.I-2: Ambient Air Quality at the 897 Barron Ave., Redwood City, Monitoring Station

Pollutant	Standard	2009	2010	2011
Carbon Monoxide (CO)				
Maximum 1-hour concentration (ppm)		3.5	3.3	3.8
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hour concentration (ppm)		1.76	1.72	1.67
Number of days exceeded:	State: > 9 ppm	0	0	0
	Federal: > 9 ppm	0	0	0
Ozone (O_3)				
Maximum 1-hour concentration (ppm)		0.087	0.113	0.076
Number of days exceeded:	State: > 0.09 ppm	0	2	0
Maximum 8-hour concentration (ppm)		0.063	0.077	0.061
Number of days exceeded:	State: > 0.07 ppm	0	1	0
	Federal: > 0.08 ppm	0	1	0
Coarse Particulates (PM_{10}) [a]				
Maximum 24-hour concentration ($\mu g/m^3$)		41.1	44.2	41.3
Number of days exceeded:	State: > 50 $\mu g/m^3$	0	0	0
	Federal: > 150 $\mu g/m^3$	0	0	0
Annual arithmetic average concentration ($\mu g/m^3$)		20.3	19.5	19.2
Exceeded for the year:	State: > 20 $\mu g/m^3$	Yes	No	No
	Federal: > 50 $\mu g/m^3$	No	No	No
Fine Particulates ($PM_{2.5}$)				
Maximum 24-hour concentration ($\mu g/m^3$)		31.7	36.5	39.7
Number of days exceeded:	Federal: > 35 $\mu g/m^3$	0	1	1
Annual arithmetic average concentration ($\mu g/m^3$)		8.6	8.3	8.7
Exceeded for the year:	State: > 12 $\mu g/m^3$	0	0	0
	Federal: > 15 $\mu g/m^3$	0	0	0
Nitrogen Dioxide (NO_2)				
Maximum 1-hour concentration (ppm)		0.056	0.059	0.056
Number of days exceeded:	State: > 0.250 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.012	0.012	0.012
Exceeded for the year:	Federal: > 0.053 ppm	0	0	0
Sulfur Dioxide (SO_2) [a]				
Maximum 1-hour concentration (ppm)		0.006	0.005	0.007
Number of days exceeded:	State: > 0.25 ppm	0	0	0
Maximum 3-hour concentration (ppm)		0.004	0.003	0.005
Number of days exceeded:	Federal: > 0.50 ppm	0	0	0
Maximum 24-hour concentration (ppm)		0.001	0.002	0.003
Number of days exceeded:	State: > 0.04 ppm	0	0	0
	Federal: > 0.14 ppm	0	0	0
Annual arithmetic average concentration (ppm)		ND	0.000	0.000
Exceeded for the year:	Federal: > 0.030 ppm	ND	0	0

[a] Results based on readings at the San Jose-Jackson Street monitoring station.

ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter
ND = No data. There were insufficient (or no) data to determine the value.

Source: ARB, U.S. EPA, and BAAQMD, 2012.

c. Regulatory Framework. Air quality standards, the regulatory framework, and State and federal attainment status are discussed below.

The BAAQMD is primarily responsible for regulating air pollution emissions from stationary sources (e.g., factories) and indirect sources (e.g., traffic associated with new development), as well as for monitoring ambient air pollutant concentrations. The BAAQMD's jurisdiction encompasses seven counties – Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa – and portions of Solano and Sonoma counties. The ARB and the U.S. EPA regulate direct emissions from motor vehicles.

(1) United States Environmental Protection Agency. At the federal level, the U.S. EPA has been charged with implementing national air quality programs. U.S. EPA's air quality mandates are drawn primarily from the Federal Clean Air Act (FCAA), which was enacted in 1963. The FCAA was amended in 1970, 1977, and 1990.

The FCAA required U.S. EPA to establish primary and secondary NAAQS and required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The Federal Clean Air Act Amendments of 1990 (FCAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. U.S. EPA has responsibility to review all state SIPs to determine conformity with the mandates of the FCAAA and determine if implementation will achieve air quality goals. If the U.S. EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area which imposes additional control measures. Failure to submit an approvable SIP or to implement the plan within the mandated timeframe may result in sanctions on transportation funding and stationary air pollution sources in the air basin.

The U.S. EPA is also required to develop national emission standards for hazardous air pollutants, which are defined as those which may reasonably be anticipated to result in increased deaths or serious illness and which are not already regulated. An independent science advisory board reviews the health and exposure analyses conducted by the U.S. EPA on suspected hazardous pollutants prior to development of regulations.

(2) California Air Resources Board. In 1992 and 1993, the ARB requested delegation of authority for the implementation and enforcement of specified New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants to the BAAQMD. U.S. EPA's review of the State of California's laws, rules, and regulations showed them to be adequate for the implementation and enforcement of federal standards, and the U.S. EPA granted the delegations as requested.

The ARB is the agency responsible for the coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA), adopted in 1988. The CCAA requires that all air districts in the State achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. The CCAA specifies that districts should focus on reducing the emissions from transportation and air-wide emission sources, and provides districts with the authority to regulate indirect sources.

ARB is also primarily responsible for developing and implementing air pollution control plans to achieve and maintain the NAAQS. ARB is primarily responsible for Statewide pollution sources and

produces a major part of the SIP. Local air districts provide additional strategies for sources under their jurisdiction. ARB combines this data and submits the completed SIP to U.S. EPA.

Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), establishing CAAQS (which are more stringent than the NAAQS), determining and updating area designations and maps, and setting emissions standards for mobile sources, consumer products, small utility engines, and off-road vehicles. The ARB's Diesel Risk Reduction Plan[13] is intended to substantially reduce diesel particulate matter emissions and associated health risks through introduction of ultra-low-sulfur diesel fuel – a step already implemented – and cleaner-burning diesel engines.

The State of California's regulatory efforts are embodied in the Tanner Bill[14] (effective 1984), which defines a process for the identification and control of toxic air contaminants. The California ARB identifies the most important toxic pollutants by considering risk of harm to public health, amount or potential amount of emissions, manner of usage of the substance, its persistence in the atmosphere, and its concentration in outdoor air. The California Office of Environmental Health Hazard Assessment (OEHHA) prepares health assessment documents that outline the toxicity of compounds. After a pollutant is listed as a toxic air contaminant, control measures are developed by the ARB and local air districts.

Other relevant legislation is the Air Toxics "Hot Spots" Information and Assessment Act[15] (AB2588). This bill was enacted in 1987 with the objective of collecting information concerning industrial emissions of toxic air contaminants and making the information available to the public. The bill established a formal regulatory program for site-specific air toxics emissions inventory and health risk quantification that is managed by California air districts. Under this program, a wide variety of industrial, commercial, and public facilities are required to report the types and quantities of toxic substances their facilities routinely release into the air. The goals of the Air Toxics Hot Spots Program are to collect emissions data, identify facilities with potential for localized health impacts, ascertain health risks, notify nearby residents of risks that are determined to warrant such notification, and reduce significant risks.

Because of the robust evidence correlating proximity to roadways and a range of non-cancer and cancer health effects, the ARB also created guidance for avoiding air quality conflicts in land use planning in its Air Quality and Land Use Handbook: A Community Health Perspective.[16] In its guidance, the ARB advises that new sensitive uses (e.g., residences, schools, day care centers, playgrounds, and hospitals) not be located within 500 feet of a freeway or urban roads carrying 100,000 vehicles per day, or within 1,000 feet of a distribution center (warehouse) that accommodates more than 100 trucks or more than 90 refrigerator trucks per day.

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[13] California Air Resources Board, 2000. Stationary Source Division and Mobile Source Control Division. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October.

[14] California Air Resources Board, 1997. Technical Support Document, *Proposed Identification of Inorganic Lead as a Toxic Air Contaminant. Part A – Exposure Assessment*. March.

[15] AB 2588, Connelly, 1987. Chaptered in the California Health and Safety Code Section 44300, et. al.

[16] California Environmental Protection Agency and Air Resources Board, 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*. Website: www.arb.ca.gov/ch/landuse.htm.

ARB guidance suggests that the use of these guidelines be customized for individual land use decisions, and take into account the context of development projects. The Air Quality and Land Use Handbook specifically states that these recommendations are advisory and acknowledges that land use agencies must balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.

(3) National and State Ambient Air Quality Standards. Pursuant to the FCAA of 1970, the U.S. EPA established NAAQS. The NAAQS were established for major pollutants, termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health.

Both the U.S. EPA and the ARB have established ambient air quality standards for the following common pollutants: CO, O_3, NO_2, SO_2, Pb, and PM. In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the population with a reasonable margin of safety. These ambient air quality standards are levels of contaminants that avoid specific adverse health effects associated with each pollutant.

Federal standards include both primary and secondary standards. Primary standards establish limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, and damage to animals, crops, vegetation, and buildings. State and federal standards for the criteria air pollutants are listed in Table IV.I-3.

(4) Bay Area Air Quality Management District. The BAAQMD seeks to attain and maintain air quality conditions in the San Francisco Bay Area Air Basin through a comprehensive program of planning, regulation, enforcement, technical innovation, and education. The clean air strategy includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. The BAAQMD also inspects stationary sources and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by law.

BAAQMD Regulation 7[17] places general limitations on odorous substances and specific emission limitations on certain odorous compounds. This regulation limits the "discharge of any odorous substance which causes the ambient air at or beyond the property line…to be odorous and to remain odorous after dilution with four parts of odor-free air."

[17] Bay Area Air Quality Management District, 1982. *Rules and Regulations, Regulation 7: Odorous Substances.* Amended March 17.

Table IV.I-3: Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]		Federal Standards[b]		
		Concentration[c]	Method[d]	Primary[c,e]	Secondary[c,f]	Method[g]
Ozone (O_3)	1-Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	No Federal Standard	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.07 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM_{10})	24-Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		–		
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No Separate State Standard		35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–	–	
Nitrogen Dioxide (NO_2)[h]	Annual Arithmetic Mean	0.03 ppm (57 µg/m^3)	Gas Phase Chemiluminescence	53 ppb (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1-Hour	0.18 ppm (339 µg/m^3)		100 ppb (188 µg/m^3)	None	
Lead (Pb)[j,k]	30-Day Average	1.5 µg/m^3	Atomic Absorption	–	–	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m^3 (for certain areas)[k]	Same as Primary Standard	
	Rolling 3-Month Average[i]	–		0.15 µg/m^3		
Sulfur Dioxide (SO_2)[i]	24-Hour	0.04 ppm (105 µg/m^3)	Ultraviolet Fluorescence	0.14 ppm (for certain areas)[i]	–	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3-Hour	–		–	0.5 ppm (1300 µg/m^3)	
	1-Hour	0.25 ppm (655 µg/m^3)		75 ppb (196 µg/m^3)	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[i]	–	
Visibility-Reducing Particles[l]	8-Hour	Extinction coefficient of 0.23 per kilometer - visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24-Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[j]	24-Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Table notes are provided on the following page.

[a] California standards for ozone, carbon monoxide (except for the 8-hour Lake Tahoe standard), sulfur dioxide (1- and 24-hour), nitrogen dioxide, suspended particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than standards for ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

[e] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[f] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[g] Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

[h] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of ppm. To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.

[i] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of ppb. California standards are in units of ppm. To directly compare the 1-hour national standards to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[j] The ARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[l] In 1989, the ARB converted both the general Statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the Statewide and Lake Tahoe Air Basin standards, respectively.

°C = degrees Celsius
ARB = California Air Resources Board
EPA = United States Environmental Protection Agency
ppb = parts per billion
ppm = parts per million
mg/m^3 = milligrams per cubic meter
$\mu g/m^3$ = micrograms per cubic meter

Source: California Air Resources Board, 2012.

The BAAQMD must receive ten or more odor complainants within a 90-day period in order for the limitations of this regulation to go into effect. If this criterion has been met, an odor violation can be issued by the BAAQMD if a test panel of people can detect an odor in samples collected periodically from the source.

Clean Air Plan. The BAAQMD is responsible for developing a Clean Air Plan[18] which guides the region's air quality planning efforts to attain the CAAQS. The BAAQMD's Bay Area 2010 Clean Air Plan is the latest Clean Air Plan which contains district-wide control measures to reduce ozone precursor emissions (i.e., ROG and NO_x), particulate matter, and greenhouse gas emissions.

The Bay Area 2010 Clean Air Plan, which was adopted on September 15, 2010, by the BAAQMD's board of directors:

- Updates the Bay Area 2005 Ozone Strategy in accordance with the requirements of the CCAA to implement "all feasible measures" to reduce ozone;
- Provides a control strategy to reduce ozone, PM, TACs, and greenhouse gases in a single, integrated plan;
- Reviews progress in improving air quality in recent years; and
- Establishes emission control measures to be adopted or implemented in the 2010 to 2012 timeframe.

BAAQMD CARE Program. The Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area. The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement and input. The technical analysis portion of the CARE program is being implemented in three phases that include an assessment of the sources of TAC emissions, modeling and measurement programs to estimate concentrations of TACs, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and a high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area. The BAAQMD has identified six affected communities. The City of Foster City has not been included as an affected community. However, nearby Redwood City, East Palo Alto, and San Jose have all been identified as in need of immediate mitigation action.

For commercial and industrial sources, the BAAQMD regulates TACs using a risk-based approach. This approach uses a health risk assessment to determine what sources and pollutants to control as well as the degree of control. A health risk assessment is an analysis in which human health exposure to toxic substances is estimated and considered together with information regarding the toxic potency

[18] Bay Area Air Quality Management District, 2010. *Bay Area 2010 Clean Air Plan*. September.

of the substances, in order to provide a quantitative estimate of health risks.[19] As part of ongoing efforts to identify and assess potential health risks to the public, the BAAQMD has collected and compiled air toxics emissions data from industrial and commercial sources of air pollution throughout the Bay Area.

BAAQMD CEQA Air Quality Guidelines. The BAAQMD *CEQA Air Quality Guidelines* were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. They also include recommended assessment methodologies for air toxics, odors, and greenhouse gas emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of the CEQA Guidelines. In May 2011, the updated BAAQMD *CEQA Air Quality Guidelines* were amended to include a risk and hazards threshold for new receptors and modified procedures for assessing impacts related to risk and hazard impacts.

On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the BAAQMD *CEQA Air Quality Guidelines*. The court did not determine whether the thresholds of significance were valid on their merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD complied with CEQA. In May of 2012, the BAAQMD filed an appeal of the court's decision, the results of which are pending as of preparation of this Subsequent EIR.

Although lead agencies may rely on the 2011 BAAQMD *CEQA Air Quality Guidelines* for assistance in calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, the BAAQMD has been ordered to set aside the thresholds and is no longer recommending that they be used as a general measure of a project's significant air quality impacts. The BAAQMD also recognizes that lead agencies may rely on the previously recommended Thresholds of Significance contained in its CEQA Guidelines adopted in 1999.[20]

The court's invalidation of BAAQMD's thresholds presents uncertainty for current project applicants and local agencies regarding proper evaluation of air quality and greenhouse gas emissions in CEQA documents. Although the thresholds are no longer publicly available, local agencies still have a duty to evaluate impacts related to air quality and greenhouse gas emissions. In addition, CEQA grants local agencies broad discretion to develop their own thresholds of significance, or to rely on thresholds previously adopted or recommended by other public agencies or experts so long as they are

[19] In general, a health risk assessment is required if the BAAQMD concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggests a potential public health risk. Such an assessment generally evaluates chronic, long-term effects, including the increased risk of cancer as a result of exposure to one or more TACs.

[20] Bay Area Air Quality Management District, 1999. *BAAQMD CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans*. December

supported by substantial evidence.[21] Accordingly, the City of Foster City is using the BAAQMD's thresholds to evaluate project impacts in order to protectively evaluate the potential effects of the project on air quality. The City believes that these protective thresholds are appropriate in the context of the size, scale, and location of the project and its proximity to sensitive residential uses, and notes that the court did not determine whether the thresholds of significance were valid on their merits. The City also notes that the Court did not address the merits of the science or evidence supporting the thresholds. The City finds that, despite the court ruling, the science and reasoning contained in the 2011 BAAQMD *CEQA Air Quality Guidelines* provide the latest state-of-the-art guidance available. For that reason, substantial evidence supports continued use of the 2011 BAAQMD *CEQA Air Quality Guidelines*.

(5) Attainment Status Designation. The ARB is required to designate areas of the State as attainment, nonattainment, or unclassified for each State standard. An "attainment" designation for an area signifies that pollutant concentrations do not violate pollutant standards. A "nonattainment" designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. An "unclassified" designation signifies that data do not support either an attainment or nonattainment status. The law divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category. The U.S. EPA uses similar categories for classifying air pollutants under federal standards. Table IV.I-4 provides a summary of the attainment status for the San Francisco Bay Area with respect to NAAQS and CAAQS.

Under the NAAQS, the San Francisco Bay Area is under nonattainment status for O_3 (8-hour and 1-hour), PM_{10} (annual mean and 24-hour), and $PM_{2.5}$ (annual mean). The region is under attainment status for the other criteria pollutants, or the standard is not applicable. Under the CAAQS, the region is under nonattainment status for O_3 (8-hour) and $PM_{2.5}$ (24-hour). The region is under attainment status for all other criteria pollutants, or is unclassified, or the standard is not applicable.

[21] Public Resources Code Section 21082: 14 Cal. Code Regs. and Sections 15064.7, 15064.4 (addressing greenhouse gas emissions impacts). See also Citizens for Responsible and Equitable Environmental Development v. City of Chula Vista (2011) 197 Cal.App.4th.327 (upholding city's greenhouse gas emissions threshold based on Assembly Bill 32 compliance).

Table IV.I-4: San Francisco Bay Area Attainment Status

Pollutant	Averaging Time	California Standards [a]		National Standards [b]	
		Concentration	Attainment Status	Concentration [c]	Attainment Status
Carbon Monoxide (CO)	8-Hour	9 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Attainment [f]
	1-Hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Attainment
Nitrogen Dioxide (NO_2)	Annual Mean	0.030 ppm (57 mg/m^3)	Attainment	0.053 ppm (100 µg/m^3)	Attainment
	1-Hour	0.18 ppm (338 µg/m^3)	Attainment	0.100 ppm [j]	Unclassified
Ozone (O_3)	8-Hour	0.07 ppm (137 µg/m^3)	Nonattainment [h]	0.075 ppm	Nonattainment [d]
	1-Hour	0.09 ppm (180 µg/m^3)	Nonattainment	Not Applicable	Not Applicable [e]
Suspended Particulate Matter (PM_{10})	Annual Mean	20 µg/m^3	Nonattainment [g]	Not Applicable	Not Applicable
	24-Hour	50 µg/m^3	Nonattainment	150 µg/m^3	Unclassified
Suspended Particulate Matter ($PM_{2.5}$)	Annual Mean	12 µg/m^3	Nonattainment [g]	15 µg/m^3	Attainment
	24-Hour	Not Applicable	Not Applicable	35 µg/m^3 See footnote [i]	Nonattainment
Sulfur Dioxide (SO_2)[k]	Annual Mean	Not Applicable	Not Applicable	80 µg/m^3 (0.03 ppm)	Attainment
	24-Hour	0.04 ppm (105 µg/m^3)	Attainment	365 µg/m^3 (0.14 ppm)	Attainment
	1-Hour	0.25 ppm (655 µg/m^3)	Attainment	0.075 ppm (196 µg/m^3)	Attainment

[a] California standards for ozone, carbon monoxide (except the standards for Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility-reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour, or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that ARB determines would occur less than once per year on average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the State standard.

[b] 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 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the fourth highest daily concentrations is 0.075 ppm (75 ppb) or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m^3. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m^3.

Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM_{10} is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.

[c] National air quality standards are set by U.S. EPA at levels determined to be protective of public health with an adequate margin of safety.

[d] On September 22, 2011, the U.S. EPA announced it will implement the current 8-hour ozone standard of 75 ppb. The U.S. EPA finalized area designations for the 2008 8-hour ozone standard in April 2012 and has classified the Bay Area as "marginal" nonattainment.

[e] The national 1-hour ozone standard was revoked by the U.S. EPA on June 15, 2005.

[f] In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.

Table notes are continued on the following page.

[g] In June 2002, ARB established new annual standards for $PM_{2.5}$ and PM_{10}. Statewide Voluntary Remediation Program Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

[h] The 8-hour California ozone standard was approved by the ARB on April 28, 2005 and became effective on May 17, 2006.

[i] The U.S. EPA lowered the 24-hour $PM_{2.5}$ standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ in 2006. The 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 BAAQMD has 3 years to develop a SIP that demonstrates the Bay Area will achieve the revised standard by December 14, 2014. The SIP for the new $PM_{2.5}$ standard must be submitted to the U.S. EPA by December 14, 2012.

[j] 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).

[k] 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 24-hour SO_2 NAAQS must continue to be used until one year following U.S. EPA initial designations of the new 1-hour SO_2 NAAQS. The U.S. EPA expects to designate areas by June 2012.

Lead (Pb) is not listed in the above table because it has been in attainment since the 1980s.
ppm = parts per million
mg/m^3 = milligrams per cubic meter
$\mu g/m^3$ = micrograms per cubic meter

Source: Bay Area Air Quality Management District, 2012.

(6) City of Foster City General Plan. The Conservation Element of the City of Foster City General Plan includes the following policies related to air quality, as show in Table IV.I-5.[22]

Table IV.I-5: General Plan Goals and Policies Related to Air Quality

Goal C-A	*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.

Source: City of Foster City General Plan, 1993. May; LSA Associates, Inc., 2012.

2. Impacts and Mitigation Measures

This section provides an assessment of the potential adverse impacts related to air quality associated with the proposed project. It begins with the criteria of significance, which establish the thresholds for

[22] Foster City, City of, 1993. *Foster City General Plan*. May.

determining whether an impact is significant. The latter part of this section identifies potential impacts. Where potentially significant impacts are identified, mitigation measures are recommended.

a. Significance Criteria. 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, NO_x 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, NO_x 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:
  - 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
    - Ambient $PM_{2.5}$ increase greater than 0.8 $\mu g/m^3$ annual average.
- Conflict with or obstruct implementation of the current Air Quality Plan; or
- Create objectionable odors affecting a substantial number of people.

The emission thresholds were established based on the attainment status of the air basin for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety according to the U.S. EPA, these emission thresholds are regarded as protective.

b. Less-Than-Significant Impacts. Implementation of the project would result in less-than-significant air quality impacts related to odors.

Odors. During construction, the various diesel-powered vehicles and equipment in use on-site would create localized odors. These odors would be temporary and are not likely to be noticeable for extended periods of time beyond the project site. The potential for diesel odor impacts is therefore considered less than significant. Odors from existing uses are contained within on-site laboratory facilities and are not noticeable beyond the site boundary. The proposed uses that would be developed within the project site would be similar to existing uses and are not expected to produce any offensive odors that would result in frequent odor complaints.

c. Significant Impacts. Implementation of the proposed project would result in the following significant air quality impacts.

(1) Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation. According to the BAAQMD CEQA Air Quality Guidelines, to meet air quality standards for operational-related criteria air pollutant and air precursor impacts, the project must not:

- Contribute to CO concentrations exceeding the State ambient air quality standards;
- Generate construction emissions of ROG, NO_x or $PM_{2.5}$ (exhaust) greater than 54 pounds per day or PM_{10} exhaust emissions greater than 82 pounds per day; or
- Generate operational emissions of ROG, NO_x 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.

The following section describes the project's CO impacts and construction- and operation-related air quality impacts.

Localized CO Impacts. The BAAQMD has established a screening methodology that provides a conservative indication of whether the implementation of a proposed project would result in significant CO emissions. According to the BAAQMD's *CEQA Air Quality Guidelines*, a proposed project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, and the regional transportation plan and local congestion management agency plans.
- Project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, or below-grade roadway).

The proposed project, in addition to traffic from other reasonably foreseeable future projects, would cause the freeway segment of eastbound SR 92 between US 101 and Mariners Island Boulevard/ Edgewater Boulevard to degrade to an unacceptable level of service, which would not meet the goals of the San Mateo Transportation Authority's Congestion Management Program. Implementation of Mitigation Measure TRANS-1 would require implementation of a Transportation Demand Manage-

ment (TDM) program that would reduce traffic volumes on this segment, resulting in an acceptable level of service. Therefore, the proposed project would not conflict with the San Mateo Transportation Authority's Congestion Management Program for designated roads or highways, a regional transportation plan, or other agency plans.

The proposed project would not be located in an area where vertical or horizontal mixing is substantially limited (as the area is exposed to breezes from San Francisco Bay) and traffic volumes on roadways in the vicinity of the project site are less than 44,000 vehicles per hour. As shown in Table IV.I-2, background CO concentrations in the area are substantially below State and federal standards. The proposed project would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour and would not result in localized CO concentrations that exceed State or federal standards. Localized CO impacts would therefore be less than significant.

Construction Period Impacts. During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading, hauling, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_x, ROG, directly-emitted particulate matter ($PM_{2.5}$ and PM_{10}), and TACs such as diesel exhaust particulate matter.

<u>Impact AIR-1</u>: Construction of the proposed project would generate air pollutant emissions that could violate air quality standards. (S)

Site preparation and project construction would involve demolition of the existing structures on the project site, clearing, cut-and-fill activities, grading, and building activities. Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils on the site. If not properly controlled, these activities would temporarily generate PM_{10}, $PM_{2.5}$, and to a lesser extent CO, SO_2, NO_x, and VOCs. Sources of fugitive dust would include disturbed soils at the construction sites and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, the silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site. These emissions would be temporary and limited to the immediate area surrounding the construction sites.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. The BAAQMD has established standard measures for reducing fugitive dust emissions ($PM_{2.5}$ and PM_{10}). With the implementation of standard construction measures such as frequent watering (e.g., two times per day at a minimum), fugitive dust emissions from construction activities would not result in adverse air quality impacts.

The 2012 Master Plan would be constructed over an approximately 15- to 20-year period extending to 2028 to 2033, in accordance with the projected business needs of Gilead Sciences. The construction period for each building would be approximately 12 to 18 months. Construction emissions were estimated for the project using the California Emissions Estimator Model (CalEEMod v.1.1). Total

construction emissions were estimated using default assumptions in CalEEMod. Total estimated emissions were averaged over a 15-year construction period to estimate the average daily emission rate. Construction-related emissions are presented in Table IV.I-6. As shown in Table IV.I-6, construction emissions of ozone precursors (ROG and NO_x) would not exceed the BAAQMD's threshold for average daily construction emissions.

Table IV.I-6: Project Construction Emissions in Pounds Per Day

Project Construction	ROG	NO_x	Exhaust $PM_{2.5}$	Fugitive Dust $PM_{2.5}$	Total $PM_{2.5}$	Exhaust PM_{10}	Fugitive Dust PM_{10}	Total PM_{10}
Average Daily Construction Emissions	20.5	35.2	1.5	0.3	1.8	1.6	4.7	6.3
BAAQMD Thresholds	54.0	54.0	54.0	BMP	NA	82.0	BMP	NA
Exceed Threshold?[a]	**No**	**No**	**No**	**No [a]**	**NA**	**No [a]**	**No**	**NA**

Notes:
[a] Would not exceed the threshold with implementation of Best Management Practices (see Mitigation Measure AIR-1).
NA = Not Applicable, the BAAQMD does not have a threshold.
BMP = Best Management Practices
Source: LSA Associates, Inc., 2012.

However, the BAAQMD recommends the implementation of Best Management Practices to reduce fugitive dust emissions from construction activities to a less-than-significant level. Implementation of Mitigation Measure AIR-1 would require implementation of the BAAQMD's Best Management Practices and additional measures to reduce diesel PM exhaust emissions and other fugitive dust impacts. Implementation of this mitigation measure would reduce PM emissions to a less-than-significant level.

> Mitigation Measure AIR-1: Consistent with guidance from the BAAQMD, the following actions shall be required of construction contracts and specifications for the project, as applicable, and Gilead Sciences shall ensure compliance with these actions:
>
> - All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
> - All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
> - All visible mud or dirt tracked-out onto public roads adjacent to the project site shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
> - All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (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.
> - Construction equipment idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 2 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of the 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 the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- The project applicant shall post a publicly-visible sign with the telephone number and person to contact at the City of Foster City regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.
- All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or a moisture probe.
- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
- Vegetative ground cover (e.g., fast-germinating native grass seed) or other plants that offer dust mitigation shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.

The above measures would reduce construction-period air pollutant emissions to a less-than-significant level. (LTS)

Operational Emissions – Regional Emissions Analysis. The project would generate long-term air emissions associated with changes in the permanent use of the project site. These long-term emissions are primarily mobile source emissions that would result from vehicle trips associated with the proposed project. Area sources, such as natural gas heaters, landscape equipment, and use of consumer products such as pressurized air canisters would also result in pollutant emissions.

The emissions estimator model CalEEMod, which the BAAQMD approves for use in estimating emissions associated with land use development projects, was used to calculate long-term mobile and area source emissions for both existing on-site emissions and emissions associated with the project. CalEEMod output sheets are included in Appendix C.

Existing On-Site Emissions. The project site is currently developed with office and laboratory uses, along with associated surface parking, landscaping, and accessory uses. According to the Transportation Impact Analysis (TIA) prepared for the project (see Appendix B), existing trip generation on the project site is equal to 8,847 trips per day,[23] which was used to estimate criteria air pollutants for existing vehicle emissions. Area source emissions associated with the existing uses were calculated using existing building square footages and CalEEMod default assumptions based on the land use type. Daily and annual emissions for the existing uses on the project site are shown in Table IV.I-7.

[23] Fehr & Peers Transportation Consultants, 2012. *Transportation Impact Analysis for the Gilead Sciences Integrated Corporate Campus Master Plan*. October.

Project Emissions. According to the TIA prepared for the project, buildout of the 2012 Master Plan is expected to generate approximately 24,615 trips per day (or 15,768 net trips, taking into account existing uses on the site).[24] The trip rate assumed for the project accounts for reductions associated with implementation of Gilead's existing TDM Program (see Chapter III, Project Description, for a discussion of this TDM Program). Area source emissions associated with the project would include consumer product use, architectural coatings, and the use of landscaping equipment.

The net new daily and annual emissions associated with the project are identified in Table IV.L-8 for ROG, NO_x, PM_{10}, and $PM_{2.5}$. The results indicate the net new project emissions would exceed the BAAQMD's threshold for ROG, NO_x, and PM_{10}; therefore, the proposed project would have a significant effect on regional air quality.

Table IV.I-7: Regional Emissions from Existing On-Site Uses

Emissions in Pounds Per Day				
	ROG	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
Area Source Emissions	25.71	0.00	0.00	0.00
Energy Source	0.53	4.86	0.37	0.37
Mobile Source Emissions	57.42	111.76	76.94	4.38
Total Emissions	83.66	116.62	77.31	4.75
Emissions in Tons Per Year				
Area Source Emissions	4.69	0.00	0.00	0.00
Energy Source	0.10	0.89	0.70	0.07
Mobile Source Emissions	7.18	14.68	8.47	0.60
Total Emissions	11.97	15.57	8.54	0.67

Source: LSA Associates, Inc., 2012.

Table IV.I-8: Project Regional Emissions

	Emissions in Pounds Per Day				Emissions in Tons Per Year			
	ROG	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
2012 Master Plan Emissions								
Area Source Emissions	69.38	0.00	0.00	0.00	12.66	0.00	0.00	0.00
Energy Emissions	1.50	13.63	1.04	1.04	0.27	2.49	0.19	0.19
Mobile Emissions	93.46	159.16	202.60	9.54	11.85	21.55	22.64	1.32
Total Emissions	164.34	172.79	203.64	10.58	24.78	24.04	22.83	1.51
Existing Emissions	83.66	116.62	77.31	4.75	11.97	15.57	8.54	0.67
Net New Total Project Emissions	**80.68**	**56.17**	**126.33**	**5.83**	**12.81**	**8.47**	**14.29**	**0.84**
BAAQMD Significance Threshold	**54.00**	**54.00**	**82.00**	**54.00**	**10.00**	**10.00**	**15.00**	**10.00**
Exceed?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**No**	**No**	**No**

NA = Not Available. Emission estimates are not available.

Source: LSA Associates, Inc., 2012.

The primary emissions associated with the project are regional in nature, meaning that air pollutants are rapidly dispersed on emission or, in the case of vehicle emissions associated with the project, emissions are released in other areas of the air basin. Because the resulting emissions are dispersed rapidly and contribute only a small fraction of the region's air pollution, air quality in the immediate vicinity of the project site would not substantially change compared to existing conditions or the air

[24] Ibid.

quality monitoring data reported in Table IV.I-2. However, regional emissions would exceed the BAAQMD's significance criteria. Therefore mitigation would be required.

Impact AIR-2: Operation of the proposed project would generate air pollutant emissions that would exceed the BAAQMD criteria and violate air quality standards. (S)

As shown in Table V.I-8 the majority of emissions associated with the project would be generated by employee, visitor, and vendor trips to and from the project site (i.e., mobile emissions). The primary strategy for reducing these trips is the implementation of a TDM Program. Gilead Sciences currently operates a TDM Program that is designed to reduce the use of single-occupancy motor vehicles and encourage the use of carpooling, transit, biking, and walking for work-related trips. The current program includes subsidized public transit tickets, a carpool and vanpool program, commute assistance, and video conferencing. Mitigation Measure AIR-2 (requiring implementation of the TDM Program outlined in Mitigation Measure TRANS-1) would supplement this existing TDM Program with additional measures designed to reduce project vehicle trips. Implementation of the following mitigation measure would reduce the project's NO_x operational emissions to a less-than- significant level, but ROG and PM_{10} emissions would remain significant and unavoidable.

> Mitigation Measure AIR-2: The project sponsor shall implement the TDM Program outlined in Mitigation Measure TRANS-1. Implementation of this measure would reduce trip generation by 8 percent beyond the TDM trip reduction accounted for in the project trip generation rates. The resulting emissions are shown in Table IV.I-9, which indicates that emissions would remain above the significance threshold. Therefore, this impact is considered significant and unavoidable. (SU)

Table IV.I-9: Mitigated Project Regional Emissions

	Emissions in Pounds Per Day				Emissions in Tons Per Year			
	Reactive Organic Gases	Nitrogen Oxides	PM_{10}	$PM_{2.5}$	Reactive Organic Gases	Nitrogen Oxides	PM_{10}	$PM_{2.5}$
Mitigated 2012 Master Plan Emissions								
Area Source Emissions	65.38	0.00	0.0	0.00	11.93	0.00	0.00	0.0
Energy Emissions	1.50	13.63	1.04	1.04	0.27	2.49	0.19	0.19
Mobile Emissions	86.05	146.54	186.58	8.79	10.97	19.85	20.96	1.22
Total Emissions	152.93	160.17	187.62	9.83	23.17	22.44	21.15	1.41
Existing Emissions	83.66	116.62	77.31	4.75	11.97	15.57	8.54	0.67
Net New Mitigated Total Project Emissions	**69.62**	**43.55**	**110.31**	**5.07**	**11.20**	**6.87**	**12.61**	**0.74**
BAAQMD Significance Threshold	**54.00**	**54.00**	**82.00**	**54.00**	**10.00**	**10.00**	**15.00**	**10.00**
Exceed?	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**No**	**No**

NA = Not Available. Emission estimates are not available.

Source: LSA Associates, Inc., 2012.

(2) Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant. According to the BAAQMD, regional air pollution is largely a cumulative impact. No single project is sufficient in size to independently create regional nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air

quality impacts. Therefore, if daily average or annual emissions of construction- or operational-related criteria air pollutants exceed any applicable threshold established by the BAAQMD, the proposed project would result in a cumulatively significant impact.

Impact AIR-3: Operation of the proposed project would result in a significant cumulative net increase in criteria pollutant emissions. (S)

With implementation of Mitigation Measure AIR-1, construction of the proposed project would not result in a significant net increase in criteria air pollutants. However, as shown in Table IV.I-9, the proposed project would exceed the threshold for operational impacts for criteria pollutants even with implementation of all feasible mitigation measures; therefore, the project would also contribute to a cumulatively significant criteria air pollutant impact. While implementation of Mitigation Measure AIR-3 would reduce this impact, cumulative regional air quality impacts of the project would remain significant and unavoidable.

Mitigation Measure AIR-3: Implement Mitigation Measure AIR-2. (SU)

(3) Expose Sensitive Receptors to Substantial Pollutant Concentrations. According to the BAAQMD, a project would result in a significant impact if it would: individually expose sensitive receptors to TACs resulting in an 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 an annual average ambient $PM_{2.5}$ increase greater than 0.3 $\mu g/m^3$. A significant cumulative impact would occur if the project in combination with other projects located within a 1,000-foot radius of the project site would expose sensitive receptors to TACs resulting in an increased cancer risk greater than 100.0 in one million, an increased non-cancer risk of greater than 10.0 on the Hazard Index (chronic), or an ambient $PM_{2.5}$ increase greater than 0.8 $\mu g/m^3$ on an annual average basis. Certain groups of people are more susceptible to health effects associated with air pollution than others. ARB has identified the following groups that are most likely to be affected by air pollution: children under 14 years, the elderly over 65 years, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks and recreational facilities. The closest sensitive receptors to the project site are located in residences along Mariners Island Boulevard that are approximately 200 feet to the west of the project site. There are also residences about 350 feet to the south of the site on Chess Drive.

Impact AIR-4: Construction of the proposed project would result in exposure of sensitive receptors to substantial pollutant concentrations. (S)

The 2012 Master Plan would be constructed over an approximately 15- to 20-year period extending to the period of 2028 to 2033, in accordance with the projected business needs of Gilead Sciences. The construction period for each building would be approximately 12 to 18 months. Construction of the project would result in emissions of dust and diesel exhaust. Toxic construction-related health risks are dependent on the type of construction equipment used and duration of the construction period. Due to the lack of specific construction information, a precise estimate of project construction health risks cannot be determined. To ensure that construction impacts do not adversely affect sensitive receptors, the following mitigation measure shall be implemented:

Mitigation Measure AIR-4: For any phase of project development that includes buildings within 1,000 feet of a residential dwelling unit, prior to issuing building permits, a construction health risk assessment shall be conducted to assess emissions from all construction equipment during that phase of construction. Equipment usage shall be modified as necessary to ensure that equipment use would not result in a carcinogenic health risk of more than 10 in 1 million or result in a non-cancer risk of greater than 1.0 on the Hazard Index or ambient $PM_{2.5}$ increase greater than 0.3 $\mu g/m^3$ on an annual average basis. If multiple buildings would be constructed simultaneously, a combined health risk assessment may be prepared. Alternately, a health risk assessment for the entire project may be prepared if sufficiently detailed construction information is available. (LTS)

Impact AIR-5: Operation of the proposed project would result in exposure of sensitive receptors to substantial pollutant concentrations. (S)

The proposed project may result in the installation of additional back-up emergency generators that would be phased-in as new buildings are constructed. Although the precise locations are not known at this time, the generators would be located as far away as possible from residential areas. All generators would require permits issued by the BAAQMD and would require intermittent testing, which would result in the emission of diesel particulate matter. In order for emissions to be below the significance threshold of 10 in 1 million, generators must be located more than 500 feet from any residential dwelling.

To ensure that generators are located an appropriate distance from sensitive receptors, the following measure shall be implemented:

Mitigation Measure AIR-5: All future generator installations shall be located a minimum of 500 feet from any residential dwelling units or a health risk assessment shall be conducted for the proposed generators, with results indicating that any future generator installations and test schedules would not result in a carcinogenic health risk in excess of the following levels:

- Increased cancer risk of greater than 10.0 in one million;
- Increased non-cancer risk of greater than 1.0 on the Hazard Index (chronic or acute);
- Ambient $PM_{2.5}$ increase greater than 0.3 $\mu g/m^3$ annual average;
- Increased cancer risk greater than 100.0 in one million from all sources within 1,000 feet;
- Increased non-cancer risk of greater than 10.0 on the Hazard Index (chronic) from all sources within 1,000 feet; or
- Ambient $PM_{2.5}$ increase greater than 0.8 $\mu g/m^3$ annual average from all sources within 1,000 feet. (LTS)

Implementation of Mitigation Measure AIR-5 would ensure that generators are located an appropriate distance from sensitive receptors in order to ensure that potential health risks for sensitive receptors in the project vicinity are less than significant. In the event that generators are proposed for locations within 500 feet of any residential uses, a health risk assessment would be required to demonstrate that carcinogenic health risks would be less than significant, or the generator would need to be relocated to meet the 500-foot distance standard.

(4) Consistency with BAAQMD's Clean Air Plan. The applicable air quality plan is the Bay Area 2010 Clean Air Plan, which was adopted on September 15, 2010. The Clean Air Plan is a comprehensive plan to improve Bay Area air quality and protect public health. The Clean Air Plan defines a control strategy to reduce emissions and ambient concentrations of air pollutants; safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily affected by air pollution; and reduce greenhouse gas emissions to protect the climate. Consistency with the Clean Air Plan can be determined if the project does the following: 1) supports the goals of the Clean Air Plan; 2) includes applicable control measures from the Clean Air Plan; and 3) would not disrupt or hinder implementation of any control measures from the Clean Air Plan. The project's consistency with these objectives is described below.

1) Does the project support the goals of the Clean Air Plan?

The primary goals of the Bay Area 2010 Clean Air Plan are to: attain air quality standards; reduce population exposure to air pollutants and protect public health in the Bay Area; and reduce greenhouse gas emissions and protect the climate.

According to the BAAQMD *CEQA Air Quality Guidelines*, the recommended measure for determining project support of the Clean Air Plan goals is consistency with the thresholds of significance. As indicated in the operational analysis above, the project would exceed the individual project-level BAAQMD thresholds of significance for criteria pollutants even after mitigation; therefore, the project would not be considered consistent with the goals 2010 Clean Air Plan.

2) Does the project include applicable control measures from the Clean Air Plan?

The control strategies of the Bay Area 2010 Clean Air Plan include measures in the traditional categories of stationary source measures, mobile source measures, and transportation control measures. This latest Clean Air Plan identifies two new subcategories of control measures, including land use and local impact measures and energy and climate measures. Stationary source measures are not specifically applicable to the proposed project and therefore are not evaluated further in this Subsequent EIR. The project's consistency with other measures in the Bay Area 2010 Clean Air Plan is discussed below.

Transportation and Mobile Source Control Measures. The transportation control measures in the Bay Area 2010 Clean Air Plan are designed to reduce emissions from motor vehicles by reducing vehicle trips and vehicle miles traveled (VMT) in addition to vehicle idling and traffic congestion.

Transportation Control Measure (TCM) C-1, Voluntary Employer-Based Trip Reduction Programs, supports voluntary efforts by Bay Area employers to encourage their employees to use alternative commute modes, such as transit, ride sharing, bicycling, walking, or telecommuting. The purpose of this measure is to reduce ozone precursor emissions by reducing commute trips, VMT, and vehicle emissions. In addition this measure is intended to reduce emissions of particulate matter, air toxics, and greenhouse gases. Gilead Sciences currently operates a TDM Program that is designed to reduce the use of single-occupancy motor vehicles and encourage the use of carpooling, transit, biking, and walking for work-related trips. The current program includes subsidized public transit tickets, a carpool and vanpool program, commute assistance, and video conferencing. In addition, the project

includes extensive on-site pedestrian facilities, which would make it easy for employees to move around the site by foot. These measures would reduce vehicle trips generated by the project and would be consistent with TCM C-1 of the Clean Air Plan.

TCM D-1, Bicycle Access and Facilities Improvements, is intended to expand bicycle facilities serving employment sites, educational and cultural facilities, residential areas, shopping districts, and other activity centers. Typical improvements include bike lanes, routes, paths, and bicycle parking facilities. This measure is designed to reduce ozone precursor emissions by sustaining and improving bicycle access and facilities throughout the Bay Area. The project would provide bicycle access to the project site for bicyclists and would provide bike racks on-site. In addition, the project would improve existing bike and pedestrian infrastructure on streets surrounding the project site, allowing for continued bike access around the site. Therefore, in general, the project would include the applicable transportation demand and control measures from the BAAQMD's Clean Air Plan.

Land Use and Local Impact Measures. The Bay Area 2010 Clean Air Plan includes Land Use and Local Impacts Measures (LUMs) to achieve the following: promote mixed-use, compact development to reduce motor vehicle travel and emissions; and ensure that planned growth is focused in a way that protects people from exposure to air pollution associated with stationary and mobile sources of emissions. The LUMs identified by the BAAQMD are not specifically applicable to the proposed project as they primarily relate to actions the BAAQMD will take to reduce impacts from goods movement and health risks in affected communities. The measures also detail new regulatory actions the BAAQMD will undertake related to land use, including the updated CEQA Air Quality Guidelines to which the proposed project would be subject, and indirect source review, which is still under development by the BAAQMD. Therefore, the project would not conflict with any of the Land Use and Local Impact Measures of the Bay Area 2010 Clean Air Plan.

Energy Measures. The Bay Area 2010 Clean Air Plan also includes Energy and Climate Control Measures (ECM), which are designed to reduce ambient concentrations of criteria pollutants and reduce emissions of CO_2. Implementation of these measures is intended to promote energy conservation and efficiency in buildings throughout the community, promote renewable forms of energy production, reduce the "urban heat island" effect by increasing reflectivity of roofs and parking lots, and promote the planting of (low-VOC-emitting) trees to reduce biogenic emissions, lower air temperatures, provide shade, and absorb air pollutants. The energy measures are not specifically applicable to the proposed project at this time as they relate to future building codes and other actions that regulatory agencies may adopt; however the proposed project would be conditioned to meet the requirements for specific energy and climate control measures as they are required by the BAAQMD and the City of Foster City in the future.

3) Would the project disrupt or hinder implementation of any control measures from the Clean Air Plan?

As discussed above, the proposed project would not conflict with the measures outlined in the Clean Air Plan, including transportation control measures and energy measures. Therefore, the project would not disrupt or hinder implementation of any control measures from the Clean Air Plan.

Although the project generally is consistent with the Clean Air Plan's goals and control measures, the project ultimately would not be consistent with the Clean Air Plan because it would exceed the BAAQMD's threshold of significance for criteria air pollutants.

Impact AIR-6: Operation of the proposed project would generate air pollutant emissions that would exceed the BAAQMD criteria and violate air quality standards, resulting in an inconsistency with the Clean Air Plan. (S)

Implementation of Mitigation Measure AIR-2 would reduce this impact; however, no additional measures would be feasible to reduce this impact to a less-than-significant level.

Mitigation Measure AIR-6: Implement Mitigation Measure AIR-2. (SU)

d. Cumulative Impacts. As discussed above, air pollution is a regional issue affected by climate, land uses and topography. Development projects from the past, present, and future contribute to regional pollution on a cumulative basis because air pollutants, once emitted at a particular location, move throughout the atmosphere and air basin. If a project's contribution at the individual level is considerable, then the project's contribution to cumulative impacts on air quality would also be considered significant.

The analysis presented above discusses air quality conditions related to implementation of the project, as well as the project's conformance with the BAAQMD's 2010 Bay Area Clean Air Plan. The Clean Air Plan is the region's plan for attaining air quality standards and accounts for future cumulative regional growth. Therefore, consistency with the Clean Air Plan would indicate the project would not make a significant contribution to a cumulative air quality impact.

Although the project is generally consistent with the Clean Air Plan's goals and control measures, the project ultimately would not be consistent with the Clean Air Plan because it would exceed the BAAQMD's threshold of significance for criteria air pollutants, resulting in a significant contribution to a cumulative air quality impact. Implementation of Mitigation Measures AIR-1 and AIR-2 would reduce this impact; however, the impact, relating to vehicle emissions and dust, would remain significant and unavoidable.

The proposed project could include the addition of emergency generators, which would be a source of cumulative stationary toxic air contaminants for receptors located in the vicinity of the project site. Implementation of Mitigation Measure AIR-5 would ensure that all cumulative impacts from generators on the project site would be reduced to a less-than-significant level.

J. PUBLIC SERVICES, UTILITIES, AND RECREATION

This section analyzes the potential impacts of the 2012 Master Plan on public services, utilities, and recreation facilities, including: fire protection, police services, schools, open space and recreation facilities, water, wastewater, solid waste, telecommunications, and electricity and natural gas. Potential impacts that could result from the proposed project are identified, and mitigation measures are recommended, as appropriate. The related topic of storm drainage is evaluated in Chapter IV.E, Hydrology and Water Quality.

1. Setting

This section discusses current service locations, capacities, and planned expansion relating to public services, utilities, and recreation.

a. Fire Protection. The Foster City Fire Department (FCFD) provides fire suppression, life-safety, and hazardous material response and containment services for Foster City. The FCFD 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. In addition, the FCFD jointly delivers some fire services with the City of San Mateo Fire Department. The FCFD also has an Automatic Aid agreement with the City of Hayward Fire Department for the San Mateo Bridge. In addition, the FCFD participates in the Master Mutual Aid System for the State of California, which provides staff and mechanical assistance throughout the State. FCFD staffing, facilities, equipment, and response times are described below.

(1) Staffing. The FCFD has a current authorized staff of 36 full-time and two part-time employees, including 19 Firefighters, nine Captains, two Battalion Chiefs, one Fire Marshal, and two administrative staff. In addition, Foster City also shares a Fire Chief, Deputy Fire Chief, and Battalion Chief with the City of San Mateo. Each shift is assigned one Battalion Chief, three Captains, and seven Firefighters. All engine companies are staffed with Advanced Life Support systems (operated by FCFD paramedics) and one paramedic is on duty at all times.[1]

(2) Facilities and Equipment. Foster City Fire Station 28 is located at 1040 East Hillsdale Boulevard. It is the closest fire station to the project site, and is located approximately 1 mile from the site. In-service equipment housed at the fire station includes one fire truck, two fire engines, and one 14-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.[2]

The second closest station to the project site is Station 26 at 1500 Marina Court in San Mateo, which is staffed by the City of San Mateo Fire Department. Station 26 is 1.8 miles from the project site. This station is equipped with one fire engine and has one fire captain and two firefighters present at all

[1] Keefe, Michael, 2012. Fire Chief, Foster City Fire Department. Written communication with City of Foster City. October.

[2] Ibid.

times. Three fire personnel are assigned to the station per day. This station is equipped with one fire engine and a lumber truck (i.e., a truck carrying lumber that can be used to temporarily support buildings that are structurally unsound). There are currently no planned improvements at San Mateo Fire Station 26.

(3) Response Times. FCFD's average response time goal within the City limits is 3.5 to 4.5 minutes. FCFD is currently meeting that goal 90 percent of the time. By contract, Foster City fire engines must arrive at the scene of a medical call in less than 7 minutes. Response time to the project site under current conditions is generally between 3 to 4 minutes. The average response time is under 4.5 minutes.[3]

FCFD'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 is based on a consideration of a community's fire defense capacity versus fire potential and is used to set property insurance premiums for homeowners and commercial property owners.[4]

b. Police Services. The Foster City Police Department (FCPD) is located at 1030 East Hillsdale Boulevard, approximately 1 mile from the project site. The FCPD has a current staff of 36 sworn and 13 non-sworn personnel. The FCPD is currently fully staffed, but anticipates vacancies in the near future. The FCPD also has an additional staff of 20 volunteers.[5]

As with all police departments in California, the FCPD staffing goal is to achieve the industry standard of 1.5 officers per 1,000 residents. The industry standard does not take into account a nonresident daytime population. Generally, police departments in cities with uses such as universities, large sports stadiums, and large business parks use the officer/residents industry standard ratio as a baseline, and then add more officers as needed to address the demand placed on the department by the nonresident population. However, the FCPD has not identified a service standard that takes into account a non-resident daytime population. Due to ongoing budgetary constraints, the current police officers-to-residents ratio in Foster City is approximately 1.2 sworn officers per 1,000 residents.[6]

Citywide, one supervisor and three to five officers work during the daytime and evening shifts. Between 2:00 a.m. and 6:00 a.m. that level can fall to as few as one supervisor and two officers, due to the low level of service calls. Officers patrol the City and respond to all calls for service.

The FCPD has a goal of responding to all emergency calls in 5 minutes or less. Depending on their nature, non-emergency calls are responded to in less than 10 minutes on average. In Foster City, the average response time for emergencies (Priority 1 calls) is 4 minutes, while non-emergency calls have a response time of 6 minutes. In 2011, there were a total of 316 incidents recorded in the reporting area surrounding the project site. The average response time for all calls in this area was 5 minutes.

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[3] Keefe, Michael, 2012, op. cit.

[4] Foster City, City of, 2012. ISO "Class 2." Website: www.fostercity.org/services/safety/fire/iso-classification.cfm.

[5] Martell, Matthew, 2012. Captain, Foster City Police Department. Written communication with LSA Associates, Inc. July 19.

[6] Ibid.

The FCPD anticipates a total of 400 calls for service during 2012, an increase of approximately 27 percent.

c. Schools. The following section describes school services within Foster City, which are provided by two school districts: the San Mateo-Foster City School District (SMFCSD); and the San Mateo Union High School District (SMUHSD). School Services, enrollment, and enrollment standards for each of these school districts are discussed below.

(1) San Mateo-Foster City School District. The SMFCSD operates 20 schools serving the communities of San Mateo and Foster City, including 16 elementary and four middle schools. District-wide enrollment for the 2011-2012 school year was 11,204 students.[7] The SMFCSD operates three elementary schools and one middle school in Foster City. These schools, along with current enrollment numbers, are listed in Table IV.J-1. Enrollment within Foster City schools is approximately 28 percent of District-wide enrollment.

Table IV.J-1: SMFCSD 2011-2012 Enrollment at Schools Serving Foster City

School	Enrollment	Capacity	Excess Capacity [a]
Audubon Elementary	632	658	26
Foster City Elementary	800	931	131
Brewer Island Elementary	715	760	45
Bowditch Middle	939	1,100	161
Total	**3,086**	**3,449**	**363**

[a] Positive numbers mean a school is under capacity.

Source: SMFCSD, 2012; LSA Associates, Inc., 2012.

The SMFCSD does not maintain a student generation rate.[8] However, based on California Department of Finance (CDF) data, in 2010-2011 there were 64,397 students enrolled in kindergarten through eighth grade (the grade range served by SMFCSD) in San Mateo County[9] and the number of households in San Mateo County was 257,848.[10] Thus, the student generation rate for kindergarten through eighth grade is approximately 0.25 students per household.[11] The enrollments for the current school year (2011-2012) of the elementary and middle schools in Foster City are shown in Table IV.J-1. Audubon Elementary School, Foster City Elementary School, Brewer Island Elementary School, and Bowditch Middle School are operating at approximately 96 percent, 86 percent, 94 percent, and 85

[7] California Department of Education, 2012. Educational Demographics Unit. *Dataquest.* Website: dq.cde.ca.gov/dataquest/. September 4.

[8] Barton, Molly, 2012. Assistant Superintendent for Student Services, San Mateo Foster City School District. Written communication with LSA Associates, Inc. November 20.

[9] California Department of Finance, 2011. California Public K–12 Graded Enrollment Projections Table, 2011 Series. Website: www.dof.ca.gov/research/demographic/reports/projections/k-12/view.php (accessed November 11, 2012).

[10] California Department of Finance, 2011. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011 and 2012. Website: www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php (accessed November 2, 2012).

[11] LSA Associates was not able to obtain a District-specific student generation rate from the SMFCSD. Thus the most recent available data were used.

percent capacity, respectively.[12] In addition, while there are elementary schools assigned to each neighborhood, students are allowed to transfer to non-assigned schools.

New development is required to provide necessary funding and/or capital facilities for the school system, as determined by applicable State-mandated development impact fees. The developers of commercial and industrial developments are required to pay a fee of $0.28 per square foot for the development of school facilities (assuming the developers do not develop school facilities as part of projects).[13]

(2) San Mateo Union High School District. The SMUHSD provides high school education to the communities of Burlingame, Foster City, Hillsborough, Millbrae, San Mateo, and San Bruno. The SMUHSD operates six high schools and one continuation high school. Projected district-wide enrollment for the 2012-2013 school year is 8,208. The SMUHSD operates three high schools in that serve families in Foster City: Aragon High School, Hillsdale High School, and San Mateo High School. While all new employees generated by the proposed 2012 Master Plan would not necessarily live within the boundaries of the SMUHSD, high school-aged children who move to Foster City with households including employees of Gilead Sciences would likely go to one of these three schools.

The SMUHSD uses a student generation rate of 0.69 households per 1,000 feet of commercial construction and 0.187 high school students per household. Based these rates, the existing buildings (926,735 square feet) currently generate approximately 120 students. The enrollment for the current school year (2011-2011) of these high schools is shown in Table IV.J-2. Aragon High School, Hillsdale High School, and San Mateo High School are operating at approximately 99 percent, 94 percent and 90 percent capacity, respectively.[14]

Table IV.J-2: SMFCSD 2011-2012 Enrollment at Schools Serving Foster City

School	Enrollment	Capacity	Excess Capacity [a]
Aragon High School	1,499	1,500	1
Hillsdale High School	1,318	1,400	82
San Mateo High School	1,373	1,500	127
Total	**4,190**	**4,400**	**210**

[a] Positive numbers mean a school is under capacity.

Source: California Department of Education, 2012; McManus, Elizabeth, 2012.

Similar to SMFCSD, the SMUHSD requires new development to provide necessary funding and/or capital facilities for the school system, as determined by applicable State-mandated development impact fees. SMUHSD currently charges a commercial development fee of $0.19 per square foot.

[12] Barton, Molly, 2012, op. cit.

[13] San Mateo Union High School District, 2012. School Impact (Developer) Fees. Website: www.smuhsd.org/developerfees. September 4.

[14] McManus, Elizabeth, 2012. Deputy Superintendent Business Services, San Mateo Union High School District. Written communication with LSA Associates, Inc. July 25.

d. Open Space and Recreation. The City of Foster City has 21 recreational facilities within the 4 square miles comprising the City. These open space areas range in size from 0.12 acres to 23.9 acres, and total approximately 113.8 acres.[15] In addition, the City has 212 acres of recreational waterways. Almost all residents live within walking distance, or ¼-mile, of open space or a private recreational facility. All of those who do not live within ¼-mile of open space generally live within ¼-mile of the waterfront. The closest City-managed open space to the project site is the 20.75-acre Leo J. Ryan Memorial Park. The open space area is located approximately 1 mile southeast of the project site. A shoreline access point in Foster City is located approximately ¼-mile north of the site. In addition, there are two open space areas operated and maintained by the City of San Mateo that are located in the vicinity of the 2012 Master Plan area. The 15.3-acre Tidelands Park and 4-acre Mariners Island Park are both located within ¼-mile of the project site. In addition, the Foster City Community Center and the William E. Walker Recreation Center are located approximately 1 mile from the project site, at 1000 East Hillsdale Boulevard and 650 Shell Boulevard, respectively.

The City of Foster City uses a 5-acres-per-1,000-residents standard as a threshold to measure how well its citizens are provided with access to open space and recreational facilities. Taking into account park space and recreational waterways, and a 2009 population of 30,429, the City has an average of 10.7 acres of park and recreational facilities per 1,000 residents, far exceeding the City's standard of 5 acres per 1,000 residents.[16] The City requires payment of a fee in lieu of land dedication, or a combination of a fee and land dedication, for residential developments that do not provide adequate open space, based on the 5-acres-per-1,000-residents standard. Since the proposed 2012 Master Plan does not include residential uses, the project would not be subject to this requirement.

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 are described below. This information is primarily based on the revised Water Supply Assessment published by EMID in November 2012 (and included as Appendix E to this Subsequent EIR).[17]

(1) Water Sources. EMID obtains potable water from the City and County of San Francisco's regional system, operated by the San Francisco Public Utilities Commission (SFPUC). This supply is predominantly from the Sierra Nevada Mountains, delivered through the Hetch Hetchy aqueducts, but also includes small amounts of treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo Counties. As a water retailer, EMID has no direct control over its water supply.

In 1984 EMID, along with 29 other Bay Area water suppliers represented by the Bay Area Water Supply and Conservation Agency (BAWSCA), signed a Settlement Agreement and Master Water

[15] Foster City, City of, 2008. Foster City Park Guide. Website: www.fostercity.org/Services/recreation/ParkGrid.cfm. August.

[16] Foster City, City of, 2009. *General Plan, Chapter 5: Parks and Open Space Element*. July.

[17] Estero Municipal Improvement District, 2012. *Water Supply Assessment Report for Gilead Integrated Corporate Campus Master Plan Project; 15-Acres Project; 400 Mariners Island Blvd., City of San Mateo (Tidelands Park) Residential Project; Chess Hotel Project; Chess/Hatch Drive Office Project; Bayside Towers III Project; Visa V Project; Marina Project.* November 5.

Sales Contract with the SFPUC, supplemented by an individual Water Supply Contract. A new Water Supply Agreement and Individual Water Sales Contract were approved in August 2009 and provide for a 184 million gallon per day (mgd) "Supply Assurance" to the SFPUC's wholesale customers. The Water Supply Agreement and Individual Water Sales Contract expire in 2034 but contain provisions for extension to 2044.[18]

The projected water supply and demand in EMID's service area between 2015 and 2030, not taking into account major anticipated development projects in the service area (including the 2012 Master Plan), are shown in Table IV.J-3. During a normal year, EMID is assured a water supply of 6,608 acre feet.

The SFPUC can meet the demands of its retail and wholesale customers in years of average and above-average precipitation. However, global climate change poses a long-term threat to water supply reliability, although the exact effects are unknown. California relies on a combination of rainfall in the winter and runoff from the Sierra Nevada mountain snowpack in the spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could reduce the spring snowpack, increasing the risk of summer water shortages. At the same time, warmer weather could increase precipitation in the State. Therefore, the effects of global climate change on the State's water supply may be variable.

Supply instability is addressed through the Master Water Sales Contract, which allows the SFPUC to reduce water deliveries during droughts, emergencies, and for scheduled maintenance activities. The SFPUC and all wholesale customers adopted an Interim Water Shortage Allocation Plan in 2011 to address the allocation of water between San Francisco and wholesale customers in aggregate and among individual wholesale customers during water shortages of up to 20 percent of system-wide use. In addition, EMID adopted a Water Shortage Contingency Plan in 1993 to address reduced water deliveries within its service area.

Table IV.J-4 shows projected water deliveries to EMID during multiple dry years. The SFPUC would reduce water deliveries by 10 percent for the first two consecutive dry years, and 20 percent for the remaining consecutive dry years. Water demand within the EMID service area would be accordingly reduced during multiple dry years with implementation of the Interim Water Shortage Allocation Plan.

Table IV.J-3: EMID Current and Planned Water Supply and Demand (acre feet/year)

	2015	2020	2025	2030
Normal Year Supply	6,608	6,608	6,608	6,608
EMID Water Demand	5,373	5,497	5,579	5,635
Annual Difference	1,235	1,111	1,029	973

Source: Estero Municipal Improvement District, 2012.

[18] Hanson Bridgett, LLP, 2009. *Re. Fully Executed Water Supply Agreement and Individual Water Sales Contract with San Francisco*. August 24.

Table IV.J-4: Projected EMID Deliveries For Five Consecutive Dry Years (acre feet/year)

	2010	One Critical Dry Year	Year 2	Year 3	Year 4	Year 5
Supply	6,608	5,947	5,947	5,286	5,286	5,286
% Reduction	–	10 %	10%	20%	20%	20%

Source: Estero Municipal Improvement District, 2012.

(2) Water Treatment, Distribution, and Storage Facilities. As discussed above, the majority of the SFPUC's water supply originates in the upper Tuolumne River watershed, high in the Sierra Nevada Mountains, remote from human development. Hetch Hetchy water is protected in pipes and tunnels as it is conveyed to the Bay Area, requiring only primary disinfection and pH adjustment to control corrosion in the pipelines. Small amounts of local water may be blended with Hetch Hetchy water. Water from the Alameda watershed is treated at the Sunol Valley Water Treatment Plant in Sunol, while water from the Peninsula Watershed is treated at the Harry Tracy Water Treatment Plant in San Bruno.

Potable water from the SFPUC flows through a 54-inch line located in the City of San Mateo on Crystal Springs Road (Crystal Springs No. 2). EMID's 24-inch main water line connects to this line and potable water flows by pressure from this connection point throughout the EMID distribution system.[19] EMID currently owns and operates four water storage tanks with a combined capacity of 20 million gallons of treated water.

In addition, EMID has a 12-inch connection to the California Water Service Company, which serves the City of San Mateo, and a 12-inch connection to the Mid-Peninsula Water Agency, which serves the cities of Belmont, San Carlos, and portions of Redwood City. EMID has transfer/exchange agreements with both agencies that allow EMID to use these connections during emergency situations.

Water distribution lines within the vicinity of the 2012 Master Plan area include a 12-inch water main located under Lakeside Drive that provides water to the project site from both the Reef Drive and Vintage Park Drive directions. Various 8-inch water lines extend from the 12-inch line under Lakeside Drive to serve each building on the campus. All of the water lines currently serving the campus were built in approximately 1986. In addition, there is a 12-inch redundant loop system located near the southern boundary of the project site that serves the Bridgepointe Shopping area, including the Home Depot store.[20]

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 are described below.

[19] Towne, Ray, 2012. Public Works Director, Foster City Public Works Department. Written communication with LSA Associates, Inc. August 13.

[20] Ibid.

(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 Treatment Control Plant (SMWQCP) in San Mateo. Wastewater pipes within Foster City range in age from approximately 17 years old to 45 years old.[21] The system is maintained and upgraded on an as-needed basis.

Infrastructure in the vicinity of the project site consists of an 8-inch sewer line located beneath Lakeside Drive that runs from the intersection of Lakeside Drive to Vintage Park Drive to the existing Building 335. At this point, several 8-inch sewer lines run from Lakeside Drive to the various buildings on this portion of the campus. These pipes were constructed around 1986. There is a sanitary pump station (Pump Station 27) located on Lakeside Drive that collects wastewater from the project area and pumps wastewater into a force main system. Downstream from Pump Station 27, Pump Stations 28 and 15 also pump into the force main system that conveys these flows to the EMID main pump station, Pump Station 59, located at the City/EMID Corporation Yard. All City/EMID wastewater is then pumped from Pump Station 59 to the San Mateo Wastewater Treatment Plant (WWTP) located off East Third Avenue in San Mateo, where it is treated and then discharged into San Francisco Bay, or is used for acceptable non-potable purposes.[22]

(2) Wastewater Treatment Facilities. Wastewater treatment is provided by the San Mateo WWTP, which is jointly owned by EMID and the City of San Mateo. EMID owns 27 percent of the treatment plant's average daily flow capacity, or approximately 4.3 million gallons per day (mgd). The treatment plant's maximum daily wet weather capacity is 39.3 mgd and its maximum daily dry weather capacity is 22.0 mgd. The treatment plant's 1 hour peak wet weather capacity is 60 mgd and its 1 hour peak dry weather capacity is 39.5 mgd. The average daily wastewater flow in 2012 (up to July 31) was 15.7 mgd.[23]

g. Solid Waste. The following section describes Foster City's non-hazardous and hazardous waste disposal services and capacity, as well as applicable solid waste regulations, including source reduction and recycling regulations.

(1) Non-Hazardous Solid Waste. Foster City is a member agency of the South Bayside Waste Management Authority (SBWMA), a joint powers authority created in 1982 to facilitate waste management programs for its member agencies. The SBMWA contracts with private companies for hauling and disposal of solid waste. Franchised solid waste collection, disposal, and recycling services in Foster City are provided by Recology San Mateo County. Non-hazardous solid waste is taken to the Shoreway Environmental Center on the border of the cities of San Carlos and Redwood City. The Shoreway Environmental Center has a maximum allowable capacity of 3,000 tons of waste per day and processes a daily average of approximately 1,154 tons of waste.[24] After undergoing

[21] Ibid.

[22] Towne, Ray, 2012, op. cit.

[23] Ibid.

[24] San Mateo County, 2010. *San Mateo County Integrated Waste Management Plan.* June.

processing, non-recyclable waste from the Shoreway Environmental Center is delivered to the Ox Mountain Sanitary Landfill in Half Moon Bay. The landfill, which handles construction, demolition, and mixed municipal waste, has a capacity of 69 million cubic yards. In the year 2000, the total estimated capacity used was approximately 25 million cubic yards, or 36 percent. The landfill has a permitted throughput of 3,598 tons per day and a remaining capacity of 25,000,000 cubic yards.[25] This capacity is anticipated to be sufficient for the landfill to operate until approximately 2050. Currently, the landfill does not have a closure plan and it is not known at this time where future solid waste generated in Foster City will be disposed after 2050.[26] The California Department of Resources, Recycling and Recovery (Cal Recycle) estimates an average waste generation rate of 5.6 pounds per day per employee in Foster City.[27]

(2) Hazardous Solid Waste. Foster City's hazardous waste is disposed at the Kettleman Hills Facility, Landfill B-18, which is operated by Chemical Waste Management, Inc. (CWM). The Kettleman Hills Facility is located in the San Joaquin Valley along Interstate 5, 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. The Kettleman Hills Landfill B-18 encompasses 499 acres and has a total capacity of 10,700,000 cubic yards, of which 6,000,000 cubic yards (56 percent) are remaining. According to the California Department of Resources Recycling and Recovery (Cal Recycle), no closure date has been identified for the landfill.[28]

h. Telecommunications. A number of telecommunications providers currently provide service to residents and businesses in Foster City. AT&T is the 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.[29] Other providers provide digital subscriber line (DSL)-type services to the residential market, but most providers are reliant upon AT&T's infrastructure. The City also 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.[30] 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.

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[25] 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.

[26] Turk, Frank, 2012. Division Manager, Central-Cal Post-Collection, Republic Services. Written communication with LSA Associates, Inc. August 27.

[27] California Department of Resource, Recycling and Recovery, 2012. Jurisdiction Per Capita Disposal Trends: Foster City. Website: www.calrecycle.ca.gov/LGCentral/Reports/Jurisdiction/ReviewReports.aspx. July 10.

[28] California Department of Resources Recycling and Recovery, 2012. Facility/Site Summary Details: Kettleman Hills. Website: www.calrecycle.ca.gov/SWFacilities/Directory/16-AA-0023/Detail/. July 9.

[29] Foster City, City of, 2012. Telephone Service Providers Servicing Foster City. Website: www.fostercity.org/community_info/telecomm/Telephone-Companies-Servicing-Foster-City.cfm. July 10.

[30] Foster City, City of, 2012. Cable Television, Broadband and Satellite Dishes. Website: www.fostercity.org/community_info/telecomm/Cable-Television-and-Similar-Services.cfm. July 10.

The California Public Utilities Commission, which regulates California's telecommunication industry, requires that local phone service providers anticipate and serve new growth. To meet this requirement, local phone service 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.

i. Electricity and Gas. The Pacific Gas and 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.

2. General Plan Policies

The Foster City General Plan includes the following policies and programs related to public services and utilities.

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.

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.

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.

3. Impacts and Mitigation Measures

This section discusses public service, utility, and recreation impacts that could result from the proposed 2012 Master Plan. 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 mitigation measures, if appropriate. Less-than-significant impacts are discussed first, followed by significant impacts and then cumulative impacts.

a. Significance Criteria. The project would have a significant impact on the environment related to public services and utilities 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; or
  - 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 park acreage does not meet the Government Code standard of 5 acres per 1,000 population (Foster City Municipal Code Section 16.36);
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment;
- Exceed wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board;
- Require or result in construction of new wastewater facilities, or expansion of existing facilities, construction of which could cause significant environmental effects;
- Require or result in construction of new water facilities, or expansion of existing facilities, construction of which could cause significant environmental effects;
- Cause there to be insufficient water supplies to serve the project from existing entitlements and resources, requiring new and expanded entitlements; or
- Violate applicable federal, State, and local statutes and regulations related to solid waste.

b. Less-Than-Significant Impacts. Implementation of the proposed 2012 Master Plan would result in the following less-than-significant impacts to public services and utilities.

(1) Fire Protection. The proposed project would increase the number of employees on the campus by 3,700, which could increase the demand for fire and emergency services on the project site. As described above, the FCFD's average response time goal within City limits is 3.5 to 4.5 minutes, and it is currently meeting that goal for calls to the project site (the current response time is slightly under 4.5 minutes). While increased development at the project site could marginally lengthen response times to the project site and increase calls to the FCFD, the FCFD expects to be able to meet its response time goal. In addition, increased development would not exceed the capabilities of existing or planned FCFD staffing levels.[31] As such, development of the proposed project would result in a less-than-significant impact to fire and emergency medical services within the City.

Moreover, the proposed project would be required to meet all FCFD and Fire Code requirements. These requirements include those pertaining to: sprinkler systems; fire alarms; fire flow, access, and fire hydrant spacing; fire rated assemblies and walls; active and passive smoke control; voice evacuation; and additional radio repeaters. Minor adjustments to existing infrastructure may be required to ensure adequate water flow for fire-fighting needs. For example, underground fire water pipe connections would require a flex joint in a vault where the pipe transitions to a building.[32]

In addition, the City may require the following measures as part of the Development Agreement for the project to further reduce the already less-than-significant impacts on FCFD services:

[31] Keefe, Michael, 2012, op. cit.

[32] Ibid.

- Gilead Sciences shall participate in the replacement/upgrade of traffic signal preemption devices on all traffic signals which are deemed necessary on the typical response route to the 2012 Master Plan area. The signal list will be determined by the FCFD.
- Fire roads and lanes shall be adequately identified for fire suppression response teams that may be unfamiliar with the campus layout.

Site-specific design plans are required by the Fire Code to be submitted to and reviewed by the Fire Chief prior to the issuance of any building permits.[33]

(2) Police Services. The proposed project would increase the number of employees on the Gilead Sciences campus by 3,700, which could increase the demand for police services on the project site. As noted in the setting section, there is no industry-wide standard to determine the ratio of police officers needed to serve a non-resident daytime population. The project could lead to an increased demand for police services.

However, Gilead Sciences would continue to maintain a high level of privately-funded security on the campus. In particular, the security of the buildings from East Third Avenue to Vintage Park Drive would be increased through the privatization of Lakeside Drive. Security measures may include the following: increasing the number of security cameras on the buildings; increasing roving security guard patrols; and the potential addition of a perimeter fence that would help regulate pedestrian and automobile access. The increased security measures on the campus would help to reduce the demand for police services.

Therefore, it is likely that calls for municipal police services would only increase slightly after implementation of the 2012 Master Plan.[34] The FCPD would need to increase police patrols around the construction site during the evening hours to deter theft on the project site. In addition, the proposed 2012 Master Plan would likely require additional police resources during the operational phase of the project. According to e-mail correspondence with the FCPD, the FCPD expects that the project would increase demand for police services, but this demand would be met without the need for additional personnel or acquisition of additional equipment or facilities.

(3) School Services. The following subsection evaluates the project's environmental effects related to school services. The project, which does not include the development of new residential uses, would not directly generate new students. However, students could be added to the school system if new Gilead Sciences employees with children move to the area from elsewhere.

San Mateo-Foster City School District. The proposed project would be subject to a developer mitigation fee of $0.28 per square foot of commercial or industrial development. Therefore, Gilead Sciences would be required to pay up to approximately $440,682 to the SMFCSD.[35] As discussed in the Setting section, the student generation rate for grades kindergarten through eight in San Mateo

[33] Foster City, City of, 2012. *Municipal Code, Chapter 15.24, Fire Code*.

[34] Martell, Matthew, 2012, op. cit.

[35] San Mateo Union High School District, 2012. School Impact (Developer) Fees. Website: www.smuhsd.org/developerfees. September 4.

County is approximately 0.25 students per household. As discussed in detail in Chapter IV.C, the project would add approximately 384 households to Foster City and 331 households to the City of San Mateo (715 total), the areas primarily served by the SMFCSD. Thus, implementation of the proposed project would add approximately 179 students in grades kindergarten through eight. The SMFCSD currently has an excess capacity of 363 students at schools serving Foster City and would thus have sufficient capacity to serve the students generated by the project.

The SMFCSD's maximum student teacher ratio is 28 students per teacher for grades kindergarten through third and 30 students per teacher for grades fourth through eighth grade.[36] Assuming that all the students would be accommodated in new classrooms, and each teacher requires approximately one classroom, students generated by the project would require approximately six additional classrooms. Based on aerial photography of the Audubon Elementary School, Foster City Elementary School, Brewer Island Elementary School and Bowditch Middle School, sufficient space exists at these campuses to accommodate the eight additional classrooms.

Moreover, there is additional capacity available at other schools within the SMFCSD, but located outside of Foster City, in San Mateo. Although school attendance outside of Foster City may be an undesirable option for new residents, the SMFCSD has the additional capacity to serve new students generated by the proposed project. Also, the proposed project would be required to pay developer mitigation fees to SMFCSD to fund capital improvements to local schools. With payment of these fees, the impact of the project on school facilities would be less than significant.

In addition, the SMFCSD, in anticipation of enrollment growth, is planning to reopen Knolls Elementary School in San Mateo and expand Bowditch Middle School. As discussed above, Bowditch Middle School currently serves grades six to eight. Under the expansion, the Middle School would serve grades five to eight. By expanding Bowditch Middle School to accommodate fifth grade students, the SMFCSD would free up space in its existing and reopened schools.[37] This capacity expansion, along with the reopening of Knolls Elementary School, would further reduce the already less-than-significant school services impacts that would result from the project. Any District projects would undergo appropriate review pursuant to CEQA prior to approval.

San Mateo Union High School District. SMUHSD currently charges a commercial development fee of $0.19 per square foot. As such, it is estimated that Gilead Sciences would be required to pay up to approximately $299,034 to the SMUHSD.[38] As discussed in the Setting section, the SMUHSD uses a student generation rate of 0.69 households per 1,000 feet of commercial construction and 0.187 high school students per household to ascertain the effects on student enrollment associated with development projects. Based on these rates, the existing buildings (926,735 square feet) on the project site currently indirectly generate approximately 120 students. At buildout of the 2012 Master Plan (2,500,600 square feet), the Gilead Sciences Corporate Campus would indirectly generate 323 students, a net increase of 203 students over existing conditions. The SMUHSD currently has excess capacity for 210 students at schools serving Foster City and would thus have

[36] Barton, Molly, 2012, op. cit.

[37] Barton, Molly, 2012, op. cit.

[38] Ibid.

sufficient capacity to serve the students generated by the project. However, students generated by the proposed project would absorb almost all of the currently-available enrollment capacity. According to the SMUHSD, the addition of new students generated by the project would create a financial burden and could require new facilities and staff.[39]

The SMUHSD's maximum student teacher ratio is 26 students per teacher. Assuming that all the students would be accommodated in new classrooms, students generated by the project would require four additional classrooms. Aragon High School, Hillsdale High School, and San Mateo High School each have sufficient undeveloped space on their campuses to accommodate the four additional classrooms.

Moreover, there is additional capacity available at other schools within the SMUHSD, but located outside of Foster City, in San Mateo. Although school attendance outside of Foster City may be an undesirable option for new residents, the SMFCSD has the additional capacity to serve new students generated by the proposed project. Also, the proposed project would be required to pay developer mitigation fees to SMUHSD to fund capital improvements to local schools. With payment of these fees, the impact of the project on school facilities would be less than significant.

Payment of Developer Fees. As noted above, payment of the statutory developer mitigation fees ($0.47 and $0.19 per square foot of commercial or industrial development for SMFCSD and SMUHSD respectively) is deemed to be full and complete mitigation of a project's impact on school facilities under CEQA.[40,41] Fees are paid at the time a building permit is issued for a specific building project, and are based on the net new square footage resulting from the project.

As an alternative to the statutory square footage fee, and under limited circumstances, a school district may instead impose a fee for up to 50 percent of certain costs of new school facilities, with the remaining 50 percent to be matched by the State.[42] To qualify for these sources of funding, school districts must demonstrate to the State their long-term facilities needs and costs based on long-term population growth projections, apply and be eligible for State funding for new school facility construction, and satisfy two of the four specified criteria: (1) 40 percent of pupils are enrolled on a multi-track year-round schedule; (2) a general obligation bond to finance new school facilities has been placed on the ballot in the past 4 years and passed with just over 50 percent of the vote; (3) at least 20 percent of teaching stations are portable classrooms; and (4) the school district has issued debt or incurred obligations for capital outlay in an amount equal to 15 percent of the school district's local bonding capacity, including property taxes, parcel taxes, the district's general fund, redevelopment agency funds, and special taxes from community facilities districts approved prior to November 1998 (or 30 percent if post-November 1998 landowner-approved Mello-Roos bonds are counted).

(4) Open Space and Recreation. Buildout of the 2012 Master Plan, which would generate 3,700 new jobs, could induce population growth within Foster City and surrounding communities.

[39] McManus, Elizabeth, 2012, op. cit.

[40] California Government Code, Sections 65995(h) and 65996(b).

[41] Chawanakee Unified School District v. County of Madera, et al. (2011) 196 Cal.App.4th 1016.

[42] California Government Code, Sections 65995.5 and 65995.7.

New residents indirectly generated by the project could increase the demand for existing neighborhood and regional open space, and recreational facilities. As previously described, the City of Foster City uses a 5-acre per 1,000-residents standard as a threshold to measure how well its citizens are provided with access to open space and recreational facilities. Taking into account park space and recreational waterways, and a 2009 population of 30,429, the City has an average of 10.7 acres of park and recreational facilities per 1,000 residents, far exceeding the City's standard of 5 acres per 1,000 residents.[43] Any impacts on open space and recreation facilities resulting from increased population would be addressed through payment of fees and/or dedication of land in connection with new residential developments. These fees and land dedication would ensure that existing parks and recreational facilities would not experience substantial physical deterioration due to residential population increases associated with the proposed project.

In addition, the new employees themselves might use local open space and recreation facilities before work, at lunch, and after work. The proposed project would increase the amount of open space within the project site that would serve Gilead Sciences employees. These open space areas would be located around Vintage Lake and in between campus buildings. The provision of on-site open space would be expected to reduce the demand for off-site open space by Gilead Sciences employees such that deterioration of open space facilities would be unlikely to occur as a result of the project.

The open space areas proposed as part of the 2012 Master Plan would not include the construction of recreational facilities (other than open space intended to be used for passive recreation). Therefore, the 2012 Master Plan would not require the construction of recreational facilities, the construction of which would cause environmental impacts. In addition, because the proposed 2012 Master Plan does not include residential uses, the project would not be subject to the City's requirement of land dedication or in lieu fee payment for residential projects that do not provide adequate open space.

(5) Water Supply. Buildout of the 2012 Master Plan would result in a net increase of up to approximately 1,573,865 square feet of new office, laboratory, and accessory uses on the project site, which would increase demand for water. In addition, 28 percent of the project site (approximately 21 acres) would consist of pervious surfaces that may require irrigation. The project would be subject to the requirements in Section 8.80 of the EMID Code (Outdoor Water Conservation in Landscaping), which would reduce outdoor water usage compared to standard practice.

According to a revised Water Supply Assessment (included in Appendix E) conducted for the proposed 2012 Master Plan and other major projects in Foster City, the proposed project would result in approximately 206 acre feet of additional water demand per year.[44] Table IV.J-5 shows the anticipated water supply every 5 years between 2015 and 2030 (assuming no supply disruptions or multi-year droughts), projected demand within the EMID service area associated with population growth (the data from Table IV.J-3), additional demand associated with the 2012 Master Plan, demand associated with other major anticipated development projects in the EMID service area, and water supply remaining after accounting for expected demand.

[43] Foster City, City of, 2009. *General Plan, Chapter 5: Parks and Open Space Element*. July.

[44] Estero Municipal Improvement District, 2012, op. cit.

Table IV.J-5: EMID Water Supply and Demand Projections Plus Project (acre feet/year)

	2015	2020	2025	2030
Normal Year Supply	6,608	6,608	6,608	6,608
EMID Water Demand	5,373	5,497	5,579	5,635
Proposed Project Demand	206	206	206	206
Other Major Project Demand	447	447	447	447
Remaining Supply	582	458	376	320

Source: Estero Municipal Improvement District, 2012.

As indicated in Table IV.J-5, 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 2012 Master Plan, EMID would have a sufficient water supply to meet expected demand. The expected water supply surplus would range from 582 acre feet per year in 2015 to 320 acre feet per year in 2030

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 overall demand during year 5 of a 5-year drought starting in 2030 to approximately 5,030 acre feet. The anticipated supply that year, taking into account a 20 percent reduction in water deliveries from the SFPUC, would be 5,286 acre feet. Thus even under a 5-year drought scenario starting in 2030, EMID would still be able to provide adequate water to all existing and anticipated development and maintain a water surplus of approximately 256 acre feet. See Table 8 of Appendix E for additional detail.[45]

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), assuming implementation of the mandatory demand reductions outlined in the Water Shortage Contingency Plan.

(6) Wastewater Treatment. As described above, the WWTP's maximum daily wet weather capacity is 39.3 mgd and its maximum daily dry weather capacity is 22.0 mgd. The WWTP's average daily flow is approximately 15.7 mgd (approximately 71 percent of total plant dry weather capacity). EMID is allocated approximately 27 percent of the WWTP's total daily flow capacity, or 4.3 mgd. The City's average daily flow as of 2012 was 2.30 mgd (approximately 53 percent of allocated daily flow capacity). The existing buildings on the project site generate approximately 0.32 mgd. The 2012 Master Plan would generate 0.68 mgd of wastewater, adding 0.36 mgd to the existing daily flow.[46]

[45] Ibid.

[46] 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.

The net increase of 0.36 mgd would increase the City's average daily flow to 2.66 mgd (approximately 62 percent of allocated daily flow capacity) and the WWTP's total average daily flow to 16.06 mgd (approximately 73 percent of total plant daily dry weather capacity). 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).

(7) Solid Waste. The proposed project would be served by landfills with the capacity to handle solid waste generated by the demolition and operational phases of the proposed project. Demolition wastes from existing structures, paved asphalt areas, and utilities would be collected and hauled to the Shoreway Environmental Center for landfill diversion and recycling.

As required by Assembly Bill (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 debris 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 also requires construction contractors to take their construction and demolition debris to a facility that processes construction and demolition materials for recycling. According to the project sponsor, demolition activities on the site would generate approximately 3,143 tons of construction waste, approximately 84 percent of which would consist of concrete debris, including slabs on grade, wall footings, pile caps, and tilt-up exterior walls. The remaining demolition debris would consist of a variety of materials, including roof materials, windows, doors, light fixtures, ceiling materials, partitions, and steel columns. Per Foster City Municipal Code Chapter 15.44, at least 50 percent (1571.5 tons) of the debris would be diverted from the landfill and the remaining debris would be taken to the Ox Mountain Sanitary Landfill. Solid waste generated by the demolition and construction phases of the proposed project, which would be spread out over a 15- to 20-year period, represents approximately 4,400 cubic yards[47] or less than 0.01 percent of the Landfill's remaining capacity (25 million cubic yards). Thus, the project would not substantially shorten the life of the landfill.

The proposed project would also generate solid waste during the operational phase of the project. As previously described, Cal Recycle estimates an average waste generation rate of 5.6 pounds per employee per day.[48] The 3,700 new employees resulting from buildout of the proposed 2012 Master Plan would generate up to approximately 20,720 additional pounds per day (approximately 10.36 tons per day) of solid waste. This represents approximately 0.35 and 0.29 percent of the total daily permitted throughput for the Shoreway Environmental Center and Ox Mountain Sanitary Landfill, respectively. The landfill has a remaining capacity of 25 million cubic yards. Since the project would contribute less than 1 percent of daily permitted throughput, the amount of solid waste generated by operation of the proposed project would not exceed the capacity of the landfill or substantially shorten its useful life.

[47] The estimated 3,143 tons of construction debris generated by the project were converted into cubic yards using the following equation: 1.4 ton of rubble = 1 cubic yard. U.S. Army Corps of Engineers, 1999. *Concepts for Reuse and Recycling of Construction and Demolition Waste*. June.

[48] California Department of Resource, Recycling and Recovery, 2012. Jurisdiction Per Capita Disposal Trends: Foster City. Website: www.calrecycle.ca.gov/LGCentral/Reports/Jurisdiction/ReviewReports.aspx. July 10.

In addition, Recology San Mateo County 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.

The Kettleman Hills Landfill, which accepts hazardous wastes, has a total capacity of 10,700,000 cubic yards, of which 6,000,000 cubic yards (56 percent) are remaining. The hazardous waste generated by the demolition and operation phases of the project would not compromise this remaining capacity.

(8) Electricity, Gas, and Telecommunications. Development of the proposed project would occur in a location that currently has electricity, gas, telephone, cable, and internet services. Electricity and natural gas supplies to serve the project are expected to be adequate. As such, the proposed project would have a less-than-significant impact on electricity, gas, telecommunications, cable, and internet services.

c. Significant Impacts. Implementation of the proposed project would not result in any significant public services, utilities, and recreation impacts.

d. Cumulative Impacts. The proposed project and cumulative projects would 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 in the 2012 Master Plan area, 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 Gilead Sciences 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.

The proposed project and cumulative development projects would increase water demand in Foster City. According to the Water Supply Assessment (provided in Appendix E), and as shown in Table IV.J-5, the proposed project would increase water demand by approximately 206 acre feet per year. Other major anticipated projects in the EMID service area would increase water demand by approximately 447 acre feet per year. Thus the 2012 Master Plan, in combination with other major development projects in the area, would increase water demand by 653 acre feet per year.

Table IV.J-5 shows that the contracted supply allocations would be able to meet total system demand during normal water years. The Water Supply Assessment also found that during multiple dry years, there would continue to be sufficient supplies to meet all cumulative demand if EMID implements mandatory demand reduction measures identified in the Water Shortage Contingency Plan. Therefore, the proposed project would not make a significant contribution to a cumulative water shortage.

The proposed project and cumulative development projects would also increase demand for waste-water services and other utilities in Foster City. While development of the proposed project would place additional demands on the City's wastewater plant, buildout of the 2012 Master Plan would still leave the system operating well below capacity (approximately 68 percent of allocated capacity and 73 percent of total capacity). It is not expected that the proposed project in combination with other cumulative development would result in a significant impact on these utilities.

K. GLOBAL CLIMATE CHANGE

Increasing public awareness and general scientific consensus that global climate change is occurring have placed a new focus on CEQA as a potential means to address a project's greenhouse gas (GHG) emissions. This section begins by providing general background information on climate change and meteorology. It then provides data on the existing global climate change setting, discusses the regulatory framework for global climate change, and evaluates potential GHG emissions associated with the proposed project. Modeled project emissions are estimated based on the land uses associated with the proposed project, project trip generation, energy use, and other variables. The section then evaluates whether the project could cause a cumulatively considerable contribution to climate change using methods and assumptions outlined in the Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines.[1]

1. Setting

The following discussion provides an overview of global climate change, its causes, its potential effects, emission sources, and inventories.

a. Global Climate Change Background. A description of global climate change and its sources is provided below.

(1) Global Climate Change. Global climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. Global surface temperatures have risen by 0.74°C ± 0.18°C (1.1°F ± 0.4°F) between 1906 and 2005. The rate of warming over the last 50 years of this period is almost double that over the last 100 years.[2] The prevailing scientific opinion on climate change is that most of the warming observed over the last 50 years is attributable to human activities. The increased amounts of carbon dioxide and other GHGs are the primary causes of the human-induced component of warming. GHGs are released by the burning of fossil fuels, land clearing, agriculture, and other activities, and lead to an increase in the greenhouse effect.[3]

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);

[1] Bay Area Air Quality Management District, 2011. *CEQA Air Quality Guidelines.* May.

[2] Intergovernmental Panel on Climate Change, 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC.*

[3] 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 GHGs results in global warming, the naturally occurring greenhouse effect is necessary to keep our planet at a comfortable temperature.

- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulfur Hexafluoride (SF_6).

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, which is believed to be causing global warming. While manmade GHGs include naturally-occurring GHGs such as CO_2, methane, and N_2O, some gases, like HFCs, PFCs, and SF_6 are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG; the definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e). Table IV.K-1 shows the GWPs for each type of GHG. For example, SF_6 is 22,800 times more potent at contributing to global warming than CO_2. The following discussion summarizes the characteristics of the six GHGs.

Table IV.K-1: Global Warming Potential of Greenhouse Gases

Gas	Atmospheric Lifetime (Years)	Global Warming Potential (100-Year Time Horizon)
Carbon Dioxide	50-200	1
Methane	12	25
Nitrous Oxide	114	298
HFC-23	270	14,800
HFC-134a	14	1,430
HFC-152a	1.4	124
PFC: Tetrafluoromethane (CF_4)	50,000	7,390
PFC: Hexafluoromethane (C_2F_6)	10,000	12,200
Sulfur Hexafluoride (SF_6)	3,200	22,800

Source: IPCC, 2007. *Climate Change 2007: The Physical Science Basis.* Contribution of Working Group I to the Fourth Assessment Report of the IPCC.

Carbon Dioxide. In the atmosphere, carbon generally exists in its oxidized form, as CO_2. Natural sources of CO_2 include the respiration (breathing) of humans and other animals, volcanic outgassing, decomposition of organic matter, and evaporation from the oceans. Human-caused sources of CO_2 include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. Natural sources release approximately 150 billion tons of CO_2 each year, far

outweighing the 7 billion tons of man-made emissions of CO_2 each year. 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 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. CH_4 accounted for approximately 6 percent of gross climate change emissions (CO_2e) in California in 2002.

Total annual emissions of CH_4 are approximately 500 million tons, with manmade emissions accounting for the majority. As with CO_2, the major removal process of atmospheric CH_4 – a chemical breakdown in the atmosphere – cannot keep pace with source emissions, and CH_4 concentrations in the atmosphere are increasing.

Nitrous Oxide. N_2O is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. N_2O is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion emit 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. N_2O emissions accounted for nearly 7 percent of man-made GHG emissions (CO_2e) in California in 2002.

Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride. HFCs are primarily used as substitutes for ozone-depleting substances regulated under the Montreal Protocol.[4] 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 aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry leads to greater use of PFCs. HFCs, PFCs, and SF_6 accounted for about 3.5 percent of man-made GHG emissions (CO_2e) in California in 2002.

(2) Impacts of Climate Change. The potential impacts of global climate change are described in the following section.

Temperature Increase. State-of-the art climate models indicate that temperatures in California may be expected to rise by 3°F to 10.5°F by the end of the century.[5] Because GHGs persist for a long time in the atmosphere, accumulate over time, and are generally well-mixed, their impact on the atmosphere cannot be tied to a specific point of emission.

[4] The Montreal Protocol is an international treaty that became effective on January 1, 1989, and was intended to protect the ozone layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for ozone depletion.

[5] California Climate Change Center, 2006. *Our Changing Climate. Assessing the Risks to California.* July.

Climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from:

- Natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun;
- Natural processes within the climate system (e.g., changes in ocean circulation and reduction in sunlight from the addition of GHGs and other gases to the atmosphere from volcanic eruptions); and
- Human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., from deforestation, reforestation, urbanization, and desertification).

The primary effect of global climate change has been a rise in the average global temperature. The impact of human activities on global climate change is readily apparent in the observational record. For example, surface temperature data show that 11 of the 12 years from 1995 to 2006 rank among the 12 warmest since 1850, the beginning of the instrumental record for global surface temperature.[6] Climate change modeling shows that further warming could occur, which would induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of California could include, but are not limited to:

- The loss of sea ice and mountain snow pack, resulting in higher sea levels and higher sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures;
- Rise in the global average sea level primarily due to thermal expansion and melting of glaciers and ice caps in the Greenland and Antarctic ice sheets;
- Changes in weather that include widespread changes in precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones;
- Decline of the Sierra snowpack, which accounts for a significant amount of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years;
- Increase in the number of days conducive to ozone formation by 25 to 85 percent (depending on the future temperature scenario) in high-ozone areas of Los Angeles and the San Joaquin Valley by the end of the 21st century; and
- High potential for erosion of California's coastlines and seawater intrusion into the Delta and levee systems due to the rise in sea level.

Precipitation and Water Supply. Global average precipitation is expected to increase during the 21st century as the result of climate change, but will vary in different parts of the world. However, global climate models are generally not well suited for predicting regional changes in precipitation

[6] California, State of, 2009. California Energy Commission's Public Interest Energy Research Program. *The Future is Now: An Update on Climate Change Science, Impacts, and Response Options for California*. May.

because of the scale of regionally important factors, such as the proximity of mountain ranges that affect precipitation.[7]

Most of California's precipitation falls in the northern part of the State during the winter. A vast network of man-made reservoirs and aqueducts capture and transport water throughout the State from northern California rivers as the greatest demand for water comes from users in the southern part of the State during the spring and summer.[8] The current distribution system relies on Sierra Nevada mountain snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

Some models predict drier conditions and decreased river and spring flows, while others predict wetter conditions in various parts of the world. If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent over the next 100 years.

The extent to which various meteorological conditions will affect groundwater supply is unknown. Warmer temperatures could increase the period when water is on the ground by reducing soil freeze. However, warmer temperatures could also lead to higher evaporation or shorter rainfall seasons, shortening the recharge season. Warmer winters could increase the amount of runoff available for groundwater recharge. However, the additional runoff would occur at a time when some basins, particularly in Northern California, are being recharged at their maximum capacity.

Where precipitation is projected to increase in California, the increases are focused in Northern California. However, various California climate models provide mixed results regarding changes in total annual precipitation in the State through the end of this century; therefore, no conclusion on an increase or decrease can be made. Considerable uncertainties about the precise effects of climate change on California hydrology and water resources will remain until there is more precise and consistent information about how precipitation patterns, timing, and intensity will change.[9] However, the State is taking measures to adapt to the effects of climate change by identifying climate change adaptation strategies for California's water.[10]

Sea Level Rise. Rising sea level is one of the major areas of concern related to global climate change. Two of the primary causes for a sea level rise are the thermal expansion of ocean waters (water expanding as it heats up) and the addition of water to ocean basins by the melting of land-based ice. From 1961 to 2003, the global average sea level rose at an average rate of 0.07 inches per year, and at an accelerated average rate of about 0.12 inches per year during the last decade of this

[7] Intergovernmental Panel on Climate Change, 2007, op. cit.

[8] California Climate Change Center, 2006, op. cit.

[9] California, State of, 2006. Department of Water Resources. *Progress on Incorporating Climate Change into Management of California's Water Resources*. July.

[10] California, State of, 2008. Department of Water Resources. *Managing Our Uncertain Future, Climate Change Adaptation Strategies for California's Water.*

period (1993 to 2003).[11] Over the past 100 years, sea levels along California's coasts and estuaries have risen about 7 inches.[12]

Sea levels could rise an additional 22 to 35 inches by the end of the century as global climate change continues.[13] Although these projections are on a global scale, the rate of sea level rise along California's coast is relatively consistent with the worldwide average rate observed over the past century. Therefore, it is reasonable to assume that changes in worldwide sea level rise will also be experienced along California's coast, including San Francisco Bay.[14]

Sea level rise of this magnitude would increasingly threaten California's coastal regions with more intense coastal storms, accelerated coastal erosion, threats to vital levees, and disruption of inland water systems, wetlands, and natural habitats. Rising sea levels and more intense storm surges could increase the risk for coastal flooding. The San Francisco Bay Conservation and Development Commission (BCDC) employed geographic information system (GIS) software to identify the shoreline areas likely to be most affected by a 1-meter rise in sea level.[15] According to the BCDC, changes in climate may cause increased storm activity, which in combination with a higher sea level, may cause even greater flooding. It is expected that extreme storm events will cause most of the shoreline damage from flooding. Rising sea levels could affect the delivery of petroleum products, electricity, and drinking water to Bay Area residents and businesses. Residents may also suffer if wastewater treatment is compromised by inundation from rising sea levels, given that a number of treatment plants discharge to the Bay.

Water Quality. Water quality depends on a wide range of variables such as water temperature, flow, runoff rates and timing, waste discharge loads, and the ability of watersheds to assimilate wastes and pollutants. Climate change could alter water quality in a variety of ways, including higher winter flows that reduce pollutant concentrations (through dilution) or increase erosion of land surfaces and stream channels, leading to higher sediment, chemical, and nutrient loads in rivers. Water temperature increases and decreased water flows can result in increasing concentrations of pollutants and salinity. Increases in water temperature alone can lead to adverse changes in water quality, even in the absence of changes in precipitation.

Land and resource use changes can have impacts on water quality comparable to or even greater than those from global climate change. The net effect on water quality for rivers, lakes, and groundwater in the future is dependent not just on climate conditions, but also on a wide range of other human actions and management decisions.

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[11] California, State of, 2009. California Energy Commission's Public Interest Energy Research Program. *The Future is Now: An Update on Climate Change Science, Impacts, and Response Options for California*. May.

[12] Ibid.

[13] California Climate Change Center, 2006, op. cit.

[14] California, State of, 2006, Department of Water Resources, op. cit.

[15] California, State of, 2011. *Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline*. September.

Public Health. Global climate change is also anticipated to result in more extreme heat events.[16] These extreme heat events increase the risk of death from dehydration, heart attack, stroke, and respiratory distress, especially with people who are ill, children, the elderly, and the poor, who may lack access to air conditioning and medical assistance. According to the California Climate Change Center, more research is needed to understand the effects of higher temperatures and how adapting to these temperatures can minimize health effects.[17]

(3) Emissions Inventories. An emissions inventory that identifies and quantifies the primary human-generated sources and sinks of GHGs is a well-recognized and useful tool for addressing climate change. This section summarizes the latest information on global, United States, California, and local GHG emission inventories.

Global Emissions. Worldwide emissions of GHGs in 2004 were 27 billion metric tons of CO_2e per year.[18] Global estimates are based on country inventories developed as part of programs of the United Nations Framework Convention on Climate Change (UNFCCC).

U.S. Emissions. In 2010, the United States emitted about 1,633.2 million metric tons (MMT) of CO_2e with each individual at home releasing approximately 4 metric tons per year. Of the four major sectors nationwide – residential, commercial, industrial and transportation – transportation accounts for the highest amount of GHG emissions (approximately 35 to 40 percent); these emissions are entirely generated from direct fossil fuel combustion. Between 1990 and 2009, total U.S. GHG emissions rose by 7.3 percent, but emissions decreased from 2008 to 2009 by 6.1 percent. This decrease was primarily due to (1) a decrease in economic output resulting in a decrease in energy consumption across all sectors; and (2) a decrease in the carbon intensity of fuels used to generate electricity due to fuel switching as the price of coal increased, and the price of natural gas decreased significantly. Since 1990, U.S. emissions have increased at an average annual rate of 0.4 percent.[19]

State of California Emissions. According to California Air Resources Board (ARB) emission inventory estimates, California gross emissions of GHG decreased 1.5 percent, from 463.6 MMT[20] of CO_2e emissions in 2000 to 456.8 MMT in 2009, with a maximum of 488.8 MMT in 2007.[21] During the same period, California's population grew by 9.1 percent, from 33.9 to 37.2 million people and GHG emissions per person decreased from 13.7 to 12.4 metric tons of CO_2e per person. The year 2009 saw a 5.8 percent decrease in Statewide GHG emissions, driven by a noticeable drop in on-road

[16] California Climate Change Center, 2006.

[17] Ibid.

[18] Combined total of Annex I and Non-Annex I County CO_2e emissions. United Nations Framework Convention on Climate Change (UNFCCC), 2007. *GHG Inventory Data.* Websites: www.unfccc.int/ghg_data/ghg_data_unfccc/time_series_annex_i/items/3814.php and www.maindb.unfccc.int/library/view_pdf.pl?url=http://unfccc.int/resource/docs/2005/sbi/eng/18a02.pdf.

[19] U.S. Environmental Protection Agency, 2011. *The U.S. GHG Emissions and Sinks: Fast Facts*. Website: www.epa.gov/climatechange/emissions/usinventoryreport.html.

[20] A metric ton is equivalent to approximately 1.1 tons.

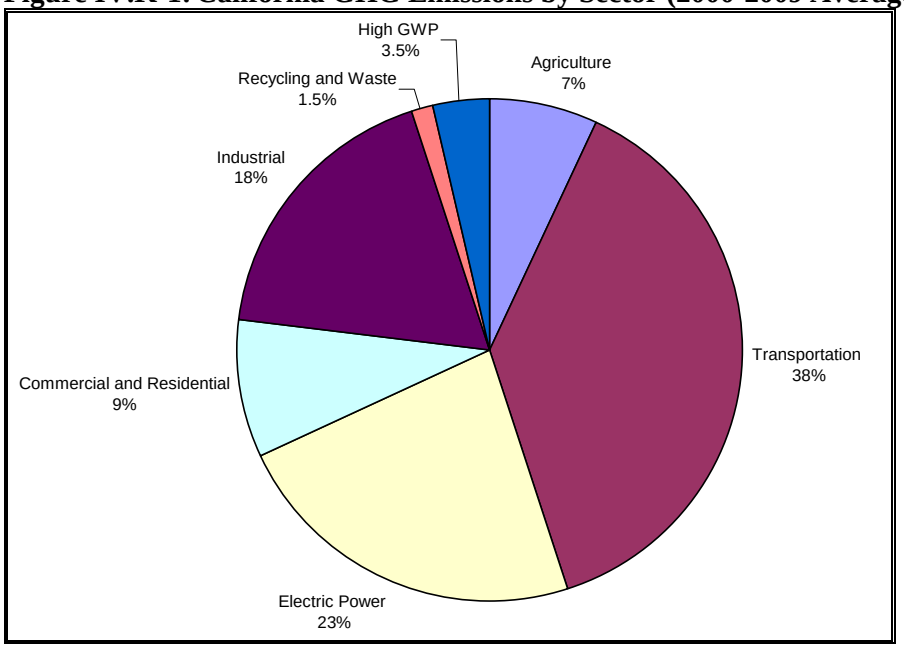
[21] California Air Resources Board, 2011. *Trends in California GHG Emissions for 2000 to 2009 by Category as Defined in the Scoping Plan.* Website: www.arb.ca.gov/cc/inventory/pubs/reports/ghg_inventory_00-09_trends.pdf. December.

transportation, cement production, and electricity. The year 2009 also reflects the full effects of the economic recession and rising fuel prices. As the economy recovers, GHG emissions are likely to rise again without other mitigation actions.

California has the fourth lowest per-capita CO_2 emission rate from fossil fuel combustion in the country, 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.[22]

ARB is responsible for developing the California GHG Emission Inventory. This inventory estimates the amount of GHGs emitted to and removed from the atmosphere by human activities within the State of California and supports the Assembly Bill (AB) 32 Climate Change Program, discussed below. ARB's current GHG emission inventory for the years 2000 to 2009 (using categories established by ARB) is shown in Figure IV.K-1. The emission inventory estimates are based on the actual amount of all fuels combusted in the State, which accounts for over 85 percent of the GHG emissions within California.

Figure IV.K-1: California GHG Emissions by Sector (2000-2009 Average)



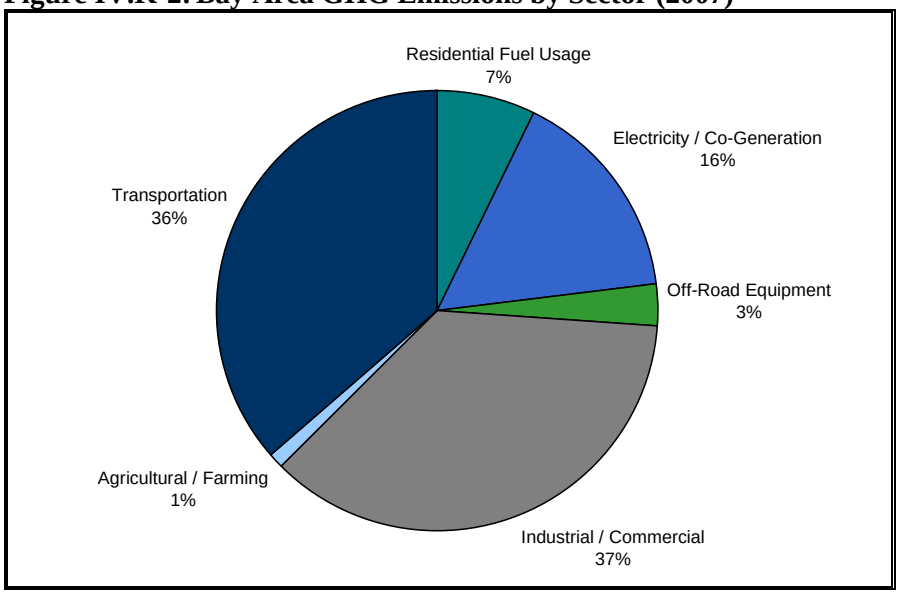
Note: "High GWP" = high global warming potential sources (e.g., semiconductor manufacturing)

Source: ARB, 2011. Trends in California GHG Emissions for 2000 to 2009 – by Category as Defined in the Scoping Plan. December. Website: www.arb.ca.gov/cc/inventory/pubs/reports/ghg_inventory_00-09_trends.pdf.

[22] California Energy Commission, 2007. *Inventory of California GHG Emissions and Sinks: 1990 to 2004 - Final Staff Report*, publication # CEC-600-2006-013-SF, Sacramento, CA. December 22, 2006; and January 23, 2007 update to that report.

Bay Area Emissions. The BAAQMD has also prepared an inventory of GHG emissions for the Bay Area. The latest version of the inventory, updated in 2010, provides information on 2007 emissions.[23] Transportation and industrial/commercial uses are the largest sources of GHG emissions, each contributing 36.4 percent of the area's total CO_2e emissions in the year 2007. The estimated GHG emissions for the year 2007 for the nine-county Bay Area totaled 95.8 MMT of CO_2e. The Bay Area GHG emissions by sector for the year 2007 are shown in Figure IV.K-2.

Figure IV.K-2: Bay Area GHG Emissions by Sector (2007)



Source: BAAQMD, 2010. Source Inventory of Bay Area GHG Emissions. February.

Foster City Emissions. Two inventories address GHG emissions in Foster City: the Foster City 2005 Government Operations Greenhouse Gas Emissions Inventory[24] (Government Operations Inventory), which covers Citywide municipal operations, and the 2005 Community-Scale Greenhouse Gas Emissions Inventory,[25] which covers emission estimates for San Mateo County as a whole, as well as individual jurisdictions within the County, including Foster City. Foster City initiated the preparation of the Government Operations Inventory to: 1) establish a baseline emissions inventory, against which to measure future progress and 2) understand the scale of emissions from the various sources within government operations. Foster City's Community-Scale Greenhouse Gas Emissions Inventory was prepared as a baseline to move forward into target setting and climate action planning.

[23] Bay Area Air Quality Management District, 2010. *Source Inventory of Bay Area GHG Emissions.* Website: www.baaqmd.gov/~/media/Files/Planning%20and%20Research/Emission%20Inventory/regionalinventory2007_2_10.ashx. February.

[24] Foster City, City of, 2010. *2005 Government Operations Greenhouse Gas Emissions Inventory.*

[25] San Mateo RecycleWorks and the City and County Association of Governments, 2010. *County of San Mateo 2005 Community-Scale Greenhouse Gas Emissions Inventory*. March 25.

Overall, the Government Operations Inventory establishes 2005 GHG emissions at 3,312 metric tons of CO_2e. Buildings and facilities (24.4 percent), employee commutes (23.3 percent), and vehicle fleet (20.8 percent), were the three largest GHG emissions-producing sectors. The remaining emissions resulted from water/sewage transport (14.4 percent), public lighting (12.3 percent), government-generated solid waste (4.4 percent), and the transit fleet (0.4 percent).

The Foster City Community-Scale Greenhouse Gas Emissions Inventory indicates 2005 GHG emissions were 274,933 metric tons of CO_2e. The largest sources of emission were transportation on State highways (34 percent) and commercial and industrial energy use (23 percent). Transportation on local roads contributed 21 percent of total emissions and residential energy use contributed 16 percent. Off-road equipment and generated waste comprised the remainder. Municipal operations, as outlined above, account for approximately 1.2 percent of community emissions.

b. Regulatory Framework. The regulatory framework and governmental activities addressing GHG emissions and global climate change are discussed in this section. Although GHG emissions are being addressed on an international level, federal, State, regional, and local activities are most applicable to the proposed project and are discussed below.

(1) Federal Regulations. The United States has historically had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the United States Supreme Court ruled that the United States Environmental Protection Agency (U.S. EPA) has the authority to regulate CO_2 emissions under the federal Clean Air Act (CAA). While there currently are no adopted federal regulations for the control or reduction of GHG emissions, the U.S. EPA commenced several actions in 2009 to implement a regulatory approach to global climate change, including the ones described below.

On September 22, 2009, U.S. EPA issued a final rule for mandatory reporting of GHGs from large GHG emission sources in the United States. In general, this national reporting requirement will provide the U.S. EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons or more of CO_2 per year. This publicly-available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial GHGs, along with vehicle and engine manufacturers, will report at the corporate level. An estimated 85 percent of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this rule.

On December 7, 2009, the U.S. EPA Administrator signed a final action under the CAA, finding that six GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, SF_6) constitute a threat to public health and welfare, and that the combined emissions from motor vehicles cause and contribute to global climate change. This U.S. EPA action does not impose any requirements on industry or other entities. However, the findings are a prerequisite to finalizing the GHG emission standards for light-duty vehicles mentioned below. U.S. EPA received ten petitions challenging this determination. On July 29, 2010, U.S. EPA denied these petitions.

On April 1, 2010, the U.S. EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a final joint rule to establish a national program consisting of new standards for model year 2012 through 2016 light-duty vehicles that will reduce GHG emissions and improve fuel economy. U.S. EPA is finalizing the first-ever national GHG emissions

standards under the CAA, and NHTSA is finalizing Corporate Average Fuel Economy standards under the Energy Policy and Conservation Act. The U.S. EPA GHG standards require light-duty vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile in model year 2016, equivalent to 35.5 miles per gallon.

In December 2010, the U.S. EPA issued its plan for establishing GHG pollution standards under the CAA in 2011. The agency looked at a number of sectors and is moving forward on GHG standards for fossil fuel power plants and petroleum refineries – two of the largest industrial sources, representing nearly 40 percent of the GHG emissions in the United States.[26]

On August 9, 2011, U.S. EPA and the NHTSA announced the first-ever standards to reduce GHG emissions and improve the fuel efficiency of heavy-duty trucks and buses. The final combined standards of the Heavy-Duty National Program will reduce CO_2 emissions by about 270 MMT and save about 530 million barrels of oil over the life of vehicles built for the 2014 to 2018 model years. The heavy duty sector addressed in the U.S. EPA and NHTSA rules (including the largest pickup trucks and vans, semi-trucks, and all types and sizes of work trucks and buses in between) accounts for nearly 6 percent of all U.S. GHG emissions and 20 percent of transportation emissions. In addition, air quality will continue to improve as less fuel use leads to reduced ozone and particulate matter, improving the health of Americans.

(2) State Regulations. The ARB is the lead agency for implementing climate change regulations in the State. Since its formation, the ARB has worked with the public, the business sector, and local governments to find solutions to California's air pollution problems.

Assembly Bill 1493 (2002). In a response to the transportation sector's significant contribution to California's CO_2 emissions, AB 1493, Pavley, was enacted on July 22, 2002. AB 1493 requires the ARB to set GHG emission standards for passenger vehicles and light duty trucks (and other vehicles whose primary use is noncommercial personal transportation in the State) manufactured in 2009 and all subsequent model years. The ARB originally approved regulations to GHG standards in September 2004 to take effect for model years starting in 2009 to 2016. However, to set its own GHG emissions limits on motor vehicles, California needed a waiver from the U.S. EPA. On June 30, 2009, the U.S. granted the waiver of CAA preemption to California. The ARB responded by amending its original regulation, now referred to as Low Emission Vehicle III GHG, to take effect for model years starting in 2017 to 2025.[27]

Executive Order S-3-05 (2005). Governor Arnold Schwarzenegger signed Executive Order S-3-05 on June 1, 2005, which proclaimed that California is vulnerable to the impacts of climate change. The executive order declared that increased temperatures could reduce snowpack in the Sierra Nevada Mountains, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established California's GHG emissions reduction targets, which established the following goals:

[26] U.S. Environmental Protection Agency, 2010. Press Release. December 23.

[27] California Air Resources Board, 2010. California Clean Car Standards – Pavely, Assembly Bill 1493. Website: arb.ca.gov/cc/ccms/ccms.htm.

- GHG emissions should be reduced to 2000 levels by 2010;
- GHG emissions should be reduced to 1990 levels by 2020; and
- GHG emissions should be reduced to 80 percent below 1990 levels by 2050.

The Secretary of the California Environmental Protection Agency (CalEPA) is required to coordinate efforts of various State agencies in order to collectively and efficiently reduce GHGs. A biannual progress report must be submitted to the Governor and State Legislature disclosing the progress made toward GHG emission reduction targets. In addition, another biannual report must be submitted illustrating the impacts of global warming on California's water supply, public health, agriculture, the coastline, and forestry, and possible mitigation and adaptation plans must be reported to address these impacts.

The Secretary of CalEPA leads this Climate Action Team (CAT) made up of representatives from State agencies as well as numerous other boards and departments. The CAT members work to coordinate Statewide efforts to implement global warming emission reduction programs and the State's Climate Adaptation Strategy. The CAT is also responsible for reporting on the progress made toward meeting the Statewide GHG targets that were established in the executive order and further defined under Assembly Bill 32, the "Global Warming Solutions Act of 2006" (AB 32). The first CAT Report to the Governor and the Legislature was released in March 2006, which laid out 46 specific emission reduction strategies for reducing GHG emissions and reaching the targets established in the Executive Order. The CAT Report to the Governor and Legislature and will be updated and issued every 2 years; the most recent was released in December 2010.

Assembly Bill 32 (2006), California Global Warming Solutions Act. California's major initiative for reducing GHG emissions is AB 32, passed by the State legislature on August 31, 2006. This effort aims to reduce GHG emissions to 1990 levels by 2020. The ARB has established the level of GHG emissions in 1990 at 427 MMT CO_2e. The emissions target of 427 MMT requires the reduction of 169 MMT from the State's projected business-as-usual 2020 emissions of 596 MMT. AB 32 requires the ARB to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce GHGs that contribute to global climate change. The Scoping Plan was approved by the ARB on December 11, 2008, and includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures.[28] The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. The Scoping Plan, even after ARB approval, remains a recommendation. The measures in the Scoping Plan will not be binding until they are adopted through the normal rulemaking process. The ARB rulemaking process includes preparation and release of each of the draft measures, public input through workshops, and a public comment period, followed by an ARB hearing and rule adoption.

In addition to reducing GHG emissions to 1990 levels by 2020, AB 32 directed the ARB and the newly created CAT to identify a list of "discrete early action GHG reduction measures" that could be adopted and made enforceable by January 1, 2010. On January 18, 2007, Governor Schwarzenegger

[28] California Air Resources Board, 2008. *Climate Change Scoping Plan: a framework for change*. December.

signed Executive Order S-1-07, further solidifying California's dedication to reducing GHGs by setting a new Low Carbon Fuel Standard. The Executive Order sets a target to reduce the carbon intensity of California transportation fuels by at least 10 percent by 2020 and directs the ARB to consider the Low Carbon Fuel Standard as a discrete early action measure.

In June 2007, the ARB approved a list of 37 early action measures, including three discrete early action measures (Low Carbon Fuel Standard, Restrictions on GWP Refrigerants, and Landfill CH_4 Capture).[29] Discrete early action measures are measures that were required to be adopted as regulations and made effective no later than January 1, 2010, the date established by Health and Safety Code Section 38560.5. The ARB adopted additional early action measures in October 2007 that tripled the number of discrete early action measures. These measures relate to truck efficiency, port electrification, reduction of PFCs from the semiconductor industry, reduction of propellants in consumer products, proper tire inflation, and SF_6 reductions from the non-electricity sector. The combination of early action measures is estimated to reduce Statewide GHG emissions by nearly 16 MMT.[30]

In December 2008, ARB adopted its Climate Change Scoping Plan, which contains the main strategies California will implement to achieve reduction of approximately 169 MMT of CO_2e, or approximately 30 percent from the State's projected 2020 emission level of 596 MMT of CO_2e under a business-as-usual scenario (this is a reduction of 42 MMT CO_2e, or almost 10 percent from 2002-2004 average emissions). The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the State's GHG inventory. The Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- Improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2e);
- The Low-Carbon Fuel Standard (15.0 MMT CO_2e);
- Energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO_2e); and
- A renewable portfolio standard for electricity production (21.3 MMT CO_2e).

The Scoping Plan identifies 18 emissions reduction measures that address cap-and-trade programs, vehicle gas standards, energy efficiency, low carbon fuel standards, renewable energy, regional transportation-related GHG targets, vehicle efficiency measures, goods movement, solar roof programs, industrial emissions, high speed rail, green building strategies, recycling, sustainable forests, water, and air. The measures would result in a total reduction of 174 MMT CO_2e by 2020. The final regulations went into effect on January 1, 2012.

On August 24, 2011, the ARB unanimously approved both ARB's new supplemental assessment and re-approved its Scoping Plan, which provides the overall roadmap and rule measures to carry out AB

[29] California Air Resources Board, 2007. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*. October. The Low Carbon Fuel Standard has been the subject of litigation in federal court that is still pending as of August 2012.

[30] California Air Resources Board, 2007. "ARB approves tripling of early action measures required under AB 32" News Release 07-46. Website: www.arb.ca.gov/newsrel/nr102507.htm. October 25.

32. The ARB also approved a more robust CEQA equivalent document supporting the supplemental analysis of the cap-and-trade program. ARB also announced that it would be delaying the date that entities would be required to comply with its cap-and-trade program until 2013.

ARB has not yet determined what amount of GHG reductions it recommends for local government operations; however, the Scoping Plan states that land use planning and urban growth decisions will play an important role in the State's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions (meanwhile, ARB is also developing an additional protocol for community emissions). ARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The Scoping Plan states that the ultimate GHG reduction assignment to local government operations is to be determined. With regard to land use planning, the Scoping Plan expects approximately 5.0 MMT CO_2e will be achieved associated with implementation of SB 375, which is discussed further below.

Senate Bill 375 (2008). Signed into law on October 1, 2008, SB 375 supplements GHG reductions from new vehicle technology and fuel standards with reductions from changed land use patterns and improved transportation. Under the law, the ARB approved GHG reduction targets in February 2011 for California's 18 federally designated regional planning bodies, known as Metropolitan Planning Organizations (MPOs). The ARB may update the targets every 4 years and must update them every 8 years. MPOs in turn must demonstrate how their plans, policies and transportation investments meet the targets set by the ARB through Sustainable Community Strategies (SCS). The SCS are included with the Regional Transportation Plan (RTP), a report required by State law. However, if an MPO finds that its SCS will not meet the GHG reduction target, it may prepare an Alternative Planning Strategy (APS). The APS identifies the impediments to achieving the targets. The applicable SCS for Foster City is discussed below.

Senate Bill 97 (Chapter 185, 2007). To assist public agencies in analyzing the effects of GHGs under CEQA, Senate Bill 97 required the Governor's Office of Planning and Research (OPR) to develop CEQA guidelines on how to evaluate, minimize, and mitigate a project's GHG emissions. On December 30, 2009, the Natural Resources Agency adopted amendments to the *CEQA Guidelines* related to climate change. These amendments became effective on March 18, 2010. Revisions to Appendix G of the *CEQA Guidelines* suggest that development projects be evaluated based on the following thresholds:

- The project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; and
- The project would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

(3) Bay Area Air Quality Management District Regulations. BAAQMD is the regional government agency that regulates sources of air pollution within the nine San Francisco Bay Area counties. The BAAQMD regulates GHG emissions through the following plans, programs, and guidelines.

Regional Clean Air Plans. BAAQMD and other air districts prepare clean air plans in accordance with the State and federal Clean Air Acts. The Bay Area 2010 Clean Air Plan (CAP) is a comprehensive plan to improve Bay Area air quality and protect public health through implementation of a control strategy designed to reduce emissions and ambient concentrations of harmful pollutants. The most recent CAP also includes measures designed to reduce GHG emissions.

BAAQMD Climate Protection Program. The BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the San Francisco Bay Area Air Basin. The climate protection program includes measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative sources of energy, all of which assist in reducing emissions of GHGs and in reducing air pollutants that affect the health of residents. 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.

BAAQMD CEQA Air Quality Guidelines. The BAAQMD adopted revised CEQA Air Quality Guidelines on June 2, 2010 and then adopted a modified version of the Guidelines in May, 2011. The BAAQMD CEQA Air Quality Guidelines include thresholds of significance for GHG emissions. Under the latest CEQA Air Quality Guidelines, a local government may prepare a qualified GHG Reduction Strategy that is consistent with AB 32 goals. If a project is consistent with an adopted qualified GHG Reduction Strategy and General Plan that addresses the project's GHG emissions, it can be presumed that the project will not have significant GHG emissions under CEQA.[31] The BAAQMD also adopted a quantitative threshold for project level analyses based on estimated GHG emissions as well as per capita metrics.[32]

(4) Metropolitan Transportation Commission/Association of Bay Area Governments Sustainable Communities Strategy. The Metropolitan Transportation Commission (MTC) is the federally recognized MPO for the nine county Bay Area, which includes San Mateo County and Foster City. There is not an applicable SCS for the region at this time because MTC adopted its current RTP, *Transportation 2035: Change in Motion*,[33] before the ARB adopted GHG reduction targets for communities in 2011. Currently, both MTC and the Association of Bay Area Governments (ABAG) are in the preliminary stages of Plan Bay Area, the name given to the unique collaboration between the two organizations. In March 2011, Plan Bay Area released its Initial Vision Scenario, which presents a first draft of targeted growth areas and regional projections. From the Initial Vision Scenario,[34] Plan Bay Area adopted the Preferred Land Use and Transportation Investment Strategy[35] in May 2012. Drafting of the SCS/RTP is scheduled to last until December 2012, with final adoption tentatively scheduled for January 2013.

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[31] Bay Area Air Quality Management District, 2011. *CEQA Air Quality Guidelines*. May.

[32] As noted below in Section 2.a, Criteria of Significance, the BAAQMD Guidelines were the subject of a lawsuit in early 2012. Please see that discussion for details of the dispute and implications for this GHG analysis.

[33] Metropolitan Transportation Commission, 2009. *Transportation 2035: Change in Motion.* April.

[34] Metropolitan Transportation Commission and Association of Bay Area Governments, 2011. *Plan Bay Area: Initial Vision Scenario*. May.

[35] Metropolitan Transportation Commission and Association of Bay Area Governments, 2012. *Plan Bay Area Preferred Land Use and Transportation Investment Strategy.* May 11.

(5) Local Policies. Foster City regulates GHG emissions primarily through its General Plan, as described below. The City's Ad Hoc Environmental Sustainability Task Force developed a draft Sustainability Action Plan, which includes recommended strategies to reduce greenhouse gas emissions. However the Sustainability Action Plan was not adopted by the City and is therefore not applicable at this time.

General Plan. While Foster City's General Plan does not include policies that specifically address global climate change, the following goals and policies listed in Table IV.K-2 would be expected to reduce GHG emissions.

Table IV.K-2: General Plan Goals and Policies that Would Reduce GHG Emissions

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.
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-18	*Mixed Use Residential/Commercial Projects.* The City will encourage 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-52	*Transportation 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 Sam Trans 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.
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 C-A	*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-4	*Energy Conservation.* Promote energy conservation in existing and new development (see Housing Element).
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-3	*Encourage Energy Conservation in Housing.* Encourage adoption of energy conservation measures and promote energy conservation programs that provide assistance for energy conservation improvements.
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.

Table IV.K-2 *Continued*

Policy PC-7	*Bikepath System.* Develop a Foster City bikepath system to connect major work, shopping, school, civic and recreational destinations throughout the city.
Policy PC-9	*Pedway and Bikeway System Maintenance and Improvement.* Continue to maintain, expand and improve the existing walkway and pedway system.
Policy C-3	*Air Quality.* Reduce the impact of development on local air quality.
Policy C-4	*Energy Conservation.* Promote energy conservation in new and existing development.

Source: Foster City General Plan, 1993, May; LSA Associates, Inc., 2012.

2. Impacts and Mitigation Measures

This section evaluates significant impacts related to GHG emissions that could result from the proposed project. Where potentially significant impacts are identified, mitigation measures are recommended, as appropriate. The consistency of the project with general sustainability principles is also discussed.

a. Criteria of Significance. This section evaluates impacts related to GHG emissions and global climate change that could result from implementation of the proposed project. Section 15064.4 of the *CEQA Guidelines* states that: "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 greenhouse gas emissions resulting from a project." In performing that analysis, the lead agency has discretion to determine whether to use a model or methodology to quantify GHG emissions, or to rely on a qualitative analysis or performance-based standards. In making a determination as to the significance of potential impacts, the lead agency then considers the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting, whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project, and the extent to which the project complies with regulations or requirements adopted to implement a Statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

An individual development project typically does not generate a sufficient quantity of GHG emissions to affect global climate change; therefore, the global climate change impacts of the proposed project are discussed in the context of cumulative impacts, per the approach recommended by the BAAQMD. This section begins by establishing the thresholds to determine whether an impact is significant. The latter part of this section identifies GHG emissions associated with existing operations on the project site and evaluates the GHG emissions expected to result from the project.

The BAAQMD has adopted GHG thresholds of significance in its CEQA Air Quality Guidelines.[36] The BAAQMD has not adopted thresholds for construction emissions but recommends quantification and disclosure of these emissions. Local agencies are encouraged to adopt feasible mitigation measures to reduce construction emissions. This Subsequent EIR analyzes whether the project's GHG emissions would be cumulatively significant. Accordingly, the project would result in significant adverse impacts on global climate change if it would:

[36] Bay Area Air Quality Management District, 2011, op. cit.

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, defined as not meeting at least one of the following criteria:
  - Resulting in operational-related GHG emissions of less than 1,100 metric tons of CO_2e a year, or
  - Resulting in operational-related GHG emissions of less than 4.6 metric tons of CO_2e per capita service population (employees) per year.
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

These significance thresholds were adopted as part of the May 2011 CEQA Air Quality Guidelines. It should be noted that on March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the BAAQMD CEQA Air Quality Guidelines. The court did not determine whether the thresholds of significance were valid on their merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD complied with CEQA. In May of 2012, the BAAQMD filed an appeal of the court's decision, the results of which are pending as of September 2012.

Although lead agencies may rely on the 2011 BAAQMD CEQA Air Quality Guidelines for assistance in calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, the BAAQMD has been ordered to set aside the thresholds and is no longer recommending that they be used as a general measure of a project's significant air quality impacts. The BAAQMD also recognizes that lead agencies may rely on the previously recommended thresholds of significance contained in its CEQA Air Quality Guidelines adopted in 1999.[37] However, the 1999 *CEQA Guidelines* do not contain thresholds to determine the significance of GHG emissions.

The court's invalidation of BAAQMD's thresholds presents uncertainty for current project applicants and local agencies regarding proper evaluation of air quality and GHG emissions in CEQA documents. Although reliance on the thresholds is no longer required, local agencies still have a duty to evaluate impacts related to air quality and GHG emissions. In addition, CEQA grants local agencies broad discretion to develop their own thresholds of significance, or to rely on thresholds previously adopted or recommended by other public agencies or experts so long as they are supported by substantial evidence.[38] Accordingly, Foster City has not adopted its own GHG emission thresholds and will continue to use the BAAQMD's thresholds to evaluate project impacts in order to evaluate the potential effects of the project on global climate change. The City believes that these protective thresholds are appropriate in the context of the size, scale, and location of the project. The BAAQMD's approach to developing a quantitative threshold of significance for GHG emissions was to identify the emissions level for which a project would not be expected to substantially conflict with existing California legis-

[37] Bay Area Air Quality Management District, 1999. *BAAQMD CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans.* December.

[38] CEQA Section 21082; *CEQA Guidelines* Sections 15064.7 and 15064.4 (addressing GHG impacts).

lation and policy adopted to reduce Statewide GHG emissions. According to the BAAQMD CEQA Air Quality Guidelines, if a project would generate GHG emissions above the threshold level, it would be considered to contribute substantially to a cumulative impact, and would be considered significant. The Alameda County Superior Court did not question the science behind the thresholds or their merit. Therefore, Foster City finds that, despite the court ruling, the science and reasoning contained in the 2011 BAAQMD CEQA Air Quality Guidelines provide the latest state-of-the-art guidance available. For that reason, substantial evidence supports continued use of the 2011 BAAQMD CEQA Air Quality Guidelines and the significance thresholds contained therein.

b. Less-Than-Significant Impacts. Implementation of the 2012 Master Plan would result in the less-than-significant impacts discussed below.

(1) Construction Activities. Construction activities, such as site preparation, site grading, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, and motor vehicles transporting the construction crew would produce combustion emissions from various sources. During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels would create GHGs such as CO_2, CH_4, and N_2O. Furthermore, CH_4 would be emitted during the fueling of heavy equipment.

It is anticipated that development of the project site would require demolition of existing buildings and hauling of demolished materials. Each of the new buildings would be constructed over a period of 12-18 months for a period of 15 to 20 years. Using the California Emission Estimator Model (CalEEMod v.2011.1), the total CO_2 emissions associated with construction equipment for the proposed project would be approximately 13,190 tons CO_2e. Model output sheets are included in Appendix C.

The BAAQMD does not have a numeric threshold to determine the significance of construction emissions. However, the project would be required to implement the construction exhaust control measures listed in Mitigation Measure AIR-1 of Section IV.I, Air Quality, including minimization of construction equipment idling and implementation of proper engine tuning and exhaust controls. The mitigation measure would also require contractors to use electric equipment when feasible. These measures would reduce GHG emissions during the construction period.

(2) Compliance with GHG Emission Reduction Strategies. The Cal/EPA CAT and the ARB have developed several reports to achieve the State's GHG targets that rely on voluntary actions of California businesses, local government and community groups, and State incentives and regulatory programs. These include the CAT's 2006 "Report to Governor Schwarzenegger and the Legislature,"[39] ARB's 2007 "Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California,"[40] and ARB's "Climate Change Scoping Plan: a Framework for Change."[41] These

[39] California Air Resources Board, 2006. *Report to Governor Schwarzenegger and the Legislature*.

[40] California Air Resources Board, 2007. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*. October.

[41] California Air Resources Board, 2008, op. cit.

reports identify strategies to reduce California's emissions to the levels proposed in Executive Order S-3-05 and AB 32. The adopted Scoping Plan includes proposed GHG reductions from direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as cap-and-trade systems.

In addition to reducing GHG emissions to 1990 levels by 2020, AB 32 directed ARB to identify a list of "discrete early action GHG reduction measures" that can be adopted and made enforceable by January 1, 2010. In June 2007, ARB approved a list of 37 early action measures, including three discrete early action measures (Low Carbon Fuel Standard, Restrictions on High Global Warming Potential Refrigerants,[42] and Landfill Methane Capture[43]). Discrete early action measures are measures that are required to be adopted as regulations and made effective no later than January 1, 2010, the date established by Health and Safety Code (HSC) Section 38560.5. The ARB adopted additional early action measures in October 2007 that tripled the number of discrete early action measures.[44]

ARB's focus in identifying the 44 early action items was to recommend measures that ARB staff concluded were "expected to yield significant GHG emission reductions, [and] are likely to be cost-effective and technologically feasible." The combination of early action measures is expected to reduce Statewide GHG emissions by nearly 16 MMT. Accordingly, the 44 early action items focus on industrial production processes, and the agriculture and transportation sectors. Early action items associated with industrial production and agriculture do not apply to the proposed project. The transportation sector early action items such as truck efficiency, low carbon fuel standard, proper tire inflation, truck stop electrification, and the strengthening of light duty vehicle standards are either not specifically applicable to the proposed project or would result in a reduction of GHG emissions associated with the project but are under the control of other regulatory agencies. State measures include emission reductions assumed as part of the Scoping Plan, including light-duty vehicle GHG standards (Pavley Standards), the low carbon fuel standard, and energy efficiency measures. Table IV.K-3 outlines the project's compliance with specific emission reduction strategies.

[42] Ibid.

[43] Ibid.

[44] Ibid.

Table IV.K-3: Project Compliance with Statewide Greenhouse Gas Emission Reduction Strategies

Strategy	Project Compliance
Energy Efficiency Measures	
Energy Efficiency Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities). **Renewables Portfolio Standard** Achieve a 33 percent renewable energy mix statewide. **Green Building Strategy** Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.	**Compliant.** The proposed project would be required to comply with the updated Title 24 (CalGreen) standards for building construction. The updated code includes 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, including eco-friendly flooring, carpeting, paint, coatings, thermal insulation and acoustical wall and ceiling panels. Energy used on the project site would be from the California grid, which will be compliant with the renewable portfolio standards.
Water Conservation and Efficiency Measures	
Water Use Efficiency Continue efficiency programs and use cleaner energy sources to move and treat water. Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions.	**Compliant.** The project would comply with the latest Title 24 (CalGreen) standards, which include water efficiency measures such as a 20 percent reduction in indoor water use and separate water meters for indoor and outdoor water use.
Solid Waste Reduction Measures	
Increase Waste Diversion, Composting, and Commercial Recycling, and Move Toward Zero-Waste Increase waste diversion from landfills beyond the 50 percent mandate to provide for additional recovery of recyclable materials. Composting and commercial recycling could have substantial GHG reduction benefits. In the long term, zero-waste policies that would require manufacturers to design products to be fully recyclable may be necessary.	**Compliant.** The proposed project would be required to comply with Foster City's Municipal Code, which requires construction contractors to dispose of their construction and demolition debris at a facility that processes construction and demolition materials for recycling. During project construction, 50 percent of the demolition materials would be diverted to recycling facilities. During the operational phase of the project, Recology San Mateo County which currently provides recycling services, would continue to service the project site.

Table IV.K-3 *Continued*

Strategy	Project Compliance
Transportation and Motor Vehicle Measures	
Vehicle Climate Change Standards AB 1493 (Pavley) required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of GHG emissions from passenger vehicles and light duty trucks. Regulations were adopted by the ARB in September 2004. **Light-Duty Vehicle Efficiency Measures** Implement additional measures that could reduce light-duty GHG emissions. For example, measures to ensure that tires are properly inflated can both reduce GHG emissions and improve fuel efficiency. **Adopt Heavy- and Medium-Duty Fuel and Engine Efficiency Measures** Regulations to require retrofits to improve the fuel efficiency of heavy-duty trucks that could include devices that reduce aerodynamic drag and rolling resistance. This measure could also include hybridization of and increased engine efficiency of vehicles. **Low Carbon Fuel Standard** ARB identified this measure as a Discrete Early Action Measure. This measure would reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. **Regional Transportation-Related Greenhouse Gas Targets** Develop regional greenhouse gas emissions reduction targets for passenger vehicles. Local governments will play a significant role in the regional planning process to reach passenger vehicle greenhouse gas emissions reduction targets. Local governments have the ability to directly influence both the siting and design of new residential and commercial developments in a way that reduces greenhouse gases associated with vehicle travel.	**Compliant.** Specific regional emission targets for transportation emissions do not directly apply to the proposed project. However, the proposed project would be required to continue an extensive Transportation Demand Management (TDM) Program already in place. The specific measures in the TDM Program include a guaranteed ride home program (for all carpool, vanpool, and transit participants), shuttle service to the nearby rail station, carpool incentive program, bike to work program, rebates for vanpool participants, commuter checks, flexible work hours, telecommuting option, vanpool program, bicycle racks and lockers, and other on-site amenities. The 2012 Master Plan does not involve the manufacture, sale, or purchase of vehicles. However, newer model vehicles that operate within and access the project site would comply with any vehicle and fuel standards that the ARB adopts.
Measures to Reduce High Global Warming Potential (GWP) Gases ARB has identified Discrete Early Action measures to reduce GHG emissions from the refrigerants used in car air conditioners, semiconductor manufacturing, and consumer products. ARB has also identified potential reduction opportunities for future commercial and industrial refrigeration, changing the refrigerants used in auto air conditioning systems, and ensuring that existing car air conditioning systems do not leak**.**	**Compliant.** New products used, sold, or serviced in the project site would be required to comply with future ARB rules and regulations as these new rules and regulations are implemented by the agency.

Source: LSA Associates, Inc., 2012.

The proposed project would not conflict with the AB 32 Scoping Plan, or the early Statewide action measures. The proposed project would be compliant with the strategies developed by the State to reduce GHG emissions. In addition, the project would also be subject to all applicable regulatory requirements, which would also reduce the GHG emissions of the project.

After application of regulatory requirements, the 2012 Master Plan would implement appropriate GHG reduction strategies and would not conflict with or impede implementation of reduction goals identified in AB 32, the Governor's Executive Order S-3-05, or other strategies to help reduce GHGs.

c. Significant Impacts. Implementation of the proposed project would result in one significant impact related to global climate change.

Impact GCC-1: Operation of the proposed project would exceed applicable GHG emissions thresholds. (S)

The operational activities associated with the proposed project could directly or indirectly contribute to the generation of GHG emissions. GHG emissions generated by the proposed project would predominantly consist of CO_2. In comparison to criteria air pollutants (see Section IV.I, Air Quality) such as ozone and PM10, CO_2 emissions persist in the atmosphere for a substantially longer period of time. While emissions of other GHGs, such as CH_4, are important with respect to global climate change, emission levels of other GHGs are less dependent on the land use and circulation patterns associated with the proposed project than are levels of CO_2.

The starting point of the operational analysis of GHG emissions involves evaluating and quantifying existing emissions at the project site, in order to measure whether emissions from the proposed project would be significant. GHG emissions generated from the existing uses on the project site were estimated using the California Emissions Estimator Model (CalEEMod), which is the latest computer model for estimating air emissions from land use projects. CalEEMod was developed in cooperation with air districts throughout the State, and is designed as a uniform platform to quantify potential criteria pollutant and GHG emissions associated with construction and operation from a variety of land uses, such as residential and commercial facilities. CalEEMod utilizes widely-accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available. These models and default estimates use sources from the U.S. EPA and ARB, as well as studies commissioned by California agencies such as the California Energy Commission and CalRecycle.

Site-specific inputs to CalEEMod for this analysis include trip estimates from the Transportation Impact Analysis of existing on-site uses.[45] All other model assumptions were based on CalEEMod default rates for general office land uses. As shown in Table IV.K-4 (below), the total existing operational emissions at the site have been quantified as 13,394 metric tons per year of CO_2e. These existing annual emissions will then be compared to the project's annual operational emissions in reaching the significance determinations.

[45] Fehr and Peers Transportation Consultants, 2012. *Transportation Impact Analysis for the Gilead Sciences Integrated Corporate Campus Master Plan.* October.

Project emissions were estimated for energy use, water use, waste generation, and mobile sources, as described below.

(1) Energy and Natural Gas Use. Buildings represent 39 percent of U.S. primary energy use and 70 percent of electricity consumption.[46] The proposed project would increase the demand for electricity and natural gas due to the increased square footage and number of employees. The project would indirectly result in increased GHG emissions from off-site electricity generation at power plants.

(2) Water Use. Water-related energy use consumes 19 percent of California's electricity every year.[47] Energy use and related GHG emissions are based on water supply and conveyance, water treatment, water distribution, and wastewater treatment. The additional water demand for the proposed project is projected to be approximately 206 acre-feet per year in 2020.[48]

(3) Solid Waste Disposal. The proposed project would also generate solid waste during the operation phase of the project. As described in Chapter IV.J Public Services, Utilities, and Recreation, the 3,700 employees resulting from buildout of the proposed 2012 Master Plan would generate approximately 10.36 tons per day of solid waste.

(4) Mobile Sources. Mobile sources (vehicle trips and associated miles traveled) would be the largest emission source of GHGs associated with the proposed project. Transportation is also the largest source of GHG emissions in California and represents approximately 38 percent of annual CO_2 emissions generated in the State. As with most development projects, vehicle miles traveled (VMT) is the most direct indicator of CO_2 emissions from the proposed project and associated CO_2 emissions function as the best indicator of total GHG emissions. The proposed project would generate an additional 15,768 daily trips over current conditions. The proposed project would be developed over an approximately 15- to 20-year period, with buildout anticipated to occur between 2028 and 2033. Vehicle emissions would decrease with time due to increased regulation of tailpipe emissions; therefore, to provide a conservative analysis of the estimated emissions, this analysis assumes a 2020 buildout date which, although not anticipated, would be the earliest feasible buildout date of the project.

Emissions associated with the existing on-site uses and those associated with the 2012 Master Plan are shown in Table IV.K-4.

[46] United States Department of Energy. 2003. *Buildings Energy Data Book.*

[47] California, State of, 2005. California Energy Commission. California's Water-Energy Relationship. November.

[48] Estero Municipal Improvement District, 2012. *Water Supply Assessment Report for Gilead Integrated Corporate Campus Master Plan Project; 15-Acres Project; 400 Mariners Island Blvd., City of San Mateo (Tidelands Park) Residential Project; Chess Hotel Project; Chess/Hatch Drive Office Project; Bayside Towers III Project; Visa V Project; Marina Project.* November 5.

Table IV.K-4: Annual GHG Emissions (Metric Tons per Year)

	Operational Emissions			
Emissions Source	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Existing Emissions				
Energy	4,734.32	0.19	0.08	4,763.82
Mobile	7,718.30	0.46	0.00	7,728.05
Water	174.95	10.34	0.00	392.08
Waste	363.92	5.04	0.13	510.42
Total Existing Emissions	**12,991.49**	**16.03**	**0.21**	**13,394.37**
Proposed Project Emissions				
Energy	12,804.58	0.51	0.22	12,884.33
Mobile	17,379.69	0.74	0.00	17,395.33
Water	472.07	27.90	0.00	1,057.93
Waste	981.94	13.61	0.35	1,377.26
Total Project Emissions				**32,714.85**
Net New Emissions				**19,320.48**

Note: Column totals may vary slightly due to independent rounding of input data.

Source: LSA Associates, Inc., 2012.

According to the BAAQMD CEQA Air Quality Guidelines, a project would have a less-than-significant impact related to GHG emissions if it would generate less than 1,100 metric tons per year CO_2e or would result in emissions per employee of 4.6 metric tons per year CO_2e or less. As discussed in Chapter IV.C, Population, Employment, and Housing, buildout of the project would result in up to 3,700 net new employees.

Model results indicate the total emissions from operation of the project under buildout conditions would be 32,715 metric tons per year CO_2e. Existing uses on the project site generate 13,394 metric tons per year CO_2e, which means the proposed project would generate approximately19,321 net new metric tons of GHG emissions per year, resulting in a per service population emission rate of 5.22 metric tons per year. The annual emissions would therefore exceed both the 1,100 metric tons CO_2e threshold as well as the threshold of 4.6 metric tons of CO_2e per employee per year. Therefore, the proposed project would generate significant greenhouse gas emissions and mitigation would be required to reduce emissions to meet one of the BAAQMD's thresholds. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level:

> Mitigation Measure GCC-1: Gilead Sciences shall prepare and submit a Campus-wide Sustainability Plan, for approval by the Community Development Director, that identifies the specific design and operational measures that will be implemented to meet the 4.6 metric tons of CO_2e per employee per year standard. The Campus-wide Sustainability Plan may include a combination of energy, water, solid waste, and transportation measures and shall include specific implementation and monitoring measures, confirmation of which shall be submitted to the Community Development Director upon request. (LTS)

The potential effects of Mitigation Measure GCC-1 in reducing greenhouse gas emissions were quantified using CalEEMod, in order to verify that the measure would feasibly (using standard

building and design practices) reduce project greenhouse gas emissions to a less-than-significant level. The calculations were based on these assumptions:

- Reduce energy use by 15 percent from 2010 California Building Code standards;
- Reduce water use by 20 percent from 2010 California Building Code standards;
- Reduce waste generated by 15 percent below default employee waste generation rates for commercial and industrial uses in CalEEMod;
- Provide preferred parking for electric and alternative fuel vehicles; and
- Implement an enhanced transportation demand management (TDM) program that would reduce trip generation to the project site by a minimum of 8 percent (as required by Mitigation Measure TRANS-1).

As shown in Table IV.K-5, implementation of GCC-1 (based on the assumptions listed above) would reduce project emissions to 16,071 metric tons CO_2e per year, or 4.34 metric tons of CO_2e per employee per year, which is below the threshold of 4.6 metric tons of CO_2e per employee per year. Therefore, assuming a similar level of greenhouse gas reduction measures, the project's contribution to cumulative GHG emissions would be reduced to a less-than-significant level. In accordance with Mitigation Measure GCC-1, the project sponsor may undertake a package of greenhouse gas reduction measures that is different in composition than that identified in the bullet points above. However, the performance standard of 4.6 metric tons of CO_2e per employee per year must be achieved, as specified in the mitigation measure.

Table IV.K-5: Annual Mitigated GHG Emissions (Metric Tons Per Year)

	Operational Emissions			
Emissions Source	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Existing Emissions				
Energy	4,734.32	0.19	0.08	4,763.82
Mobile	7,718.30	0.46	0.00	7,728.05
Water	174.95	10.34	0.00	392.08
Waste	363.92	5.04	0.13	510.42
Total Existing Emissions	**12,991.49**	**16.03**	**0.21**	**13,394.37**
Mitigated Proposed Project Emissions				
Energy	11,290.02	0.44	0.20	11,360.28
Mobile	16,089.85	0.69	0.00	16,104.33
Water	785.55	10.89	0.28	1,101.80
Waste	401.26	23.71	0.00	899.24
Total Mitigated Project Emissions				**29,465.65**
Net New Emissions				**16,071.28**

Note: Column totals may vary slightly due to independent rounding of input data.

Source: LSA Associates, Inc., 2012.

d. Cumulative Impacts. Cumulative impacts are the collective impacts of one or more past, present, or reasonably foreseeable 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 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. Development projects may contribute to the phenomenon of global climate change in ways that would be experienced worldwide, with some specific effects felt in California. However, no scientific study has established a direct causal link between individual development project impacts and global warming.

The combination of GHG emissions from past, present, and future projects contributes to the phenomenon of global climate change and its associated environmental impacts. No individual project would result in a measurable impact on global climate change. Therefore, this section has addressed climate change primarily as a cumulative impact. As noted above, in developing the threshold of significance for GHG emissions, the BAAQMD identified the emissions level for which a project would conflict with existing California legislation adopted to reduce Statewide GHG emissions. According to the BAAQMD, if a project would generate GHG emissions above the threshold level, it would be considered to contribute substantially to a cumulative impact, and would be considered significant. As indicated in the analysis presented above, the proposed project, with implementation of Mitigation Measure GCC-1, would not exceed the project-level significance criteria established by the BAAQMD and therefore the proposed project would not have a significant cumulative impact related to GHG emissions and global climate change.

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V. ALTERNATIVES

The *CEQA Guidelines* require the analysis of a reasonable range of alternatives to the proposed project, or to the location of the proposed project, which would feasibly attain most of the proposed project's basic objectives and avoid or substantially lessen any of the significant effects of the proposed 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] CEQA states that an EIR should not consider alternatives "whose effect cannot be ascertained and whose implementation is remote and speculative."

The proposed 2012 Master Plan and its objectives are described in detail in Chapter II, Project Description, and the potential environmental effects of implementing the proposed project are analyzed in Chapter IV, Setting, Impacts and Mitigation Measures, with an emphasis on significant impacts resulting from the project and mitigation measures recommended to avoid or substantially reduce these impacts to the extent feasible. For ease of reference, the 2012 Master Plan would include up to 2,500,600 square feet of building space comprising: 1,524,000 square feet of office space; 953,000 square feet of laboratory space; and 23,600 square feet of material storage/warehouse space.

The following discussion is intended to inform the public and decision-makers of the relative impacts of five potentially feasible alternatives to the proposed 2012 Master Plan. A discussion of the environmentally superior alternative is also provided.

The five alternatives to the proposed project that are discussed in this chapter include the following:

- The **No Project alternative** assumes the continuation of existing conditions within the project site. The site would remain developed with existing office and laboratory uses in one- to five-story buildings. NLB-1, which is currently under construction, is assumed to be completed. Including NLB-1, the site would contain 926,735 square feet of building space under the No Project alternative.
- The **Existing Entitlements alternative** assumes that the project site would be developed in accordance with the existing entitlements issued as part of approval of the 2010 Master Plan (including Addenda #1 and #2). The alternative would allow for a total of 1,363,480 square feet of building space on the site, including a minimum of 445,432 square feet of laboratory space and a maximum of 918,048 square feet of office space. Under this alternative, the approximately 32-acre former EFI property would remain in approximately its existing condition.[2] That site would contain only Building 301, which contains 163,000 square feet of building space.

[1] *CEQA Guidelines*, 2007, Section 15126.6.

[2] The 1997 EFI General Development Plan/Rezoning allows for the development of 1,000,000 square feet of office, research and development, light assembly, exercise, cafeteria, and childcare uses on the approximately 32-acre former EFI property and adjoining property occupied by the building at 303 Velocity Way. The approved zoning includes the already-

- The **Reduced Office alternative** (identified as Alternate A in the Transportation Impact Analysis (TIA) in Appendix B) assumes that overall development within the project site would be reduced compared to the 2012 Master Plan, with a focus on office development. The alternative would allow for a total of 1,905,480 square feet of building space on the site, including 1,460,048 square feet of office space and 445,432 square feet of laboratory space.
- The **Reduced Laboratory alternative** (identified as Alternate B in the TIA) assumes a slight reduction in overall development on the project site compared to the 2012 Master Plan while retaining approximately the same amount of laboratory space. The alternative would allow for a total of 2,244,240 square feet of building space on the site, including 1,268,048 square feet of office space, 952,592 square feet of laboratory space, and 23,600 square feet of materials storage and warehouse space.
- **Lakeside Drive Open alternative** assumes that the 2012 Master Plan would be implemented as currently proposed, but that Lakeside Drive would remain open between Reef Drive and Vintage Park Drive.

For each alternative, a brief discussion of its principal characteristics is followed by an analysis of anticipated environmental impacts. The emphasis of the analysis is on the alternative's relative adverse effects compared to the proposed project and a determination of whether or not the alternative would reduce, eliminate, or create new significant impacts.

A. NO PROJECT ALTERNATIVE

1. Principal Characteristics

The No Project alternative assumes that the project site would not be subject to redevelopment, and would generally remain in its existing condition. Neither the 2010 Master Plan nor the 2012 Master Plan would be implemented.

The site would remain developed with 15 mostly one- and two-story buildings on the South Campus and one five-story building (Building 301) on the North Campus. In addition, is assumed that four-story NLB-1 (currently under construction) would be completed as part of the alternative. Certain existing uses in the project site could intensify over time, but the number of employees occupying the project site would not increase substantially and the Gilead Sciences employee count on the project site would remain at approximately 1,800 persons.

In the near-term, Lakeside Drive within the project site would remain open, even though the vacation and privatization of Lakeside Drive and Reef Drive has been approved by the City Council. The closure of Lakeside Drive from Reef Drive to Vintage Park Drive could be implemented by Gilead Sciences with a Use Permit. As part of the No Project alternative, Gilead Sciences would have ownership and maintenance responsibility for the remainder of Lakeside Drive and the segment of

developed 303 Velocity Way building (295,000 square feet) and Building 301 (163,000 square feet). However, buildout to 1,000,000 square feet (total) would require supplemental environmental review. Thus this development is not assumed to be part of the Existing Entitlements alternative.

Reef Drive between Mariners Island Boulevard and Lakeside Drive. The change in ownership was effective starting in November 2012.

The No Project alternative would not achieve key objectives of the proposed project, including:

- Allow for the development of a unified corporate campus;
- Allow Gilead Sciences the flexibility to respond to its dynamic business needs in the arrangement of buildings and uses throughout the campus while limiting off-site traffic impacts;
- Accommodate a total of 5,500 employees;
- Provide a safe pedestrian-oriented environment;
- Develop the campus in a manner that promotes walkability and with buildings that conserve energy and water;
- Reduce the administrative burdens on the City through a flexible General Development Plan;
- Develop the campus and buildings to be consistent with the Vintage Park Design Guidelines; and
- Maintain flexibility in the timing of development, and designation and location of land uses to support Gilead Sciences' dynamic business needs in laboratory, office, and ancillary support space.

2. Analysis of the No Project Alternative

The potential impacts of the No Project alternative are described below.

a. Land Use and Planning Policy. Implementation of the No Project alternative would result in the continuation of existing land uses within the project site. New land uses would not be introduced and existing land uses would continue to be compatible with surrounding uses. Similarly, no changes to the existing circulation pattern would occur in the short-term. The No Project alternative would avoid the significant conflicts of the project with noise policies adopted for environmental protection, as no construction activities would take place and operational traffic would not increase noise levels on roadways in the vicinity of the site.

b. Visual Quality. Under the No Project alternative, the site would remain as it is today, with a combination of one- to five-story office and laboratory buildings. Like the proposed project, the alternative would not result in substantial impacts to existing scenic views. Unlike the proposed 2012 Master Plan, the No Project alternative would not alter any views to and from the campus and would not change the physical layout of the campus. In addition, the No Project alternative would not contribute additional light or glare to the area. Therefore, the No Project alternative would result in no impacts to the existing visual environment.

c. Population, Employment, and Housing. Similar to the proposed project, the No Project alternative would not result in any significant population and housing impacts. Because the No Project alternative would not result in the redevelopment of the site, it would not substantially increase employment or induce population growth. The project site does not currently contain

residences, and neither the proposed project nor the No Project alternative would displace existing housing or residents. The No Project alternative would not change the City's or County's jobs/housing ratio.

d. Geology, Soils, and Seismicity. The No Project alternative would not redevelop the project site and would not expose new employees or new structures to major geologic hazards. However, it should be noted that the existing structures on the project site, and their occupants, would be exposed to the same geologic hazards that would affect the proposed project – earthquake shaking, damage related to fill and unstable soils, and damage related to expansive and shrink-swell soils. Although no mitigation measures would be needed to reduce these geologic hazards for existing facilities, the hazards would pose a risk to the buildings and occupants of the No Project alternative.

e. Hydrology and Water Quality. The No Project alternative would not change the amount or configuration of impervious surfaces on the project site and would thus not contribute new contaminated runoff to nearby water bodies. Similar to the proposed project, the No Project alternative would not result in downstream flooding or expose on-site facilities to flooding. In addition, the No Project alternative would not result in substantial erosion or the modification of water bodies. Because no new construction would be undertaken as part of the No Project alternative, the alternative would avoid Impact HYD-1, which relates to the degradation of water quality during the project construction and operation periods. However, the No Project alternative would generate small amount of operational vehicle- and landscaping-related contaminants (e.g., fuels, dust, and herbicides) that could adversely affect water quality. The No Project alternative would thus avoid construction-period impacts to water quality (e.g., impacts associated with erosion), but would not realize some of the operational water quality benefits of the proposed project, including the likely implementation of best management practices to treat runoff in swales and other landscape features.

f. Hazardous and Hazardous Materials. Similar to the proposed project, the No Project alternative would not result in significant impacts associated with the routine transport, use, or disposal of significant quantities of hazardous materials during the operational phase of the alternative. In addition, the alternative would not generate hazardous emissions or handle hazardous waste in a manner that would have the potential to affect schools within ¼-mile of the site. Unlike the proposed project, the No Project alternative would not result in the potential for upset of hazardous materials during the construction phase, or the release of previously unidentified contamination in soils and groundwater.

g. Transportation and Circulation. Implementation of this alternative would not cause a substantial increase in traffic or any changes to the transportation system. The traffic conditions for this alternative are as described in the existing conditions section of Section IV.G, Transportation and Circulation. Unlike the proposed project, the No Project alternative would not contribute to significant cumulative congestion at the intersection of Norfolk Street/East Third Avenue or the SR 92 freeway segment between US 101 and Mariners Island Boulevard/Edgewater Boulevard. In addition, the alterative would avoid other impacts of the project, including disruption of the Lincoln Centre and North Foster City shuttle routes, the addition of capacity to already over-capacity shuttles, and interference with circulation during the construction period.

h. Noise. Construction activity would not take place as part of the No Project alternative. Therefore, the No Project alternative would not expose surrounding land uses to significant noise

levels, as would occur under the proposed project. In addition, the alternative would not increase local traffic and would not increase roadway noise levels by more than 3 dBA, as would the project. No significant noise impacts would result from implementation of the No Project alternative.

i. Air Quality. Implementation of the No Project alternative would not result in construction activity within the project site and would not result in a substantial increase in vehicular trips in the City. Similar to the proposed project, the No Project alternative would not substantially increase odor concentrations or carbon monoxide concentrations. However, the alternative would avoid the significant impacts of the project on air quality, including impacts related to construction emissions, operational criteria pollutants, the exposure of sensitive receptors to substantial pollutant concentrations, and violation of the Clean Air Act.

j. Public Services, Utilities and Recreation. As part of the No Project alternative, the existing use of the site would continue, with a total of approximately 926,735 square feet of office and laboratory uses. As such, the alternative would not increase demand for public services, such as fire services, police services, schools, and open space and recreation facilities. Unlike the proposed 2012 Master Plan, the No Project alternative would not increase demand for utilities and infrastructure such as water and wastewater, or increase solid waste generation. However, all impacts to public services, utilities, and recreation associated with the proposed project would be less than significant.

k. Global Climate Change. The No Project alternative would not increase vehicle emissions, construction emissions, or operational emissions on the project site, and would thus avoid the significant contribution of the project to greenhouse gas emissions. However, the existing buildings on the site would likely be less energy efficient than new buildings that would be constructed as part of the Master Plan, and would continue to indirectly generate greenhouse gas emissions that would contribute to global climate change.

l. Summary. The No Project alternative would avoid each of the significant impacts associated with the proposed project. Because the alternative includes no major construction activities, it would not increase short-term ambient noise levels, degrade water quality, or generate dust associated with grading, demolition, and construction equipment. The alternative would also avoid the cumulative impact on the operation of the intersection of Norfolk Street/East Third Avenue and the SR 92 freeway segment between US 101 and Mariners Island Boulevard/Edgewater Boulevard. In addition, the No Project alternative would avoid the impact of the project on roadway noise levels, which would be a significant and unavoidable impact. The alternative would also avoid the significant unavoidable impacts of the project related to net increases in criteria pollutant emissions, and an associated conflict with the Clean Air Plan.

B. EXISTING ENTITLEMENTS ALTERNATIVE

1. Principal Characteristics

The Existing Entitlements alternative assumes that the project site would be developed in accordance with the existing entitlements issued as part of approval of the 2010 Master Plan. Under this alternative, the approximately 32-acre former EFI property would remain in approximately its existing condition. That site would contain only Building 301, which contains 163,000 square feet of building space.

The approximately 40-acre South Campus – as defined under the 2010 Master Plan – would be developed in accordance with the 2010 Master Plan, as amended by Addendum #1 and Addendum #2. At buildout, the South Campus would contain a total of 1,200,480 square feet of building space, with a minimum of 445,432 square feet of laboratory uses and a maximum of 755,048 square feet of office uses. Taking into account development on the North and South Campuses, the Existing Entitlements alternative would comprise 1,363,480 square feet of building space.

The total square footage of the Existing Entitlements alternative would be 1,363,480 square feet less than that proposed as part of the 2012 Master Plan. Compared to the 2012 Master Plan, office space would be reduced by 605,952 square feet, laboratory space would be reduced by 507,568 square feet, and material storage/warehouse space would be reduced by 23,600 square feet.

Up to six existing buildings would be demolished to allow for redevelopment of the South Campus, and up to seven new office and laboratory buildings would be developed, ranging in height from two to ten stories. The site would accommodate up to approximately 3,425 employees, including approximately 325 employees in Building 301 on the North Campus (based on standard employee generation rates for office uses) and 3,100 employees on the South Campus. The Existing Entitlements alternative would contain a total of approximately 4,900 parking spaces over the North and South Campuses. Parking would be accommodated in surface lots on the North Campus and up to two four- to six-level parking garages on the South Campus.

Vintage Lake would function as a primary central open space amenity within the site, and the circulation system would be as envisioned in the 2010 Master Plan. The 40-foot-wide Lakeside Drive would remain open from East Third Avenue to the south of Reef Drive, where it would terminate into a proposed cul-de-sac. South of the cul-de-sac, a 24-foot-wide private asphalt drive would be constructed to access adjoining future parking lots. The portion of Lakeside Drive from the intersection of Vintage Park Drive to a second proposed cul-de-sac would also remain open.

The Existing Entitlements alternative would not completely achieve key objectives of the proposed project, including:

- Allow for the development of a unified corporate campus;
- Allow Gilead Sciences the flexibility to respond to its dynamic business needs in the arrangement of buildings and uses throughout the campus while limiting off-site traffic impacts;
- Accommodate a total of 5,500 employees;
- Provide a safe pedestrian-oriented environment;
- Develop the campus in a manner that promotes walkability and with buildings that conserve energy and water;
- Reduce the administrative burdens on the City through a flexible General Development Plan; and
- Maintain flexibility in the timing of development, and designation and location of land uses to support Gilead Sciences' dynamic business needs in laboratory, office, and ancillary support space.

2. Analysis of Existing Entitlements Alternative

For the following topical areas, the Existing Entitlements alternative would result in impacts that are similar or identical to those that would result from the proposed project: Land Use and Planning Policy; Population, Employment, and Housing; Geology, Soils, and Seismicity; Hydrology and Water Quality; Hazards and Hazardous Materials; Public Services and Utilities; and Global Climate Change. With the exception of the topical areas of Population, Employment, and Housing; and Public Services and Utilities, impacts in the topical areas listed above are primarily a function of new development on the project site, regardless of size or scale (the significance of global climate change impacts is largely based on per capita emissions calculations). The 2012 Master Plan would result in less-than-significant population- and public services/utilities-related impacts; thus an alternative involving reduced development on the site (with less associated employment and population growth and reduced demand for services and utilities) would also be expected to result in less-than-significant impacts in these topical areas.

The Existing Entitlements alternative would reduce the level of development on the project site compared to the project, resulting in a lower level of employment growth, less intensive land uses on the site, reduced demand for public services, potentially reduced coverage of impervious surfaces, and reduced emissions of greenhouse gases. These changes would all tend to slightly reduce the impacts of the project in the topical areas listed above. However, none of the significant impacts related to these environmental issues that would result from the project would be avoided by the alternative. Even though development intensity would be reduced, the land uses of the site would change (although they would be consistent with existing and surrounding uses), employment and associated population growth would occur, and new buildings would be exposed to seismic hazards. Similarly, construction activities would generate polluted runoff and could expose persons to previously-unidentified contamination in soil and groundwater. The greenhouse gas emissions of the Existing Entitlements alternative would still exceed the threshold established by the BAAQMD and the City for identification of significant impacts to global climate change.

The topics for which the alternative would result in impacts that are clearly distinguishable from the proposed project are discussed below.

a. Visual Quality. Under the Existing Entitlements alternative, development would be concentrated in the South Campus in accordance with the 2010 Master Plan. Therefore, the alternative would further reduce already less-than-significant impacts of the project on views of the San Francisco Bay shoreline and Santa Cruz Mountains. Similar to the project, the alternative would be visually compatible with surrounding development and would be designed in accordance with the Vintage Park Design Guidelines. Also, similar to the project, the alternative would increase light and glare. Because extensive surface parking lots would remain in the North Campus (with associated nighttime lighting), levels of light and glare would likely be similar to the proposed project or slightly increased under this alternative.

b. Transportation and Circulation. The Existing Entitlements alternative would avoid the significant contribution of the project to congestion under cumulative conditions. Specifically, the alternative would increase the average delay at the intersection of Norfolk Street/East Third Avenue by less than 5 seconds during the AM peak hour, and would not cause the SR 92 freeway segment between US 101 and Mariners Island Boulevard/Edgewater Boulevard to degrade to unacceptable hours during the AM peak hour. Similar to the proposed project, the Existing Entitlements alternative

would disrupt the routes of the Lincoln Centre shuttle and North Foster City shuttle (due to the closure of Lakeside Drive) and would add ridership demand to shuttles that are over-capacity. In addition, the alternative could disrupt circulation patterns during the construction period, requiring the preparation and implementation of a construction management plan.

c. Noise. Although the Existing Entitlements alternative would result in a smaller construction footprint than the proposed project, and reduced roadway traffic, it would not avoid the significant noise effects of the proposed project. Construction could still take place near the periphery of the site, temporarily raising ambient noise levels. In addition, the project would cause noise levels along Marsh Drive between Vintage Park Drive and East Third Avenue to increase by more than 3 dBA. Also, stationary mechanical equipment installed near proposed buildings could increase ambient noise levels, adversely affecting interior uses.

d. Air Quality. The Existing Entitlements alternative, due to reduced generation of vehicle trips and associated tailpipe emissions, would avoid two of the significant impacts of the project on air quality, including: the generation of air pollutants that could exceed BAAQMD criteria and violate air quality standards; and the generation of a significant net increase in criteria air pollutants. In addition, the alternative would not conflict with the Clean Air Act, because regional emissions would be below threshold levels. However, the Existing Entitlements alternative would result in similar construction-period impacts as the proposed project, including the generation of construction emissions that could contribute to a violation of air quality standards and expose sensitive receptors to substantial pollutant concentrations. In addition, similar to the project, the alternative could result in the installation of back-up emergency generators that could expose sensitive receptors to substantial pollutant concentrations during the operation of the project.

e. Summary. The Existing Entitlements alternative, which would result in reduced construction activities and vehicle trips compared to the proposed project, would avoid significant contributions to cumulative traffic congestion and operational air quality impacts related to vehicle emissions. However, similar to the proposed project, the alternative would substantially increase noise levels on local roadways in the vicinity of the project site. Other impacts would be similar to those that would result from the project.

C. REDUCED OFFICE ALTERNATIVE

1. Principal Characteristics

The Reduced Office alternative (also known as Alternate A in the TIA) is designed in conceptual form, and is primarily intended to reduce the effects of the 2012 Master Plan on traffic, noise, and air quality while allowing for substantial redevelopment of the 73-acre site with primarily office uses.

The alternative would reduce overall development in the site from 2,500,600 square feet of building space (as proposed under the 2012 Master Plan) to a total of 1,905,480 square feet of building space. The alternative would contain primarily office uses, with 1,460,048 square feet of office uses and 445,432 square feet of laboratory uses.

The total square footage of the Reduced Office alternative would be 595,120 square feet less than that proposed as part of the 2012 Master Plan. Compared to the 2012 Master Plan, office space would be

reduced by 63,952 square feet, laboratory space would be reduced by 507,568 square feet, and material storage/warehouse space would be reduced by 23,600 square feet.

No building footprints or maximum heights have been identified for this alterative, but the configuration of buildings would likely resemble that proposed as part of the 2012 Master Plan, with taller buildings positioned near Vintage Lake and the interior of the site, and smaller laboratory and parking buildings located closer to the periphery of the site. For the purpose of this analysis, it is assumed that buildings could range up to 10 stories and 192 feet in height at the roof screen, but the total number of structures would likely be reduced compared to the proposed project.

The circulation system of the Reduced Office alternative would resemble that of the proposed project, with a segment of Lakeside Drive closed between Reef Drive and Vintage Park Drive.

The Reduced Office alternative would not completely achieve key objectives of the proposed project, including:

- Allow Gilead Sciences the flexibility to respond to its dynamic business needs in the arrangement of buildings and uses throughout the campus while limiting off-site traffic impacts; and
- Accommodate a total of 5,500 employees.

2. Analysis of Reduced Office Alternative

For the following topical areas (similar to the Existing Entitlements alternative), the Reduced Office alternative would result in impacts that are similar or identical to those that would result from the proposed project: Land Use and Planning Policy; Population, Employment, and Housing; Geology, Soils, and Seismicity; Hydrology and Water Quality; Hazards and Hazardous Materials; Public Services and Utilities; and Global Climate Change. With the exception of the topical areas of Population, Employment, and Housing; and Public Services and Utilities, impacts in the topical areas listed above are primarily a function of new development on the project site, regardless of size or scale (the significance of global climate change impacts is largely based on per capita emissions calculations). The 2012 Master Plan would result in less-than-significant population- and public services/utilities-related impacts; thus an alternative involving reduced development on the site (with less associated employment and population growth and reduced demand for services and utilities) would also be expected to result in less-than-significant impacts in these topical areas.

Please refer to the preceding discussion of these topics under the Existing Entitlements alternative, and Chapter IV, Setting, Impacts, and Mitigation Measures.

The topics for which the alternative would result in unique impacts compared to the proposed project are discussed below.

a. Visual Quality. Under the Reduced Office alternative, the total number of buildings developed on the site would be reduced slightly compared to the proposed project, but structures would range up to 10 stories in height. Therefore, the alternative could result in a slightly more open campus plan, with additional open space, but would contribute to increased development near the San Francisco Bay shoreline and partial obstructions of mountain views. However, similar to the proposed project, this impact would not be significant. Similar to the project, the alternative would be visually

compatible with surrounding development and would be designed in accordance with the Vintage Park Design Guidelines. Also, similar to the project, the alternative would increase light and glare (although light and glare could be reduced incrementally depending on the configuration of surface parking lots on the site).

b. Transportation and Circulation. The Reduced Office alternative would avoid the significant contribution of the project to congestion under cumulative conditions. Specifically, the alternative would increase the average delay at the intersection of Norfolk Street/East Third Avenue by less than 5 seconds during the AM peak hour, and would not cause the SR 92 freeway segment between US 101 and Mariners Island Boulevard/Edgewater Boulevard to degrade to unacceptable levels during the AM peak hour. Similar to the proposed project, the Reduced Office alternative would disrupt the routes of the Lincoln Centre shuttle and North Foster City shuttle (due to the closure of Lakeside Drive) and would add ridership demand to shuttles that are over-capacity. In addition, the alternative could disrupt circulation patterns during the construction period, requiring the preparation and implementation of a construction management plan.

c. Noise. Although the Reduced Office alternative would result in reduced roadway traffic compared to the proposed project, it would not avoid the significant noise effects of the proposed project. Construction could still take place near the periphery of the site, temporarily raising ambient noise levels. In addition, the project would cause noise levels along Marsh Drive between Vintage Park Drive and East Third Avenue to increase by more than 3 dBA. Also, stationary mechanical equipment installed near proposed buildings could increase ambient noise levels, adversely affecting interior uses.

d. Air Quality. The Reduced Office alternative would result in reduced trips compared to the proposed project, but the reduction would not be sufficient to avoid the impacts of the project related to tailpipe emissions. In addition, similar to the project, the alternative could result in the installation of back-up emergency generators that could expose sensitive receptors to substantial pollutant concentrations during the operation of the project. Also, the impacts of the alternative on construction period emissions would be similar to those that would result from the project. Although construction emissions would be reduced slightly due to the lower level of development on the site, construction activities would contribute to a violation of air quality standards and expose sensitive receptors to substantial pollutant concentrations.

e. Summary. The Reduced Office alternative, which would result in reduced vehicle trips compared to the proposed project, would avoid the significant contribution of the project to congestion under cumulative conditions. However, other significant impacts, including construction and operational air pollutant emissions, and increases in ambient and roadway noise levels, would be similar to those associated with the project.

D. REDUCED LABORATORY ALTERNATIVE

1. Principal Characteristics

The Reduced Laboratory alternative (also known as Alternate B in the TIA), like the Reduced Office alternative, is designed at a conceptual level, and is primarily intended to reduce the effects of the 2012 Master Plan on traffic, noise, and air quality while allowing for substantial redevelopment of the 73-

acre site. Unlike the Reduced Office alternative, the Reduced Laboratory alternative reduces overall development on the site compared to the 2012 Master Plan while providing almost the same amount of laboratory space.

The alternative would only slightly reduce overall development on the site from that anticipated in the 2012 Master Plan. Overall development would be reduced from 2,500,600 square feet of building space (as proposed under the 2012 Master Plan) to a total of 2,244,240 square feet of building space. Almost 40 percent of building space would comprise laboratory uses, with 1,268,048 square feet of office space, 952,592 square feet of laboratory space, and 23,600 square feet of materials storage and warehouse space.

The total square footage of the Reduced Laboratory alternative would be 256,180 square feet less than that proposed as part of the 2012 Master Plan. Compared to the 2012 Master Plan, office space would be reduced by 255,952 square feet and laboratory space would be reduced by 408 square feet. The amount of material storage/warehouse space provided would be the same as under the 2012 Master Plan.

No building footprints or maximum heights have been identified for this alterative, but the configuration of buildings would likely resemble that proposed as part of the 2012 Master Plan, with taller buildings positioned near Vintage Lake and the interior of the site, and smaller laboratory and parking buildings located closer to the periphery of the site. For the purpose of this analysis, it is assumed that buildings could range up to 10 stories and 192 feet in height at the roof screen, and the total number and massing of buildings would likely be similar to that proposed as part of the 2012 Master Plan, with the possible reduction of one or two of the office buildings.

The circulation system of the Reduced Laboratory alternative would resemble that of the proposed project, with a segment of Lakeside Drive closed between Reef Drive and Vintage Park Drive.

The Reduced Laboratory alternative would not completely achieve key objectives of the proposed project, including:

- Allow Gilead Sciences the flexibility to respond to its dynamic business needs in the arrangement of buildings and uses throughout the campus while limiting off-site traffic impacts; and
- Accommodate a total of 5,500 employees.

2. Analysis of Reduced Laboratory Alternative

For the following topical areas (similar to the Existing Entitlements and Reduced Office alternatives), the Reduced Laboratory alternative would result in impacts that are similar or identical to those that would result from the proposed project: Land Use and Planning Policy; Population, Employment, and Housing; Geology, Soils, and Seismicity; Hydrology and Water Quality; Hazards and Hazardous Materials; Public Services and Utilities; and Global Climate Change. With the exception of the topical areas of Population, Employment, and Housing; and Public Services and Utilities, impacts in the topical areas listed above are primarily a function of new development on the project site, regardless of size or scale (the significance of global climate change impacts is largely based on per capita emissions calculations). The 2012 Master Plan would result in less-than-significant population- and public services/utilities-related impacts; thus an alternative involving reduced development on the

site (with less associated employment and population growth and reduced demand for services and utilities) would also be expected to result in less-than-significant impacts in these topical areas.

Please refer to the preceding discussion of these topics under the Existing Entitlements alternative, and Chapter IV, Setting, Impacts, and Mitigation Measures.

The topics for which the alternative would result in unique impacts compared to the proposed project are discussed below.

a. Visual Quality. Under the Reduced Laboratory alternative, the total number of buildings developed on the site would be approximately the same as the proposed project, and structures would range up to 10 stories in height. Therefore, the alternative would result in impacts to views and visual quality that are almost identical to project impacts. Also, similar to the project, the alternative would increase light and glare.

b. Transportation and Circulation. The Reduced Laboratory alternative would avoid the significant contribution of the project to congestion under cumulative conditions at the intersection of Norfolk Street/East Third Avenue. However, the alterative would make a significant contribution to congestion on the SR 92 freeway segment between US 101 and Mariners Island Boulevard/Edgewater Boulevard during the AM peak hour (an impact that would not occur under the Reduced Office alternative). Similar to the proposed project, the Reduced Laboratory alternative would disrupt the routes of the Lincoln Centre shuttle and North Foster City shuttle (due to the closure of Lakeside Drive) and would add ridership demand to shuttles that are over-capacity. In addition, the alternative could disrupt circulation patterns during the construction period, requiring the preparation and implementation of a construction management plan.

c. Noise. The Reduced Laboratory alternative would result in slightly reduced roadway traffic compared to the proposed project and would not avoid the significant noise effects of the proposed project. Construction would take place near the periphery of the site, temporarily raising ambient noise levels. In addition, the project would cause noise levels along Marsh Drive between Vintage Park Drive and East Third Avenue to increase by more than 3 dBA. Also, stationary mechanical equipment installed near proposed buildings could increase ambient noise levels, adversely affecting interior uses.

d. Air Quality. The Reduced Laboratory alternative would result in slightly reduced trips compared to the proposed project, but the reduction would not be sufficient to avoid the impacts of the project related to tailpipe emissions. In addition, similar to the project, the alternative could result in the installation of back-up emergency generators that could expose sensitive receptors to substantial pollutant concentrations during the operation of the project. Also, the impacts of the alternative on construction period emissions would be almost identical to those that would result from the project. Although construction emissions would be reduced slightly compared to the proposed project if fewer buildings are constructed, construction activities would violate air quality standards and expose sensitive receptors to substantial pollutant concentrations

e. Summary. The Reduced Laboratory alternative, which would result in slightly reduced vehicle trips compared to the proposed project, would avoid the significant contribution of the project to cumulative congestion at the intersection of Norfolk Street/East Third Avenue. However, other

significant impacts, including the significant contribution to cumulative congestion on the SR 92 freeway segment between US 101 and Mariners Island Boulevard/Edgewater Boulevard during the AM peak hour, construction and operational air pollutant emissions, and increases in ambient and roadway noise levels, would be similar to those associated with the project.

E. LAKESIDE DRIVE OPEN ALTERNATIVE

1. Principal Characteristics

Under the Lakeside Drive Open alternative, the 2012 Master Plan would be developed as proposed, except that Lakeside Drive would remain open between Reef Drive and Vintage Park Drive and would not be converted into a thoroughfare open only to pedestrians and emergency vehicles. Vehicles would be able to drive along the entire segment of Lakeside Drive within the project site, although security gates may be installed to restrict access. The configuration of buildings and other infrastructure would remain the same as under the project, with up to 2,500,600 square feet of building space comprising: 1,524,000 square feet of office space; 953,000 square feet of laboratory space; and 23,600 square feet of material storage/warehouse space.

The alternative would be consistent with most, but not all objectives of the project. The Lakeside Drive Open alternative would not completely achieve the following objectives of the proposed project:

- Allow for the development of a unified corporate campus;
- Provide a safe pedestrian-oriented environment; and
- Develop the campus in a manner that promotes walkability and with buildings that conserve energy and water.

2. Analysis of Lakeside Drive Open Alternative

For all topical areas except for Transportation and Circulation, the Lakeside Drive Open alternative would result in impacts that are similar or identical to those that would result from the proposed project. The alternative would primarily affect vehicle trip distribution (and associated traffic patterns). Although traffic patterns are also closely related to roadway noise and pollution levels, the changes in traffic that would result from the Lakeside Drive Open alternative compared to the project would not have a significant effect on area noise levels or air pollutant concentrations. Therefore, Transportation and Circulation is the only topic discussed below.

As discussed in the Transportation Impact Analysis (Appendix B), the Lakeside Drive Open alternative would result in similar traffic conditions to those associated with the project in all three analysis scenarios. However, three impacts of the alternative would be different from the project, as summarized in the following bullet points:

- The alternative would slightly increase (by 1 second) delays at the intersection of Norfolk Street/East Third Avenue during the AM peak period under Cumulative Conditions. However, the level of service (LOS) of the intersection would remain the same as under the proposed project.

- The alternative would avoid impacts to the freeway segment of eastbound SR 92 between US 101 and Mariners Island Boulevard/Edgewater Boulevard during the AM peak period under Cumulative Conditions. The alternative would contribute 16 fewer trips to that freeway segment compared to the proposed project.
- The alternative would avoid impacts to the routes of the Lincoln Centre and North Foster City Shuttles (but would contribute ridership to shuttle services, similar to the proposed project).

F. ALTERNATIVES CONSIDERED BUT ULTIMATELY REJECTED

No off-site alternative to the proposed project was considered because the Gilead Sciences campus is already currently established in its existing location, and because there are no other sites of comparable size (73 acres) that are assembled and would accommodate the proposed 2012 Master Plan. An alternative consisting of multiple satellite campuses was also rejected because such an alternative would likely result in more substantial congestion impacts than the proposed project as employees travel between the various campuses. It would also fail to meet most of the project objectives.

In addition, an alternative which assumed that the same amount of interior square footage would be constructed on the project site as the proposed 2012 Master Plan, but in a smaller number of buildings, was also rejected. The tall buildings that would be required as part of this alternative would be out-of-scale with existing development in the area.

Other alternatives that were considered but ultimately rejected include an alternative containing housing and retail uses. This alternative was rejected because it would result in substantial conflicts with the City's General Plan. In addition, an all-office alternative was also rejected because it would result in more traffic congestion (and greater air quality and noise impacts) compared to the proposed project.

G. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires the identification of the environmentally superior alternative in an EIR. The No Project alternative is considered the environmentally superior alternative in the strict sense that environmental impacts associated with its implementation would be the least of all the scenarios examined (including the proposed project). The No Project alternative would avoid each of the significant impacts that would result from the proposed project. However, while this alternative would be environmentally superior in the technical sense that contribution to these aforementioned impacts would not occur, the No Project alternative would also fail to achieve any of the project's objectives.

In cases like this, where the No Project alternative is the environmentally superior alternative, CEQA requires that the second most environmentally superior alternative be identified. The Existing Entitlements alternative would generally represent the next-best alternative in terms of the fewest environmental impacts. In particular, the Existing Entitlements alternative would result in reduced construction activities and vehicle trips compared to the proposed project, and would avoid significant contributions to cumulative traffic congestion and operational air quality impacts related to vehicle emissions. However, the alternative would not avoid a significant increase in roadway noise levels

along Marsh Drive between Vintage Park Drive and East Third Avenue. In addition, the alternative would only partially achieve the objectives of the project. Objectives that would not be achieved include those related to: the development of a unified campus; allowing Gilead Sciences to flexibly respond to business needs; accommodating 5,500 employees; providing a pedestrian-oriented and energy-efficient environment; reducing administrative burdens via a flexible General Development Plan; and maintaining development flexibility. Therefore, adoption of this alternative would compromise many of the project objectives.

The Lakeside Drive Open alternative would be the third most environmentally superior alternative because it would not cause the SR 92 freeway segment between US 101 and Mariners Island Boulevard/Edgewater Boulevard to degrade to unacceptable levels during the AM peak hour, and would avoid impacts to the Lincoln Centre and North Foster City Shuttle routes.

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VI. OTHER CEQA CONSIDERATIONS

As required by CEQA, this chapter discusses the following types of impacts that could result from implementation of the 2012 Master Plan: growth-inducing impacts; significant irreversible changes; effects found not to be significant; and unavoidable significant effects.

A. GROWTH INDUCEMENT

A project is considered growth-inducing if it would directly or indirectly foster substantial economic or population growth, or the construction of additional housing.[1] 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 2012 Master Plan would not result in direct population growth because new housing units are not included in the Master Plan. 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 2,500,600 square feet of office and laboratory space and the creation of up to 3,700 new jobs on the project site. As described in Section IV.B, 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 3,700 new jobs on the project site would cause approximately 384 employees to relocate to Foster City (based on the residential location pattern of existing Gilead employees), and would require 384 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 2012 Master Plan 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 the site of the existing Gilead Sciences campus), 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

[1] *CEQA Guidelines*, 2007. §15126.2(d).

increasing the per capita utilization of transit. Therefore, the growth that would occur as a result of 2012 Master Plan implementation would not be considered substantial or adverse.

B. 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.[2] 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 2012 Master Plan would be implemented on a site that already contains a biopharmaceutical campus, and the mix of uses that would be developed in the 2012 Master Plan area would reflect land uses that currently exist on the site. The land use pattern that would be developed by the 2012 Master Plan is one that would allow for change as business conditions for Gilead Sciences evolve. In addition, it is conceivable that after 2012 Master Plan 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 biopharmaceutical 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 2012 Master Plan 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 2012 Master Plan would not result in changes in land use that would commit future generations to a poor use of resources. The conversion of surface parking lots 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 2012 Master Plan. Project laboratory uses would be similar to those that currently exist on the site. These uses involve the use of hazardous materials, but associated risks are minimized with the implementation of standard health and safety protocols. Compliance with federal, State and local regulations, existing Gilead Sciences emergency response plans, and the mitigation measures identified in Section IV.F, Hazards and Hazardous Materials, would reduce to a less-than-significant level the possibility that hazardous substances within the 2012 Master Plan area would cause significant environmental damage.

[2] *CEQA Guidelines*, 2012. Section 15126.2(c).

There are no other design or operational features of the 2012 Master Plan or its anticipated development that would lead to irreversible physical changes on the site.

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 2012 Master Plan 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 to allow for changes in use over time (as the business needs of Gilead Sciences change), and construction methods are expected to be modern and efficient. Therefore, the use of these materials would not be considered wasteful.

Implementation of the 2012 Master Plan would increase the use of electricity, natural gas, and possibly other forms of energy. New buildings constructed on the site would likely be more energy efficient than existing buildings. However, new structures (and up to 3,700 new employees on the site) would substantially increase consumption of nonrenewable fuel sources. Implementation of Mitigation Measure GCC-1 would ensure that the Master Plan uses nonrenewable fuel sources efficiently, and would encourage the substitution of renewable fuel sources (e.g., wind turbines and photovoltaic cells) for nonrenewable sources. With implementation of Mitigation Measure GCC-1, along with compliance with State Title 24 energy efficiency standards, the proposed 2012 Master Plan would not result in a significant increase in the consumption of nonrenewable resources.

C. EFFECTS FOUND NOT TO BE SIGNIFICANT

Based on preliminary research and discussions with City staff, several environmental topics (including agriculture, biological resources, mineral resources, shade and shadow, and wind, and cultural and paleontological resources) were determined to not hold the potential for significant environmental effects. Each of these topics is discussed briefly below.

1. Agricultural Resources

The project site is developed with commercial and industrial uses and is located in an urban area. Prior to 1939, the site was tidal marshland. Therefore, impacts to agricultural resources would not be significant.

2. Biological Resources

The project site is developed with buildings, parking lots, and landscaping, and has low biological value. Buildout of the proposed project would require the removal of some trees on the campus; however, wildlife species that would be expected to use or pass through the site are common species that are adapted to urban and suburban conditions, and would not be substantially adversely affected by buildout of the 2012 Master Plan. No habitat for candidate, sensitive, or special status species has

been identified on the site. In addition, the ecological value of Vintage Lake and San Francisco Bay would not be adversely affected once mitigation measures recommended in Section IV.E, Hydrology and Water Quality, are implemented.

3. Mineral Resources

The proposed project is within an area classified as MRZ-1, comprising "areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence."[3] The project would therefore not result in the loss of availability of a known mineral resource of value locally or to the region or State. In addition, the project site is not identified in a planning document as being a locally-important mineral resource recovery site. Therefore, impacts to mineral resources would not be significant.

4. Shade and Shadow

Buildings constructed as part of the 2012 Master Plan would not exceed 192 feet in height. In the summer, as the sun rises in the east, morning shadows are cast to the west. As the sun moves higher across the sky, shadows decrease until noon, and then extend generally to the east as the sun sets in the west. In the winter, the sun is lower in the sky (to the south) and shadow coverage is greater. As the sun rises in the east, shadows are cast to the west-northwest. As the sun moves across the sky, shadows move from the west-northwest in the morning, to the north at noon, and to the east-northeast as the sun sets. The tallest buildings in the project site that would be developed as part of the 2012 Master Plan would be those located immediately to the north and south of Vintage Lake, in the central portion of the site. Due to the buffer provided by Vintage Lake and the roadways surrounding the site, the project is not likely to substantially increase shade or shadow cast on surrounding development or on the open space to the north and west of the site. Residential land uses in the project site vicinity are approximately 315 feet west of the project site, across Mariners Island Boulevard, and would not be substantially affected by morning shade cast by new buildings, which could be up to 10 stories in height. Building design would be considered during the use permit process. Shadow diagrams may be required as part of the design analysis; however, potential impacts as a result of increased shade or shadow are not anticipated to be significant because they would not compromise the use of public open space.

5. Wind

No significant wind-related impacts were identified based on the conceptual building plans submitted as part of the 2012 Master Plan. However, specific building designs and configurations would be evaluated by City staff for effects on wind patterns upon submittal of specific development plans by the project sponsor.

6. Cultural and Paleontological Resources.

Cultural and paleontological resources consist of remains that result from, in the case of cultural resources, a specific human activity, event, or occupation, or, in the case of paleontological resources,

[3] California Division of Mines and Geology, 1987. *Mineral Land Classification: Aggregate Minerals in the San Francisco-Monterey Bay Area*, Special Report 146, Part II, Plate 2.43. (Updated 1996)

pre-historic remains. With mitigation, no significant impacts related to cultural and paleontological resources would result from buildout of the 2012 Master Plan.

As discussed in the 2010 Master Plan EIR, no buildings were constructed on the project site until sometime after 1980. Thus, the buildings and structures that would be demolished by the 2012 Master Plan are of modern construction and do not possess significant historical associations or architectural qualities.

Similarly, the project area consists of tidal marsh deposited during the Holocene (10,000 years ago to present) up until the late 19th century, referred to commonly as "Bay Mud," and engineered fill deposited during the early development of Foster City. The former marshland would have been unsuitable for prehistoric human habitation and the artificial fill would be unlikely to contain any significant paleontological resources. Bay Mud is known only to contain aged molluscan fossils, which are not significant. Thus the 2010 Master Plan EIR found that there was a low possibility of encountering prehistoric archaeological deposits or paleontological resources during buildout of the 2010 Master Plan. However, while unlikely, ground-disturbing activities associated with site preparation, the construction of building foundations, and underground utilities could adversely affect previously unknown archaeological cultural and paleontological resources. This conclusion would also apply to the 2012 Master Plan.

The following standard conditions of approval (which are imposed uniformly on major development projects in the City) would be implemented as part of the 2012 Master Plan and would ensure that potential impacts to cultural and paleontological resources on the site would be less than significant.

> Standard Condition of Approval CULT-1: If deposits of prehistoric or historical archaeological materials are encountered during project activities, all work within 25 feet of the discovery shall be redirected and a qualified archaeologist 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 tool-making 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, pestles, 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 and associated materials. 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 materials at 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.

Standard Condition of Approval CULT-2: If paleontological resources are discovered during project activities, all work within 25 feet of the discovery shall be redirected and 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.[4]

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.

[4] Bates, Robert L., and Julia A. Jackson (editors), 1984. *Dictionary of Geological Terms*. Third edition. Prepared by the American Geological Institute. Anchor Books, New York.

With implementation of the mitigation measures identified above, the 2012 Master Plan would not result in significant impacts to cultural and paleontological resources.

D. SIGNIFICANT UNAVOIDABLE IMPACTS

The proposed project would result in the following significant and unavoidable impacts:

- The project would conflict with General Plan noise policies adopted to avoid or mitigate an environmental impact.
- Project-related traffic would create a clearly noticeable permanent change in the noise environment.
- Operation of the project would result in a significant project-level and cumulative net increase in criteria pollutant emissions, resulting in a conflict with the Bay Area Air Quality Management District 2010 Clean Air Plan.

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VII. REPORT PREPARATION

A. REPORT PREPARATION

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B. REFERENCES

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